<table>
<thead>
<tr>
<th>شماره یادداشت</th>
<th>عناوین مجله</th>
<th>نویسنده‌ها</th>
<th>عنوان مقاله</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Journal of Cardiovascular Surgery</td>
<td>دکتر کریمی و همکاران</td>
<td>Early mortality predictors in coronary artery bypass grafting patients required intra-aortic balloon pump in perioperative and post operative periods</td>
</tr>
<tr>
<td>2</td>
<td>European Journal of Cardiovascular Prevention &amp; Rehabilitation</td>
<td>دکتر صادقیان و همکاران</td>
<td>The association of opium with coronary artery disease</td>
</tr>
<tr>
<td>3</td>
<td>Cardiovascular Pathology</td>
<td>دکتر بروند و همکاران</td>
<td>Mesothelial/monocytic incidental cardiac excrescence</td>
</tr>
<tr>
<td>4</td>
<td>Archives of Iranian Medicine</td>
<td>دکتر … و دکتر شریانی</td>
<td>Photoclinic- Tumoral calcinosis</td>
</tr>
<tr>
<td>5</td>
<td>Texas Heart Institute Journal</td>
<td>دکتر کساپیان و همکاران</td>
<td>Transcatheter closure of a coronary fistula with an Amplatzer® Vascular Plug- Should a retrograde approach be standard?</td>
</tr>
<tr>
<td>6</td>
<td>Archives of Iranian Medicine</td>
<td>دکتر شریانی و همکاران</td>
<td>Intimal sarcoma of the descending aorta</td>
</tr>
<tr>
<td>7</td>
<td>Archives of Iranian Medicine</td>
<td>دکتر صادقیان و همکاران</td>
<td>Two ecstasy- induced myocardial infarctions during a three month period in a young man</td>
</tr>
<tr>
<td>8</td>
<td>Journal of the American Society of Echocardiography</td>
<td>دکتر صاحب جمع و همکاران</td>
<td>A rare cause of chronic mitral regurgitation: Perivalvular fistulous communication from remote blunt chest trauma</td>
</tr>
<tr>
<td>9</td>
<td>ANZ Journal of Surgery</td>
<td>دکتر ربانی و همکاران</td>
<td>Development of an ovine model of myocardial infarction</td>
</tr>
<tr>
<td>Page</td>
<td>Journal</td>
<td>Authors</td>
<td>Title</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------</td>
<td>----------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>12</td>
<td>BMC Infectious Diseases</td>
<td>دکتر صالحی عثمان و همکاران</td>
<td>Superficial and deep sternal wound infection after more than 9000 coronary artery bypass graft (CABG): incidence, risk factors and mortality</td>
</tr>
<tr>
<td>13</td>
<td>Medical Principles and Practice</td>
<td>دکتر علی‌دستی و همکاران</td>
<td>Outcomes of primary percutaneous coronary intervention in acute myocardial infarction at Tehran Heart Center</td>
</tr>
<tr>
<td>14</td>
<td>Current Neurovascular Research</td>
<td>دکتر احمدی و همکاران</td>
<td>Safety analysis and improved cardiac function following local autologous transplantation of CD133(+) Enriched bone marrow cells after myocardial infarction</td>
</tr>
<tr>
<td>15</td>
<td>Texas Heart Institute Journal</td>
<td>دکتر کساییان و همکاران</td>
<td>Stent-graft exclusion of multiple symptomatic coronary artery fistulae</td>
</tr>
<tr>
<td>16</td>
<td>Coronary Artery Disease</td>
<td>دکتر صادقیان و همکاران</td>
<td>Metabolic syndrome: stronger association with coronary artery disease in young men in comparison with higher prevalence in young women</td>
</tr>
<tr>
<td>17</td>
<td>Archives of Medical Research</td>
<td>دکتر احمدی و همکاران</td>
<td>24-hour in hospital mortality predictions in coronary artery bypass grafting patients</td>
</tr>
<tr>
<td>18</td>
<td>Angiology</td>
<td>دکتر دارابیان و همکاران</td>
<td>Ostial lesions of left main and right coronary arteries: demographic and angiographic features</td>
</tr>
<tr>
<td>19</td>
<td>Journal of Biomedical Science</td>
<td>دکتر احمدی و همکاران</td>
<td>The similar effect of transplantation of marrow-derived mesenchymal stem cells with or without prior differentiation induction in experimental myocardial infarction</td>
</tr>
<tr>
<td>No.</td>
<td>Database</td>
<td>Title</td>
<td>Authors</td>
</tr>
<tr>
<td>-----</td>
<td>----------</td>
<td>-------</td>
<td>---------</td>
</tr>
<tr>
<td>20</td>
<td>ISI</td>
<td>Middle East Journal of Anesthesiology</td>
<td>دکتر نجفی و همکاران</td>
</tr>
<tr>
<td>21</td>
<td>ISI</td>
<td>Pakistan Journal of Medical Sciences</td>
<td>دکتر سالازیفر و دکتر</td>
</tr>
<tr>
<td>22</td>
<td>Medline</td>
<td>Interactive Cardiovascular and Thoracic Surgery</td>
<td>دکتر مرزبان</td>
</tr>
<tr>
<td>23</td>
<td>Medline</td>
<td>BMC Cardiovascular Disorders</td>
<td>دکتر علیدوستی و همکاران</td>
</tr>
<tr>
<td>24</td>
<td>Medline</td>
<td>Indian Journal of Medical Sciences</td>
<td>دکتر امیرزادگان و همکاران</td>
</tr>
<tr>
<td>25</td>
<td>Medline</td>
<td>Clinical Biochemistry</td>
<td>دکتر برومند و همکاران</td>
</tr>
<tr>
<td>26</td>
<td>Medline</td>
<td>Acta Anaesthesiologica Taiwanica</td>
<td>دکتر نجفی و همکاران</td>
</tr>
<tr>
<td>27</td>
<td>Medline</td>
<td>Journal of Medical Case Reports</td>
<td>دکتر صالحی عمران و همکاران</td>
</tr>
<tr>
<td>28</td>
<td>Medline</td>
<td>The Journal of Thoracic and Cardiovascular Surgery</td>
<td>دکتر صالحی عمران و همکاران</td>
</tr>
<tr>
<td>Page</td>
<td>Database</td>
<td>Journal Title</td>
<td>Author(s)</td>
</tr>
<tr>
<td>------</td>
<td>----------</td>
<td>---------------</td>
<td>-----------</td>
</tr>
<tr>
<td>29</td>
<td>Medline</td>
<td>Indian Journal of Medical Microbiology</td>
<td>دکتر بر운د و همکاران</td>
</tr>
<tr>
<td>30</td>
<td>Medline</td>
<td>Asian Cardiovascular &amp; Thoracic Annals</td>
<td>دکتر مندی و همکاران</td>
</tr>
<tr>
<td>31</td>
<td>EMBASE &amp; Cochrane</td>
<td>The Journal of Tehran University Heart Center</td>
<td>دکتر سلیمانی و همکاران</td>
</tr>
<tr>
<td>32</td>
<td>EMBASE &amp; Cochrane</td>
<td>The Journal of Tehran University Heart Center</td>
<td>دکتر داوید و همکاران</td>
</tr>
<tr>
<td>33</td>
<td>EMBASE &amp; Cochrane</td>
<td>The Journal of Tehran University Heart Center</td>
<td>دکتر کسیبیان و همکاران</td>
</tr>
<tr>
<td>34</td>
<td>EMBASE &amp; Cochrane</td>
<td>The Journal of Tehran University Heart Center</td>
<td>دکتر کریمی و همکاران</td>
</tr>
<tr>
<td>35</td>
<td>EMBASE &amp; Cochrane</td>
<td>The Journal of Tehran University Heart Center</td>
<td>دکتر دارابیان و همکاران</td>
</tr>
<tr>
<td>36</td>
<td>EMBASE &amp; Cochrane</td>
<td>The Journal of Tehran University Heart Center</td>
<td>خانم دکتر صادقیان و همکاران</td>
</tr>
<tr>
<td>37</td>
<td>EMBASE &amp; Cochrane</td>
<td>The Journal of Tehran University Heart Center</td>
<td>دکتر ظریفیان و همکاران</td>
</tr>
<tr>
<td>38</td>
<td>EMBASE &amp; Cochrane</td>
<td>The Journal of Tehran University Heart Center</td>
<td>خانم دکتر صادقیان</td>
</tr>
</tbody>
</table>
Using workload to predict left main coronary artery stenosis in candidates for coronary angiography

Fractional flow reserve and appropriateness of angioplasty in moderate coronary stenosis

Early outcome of coronary artery bypass grafting in patients with severe left ventricular dysfunction

Common polymorphism A1298C in methylenetetrahydrofolate reductase gene is not a risk factor for coronary artery disease in selected Iranian patients

Cardiac stem cell transplantation

Effects of phase III cardiac rehabilitation programs on anxiety and quality of life in anxious patients after coronary artery bypass surgery

Accuracy of dobutamine stress echocardiography in detecting recovery of contractile reserve after revascularization of ischemic myocardium

Stem cell transplantation in patients with acute myocardial infarction: a single center registry

An ovine model of dilated cardiomyopathy induced by doxorubicin

Phase II cardiac rehabilitation improves quality of life in Iranian patients after CABG
بررسی ارتباط بین عوامل خطرساز ایسکمی قلب با تنگی تنه اصلی شریان کرونر چپ

برآورد نسبت خطر با استفاده از روش رگرسیون یوپوسون تغییراتی در مطالعات کوهورت با پیامد دو حالتی

ارزش پیش بینی کننده استرس تست و اسکن پرفوژن میوکارد در گروه‌های سنی مختلف بر اساس نتایج آنژیوگرافی کرونر
Early mortality predictors in coronary artery bypass grafting patients required intra-aortic balloon pump in perioperative and postoperative periods.


Cardiothoracic Surgery Department, Tehran Heart Center, Medical Sciences, University of Tehran, Iran. abbasalikarimi2006@yahoo.com

AIM: The intra-aortic balloon pump (IABP) is commonly used for decreasing myocardial oxygen demand by systolic unloading in perioperative heart failure. The aim of this study was to determine perioperative prognostic factors for in-hospital mortality in coronary artery bypass grafting patients who received the intraaortic balloon pump. METHODS: A total of 271 patients who underwent coronary artery bypass grafting and received intra-aortic balloon pump perioperatively between January 2002 and September 2006 were studied. The preoperative, operative and postoperative risk factors for early death were evaluated. RESULTS: Early mortality rate in the study population was 17.3%. From variables entered into multivariate logistic regression the following parameters were identified as prognostic factors for early death: left main disease, diabetes, postoperative renal failure and cardiac arrest (P<0.05). The minor and major intra-aortic balloon pump related complications were not significant in univariate and multivariate analysis and its rate was 3.6%. CONCLUSION: According to our study the mortality of IABP group is low compared to other studies, as well as IABP-associated complications. Also it revealed that there is no correlation between IABP-associated complications and early mortality.

PMID: 18212695 [PubMed - indexed for MEDLINE]
Short Report

The association of opium with coronary artery disease
Saeed Sadeghian, Soodabeh Darvish, Gholamreza Davoodi, Mojtaba Salarifar, Mehran Mahmoodian, Nader Fallah, and Abbas Ali Karimi

Tehran Heart Center, Tehran University of Medical Sciences, Tehran, Iran and Department of Biostatistics, Shahed University, Tehran, Iran

Background: The effects of opium consumption on coronary artery disease are still unknown.

Methods: A cross-sectional study was conducted on 2405 patients admitted to the Angiographic Ward at Tehran Heart Center from May 2005 to August 2005.

Results: After adjusting for conventional cardiovascular risk factors, opium consumption was a significant risk factor for coronary artery disease ($P = 0.01$ and odds ratio = 1.8). Moreover, the amount of opium consumption was associated significantly with the severity of coronary atherosclerosis, as measured by clinical vessel score ($r = 0.2$, $P = 0.002$).

Conclusions: To our knowledge, this is the first time that the adverse effects of opium consumption on coronary arteries was defined.


Keywords: coronary angiography, coronary artery disease, opium consumption

Introduction

Opium abuse is a major predicament in many countries particularly in the Middle East region. More than 180 million people around the world have tried illegal drugs at least once of which 13.5 million are opium dependent (International Narcotics Control Strategy Report, issued 1 March 2004).

In the 1970s endogenous ligands for the opiate receptors were identified and termed opioid peptides [1]. These ligands are presented in the heart; interact with $\kappa$, $\mu$, and $\delta$ opioid peptide receptors, and play an important role in cardiovascular problems, including hypotension, bradycardia, peripheral vasodilation and sometimes hypertension and tachycardia. Some investigations [1,2] showed that opioid peptides, particularly enkephalins, play an important role in a number of physiological and pathological conditions in the heart such as ischemic preconditioning (IPC) via $K^+$.ATP channel in cardiac mitochondria.

As the exact action of opium is not clear and there is controversy among medical staff about the effects of opium on the cardiovascular system, we decided to perform this study to reveal the relationship between opium and coronary artery disease (CAD).

Methods:

Data were obtained through a systematic interview and according to paraclinical tests conducted on 2405 patients admitted to the angiographic ward in Tehran Heart Center from May 2005 to August 2005. Patients were examined by cardiologists and a complete history, including the conventional risk factors and opium use was obtained. The dose of opium was defined by a unit named grams per year (g/year), an equivalent to pack/year for cigarette smoking and was calculated by multiplication of the amount of opium consumption per day in years of consumption.

Details of risk factors, including hypertension, dyslipidemia, diabetes mellitus, smoking, and family history of premature CAD were recorded based on definitions in other important studies ([3–7], respectively). Finally,
Abstract

Mesothelial/monocytic incidental cardiac excrescence (MICE) is a very uncommon lesion. Diagnosis is incidental and may simulate thrombotic lesions. One of the hypotheses with regard to the etiology of this lesion is a previous cardiac procedure especially mitral valve repair or commissurotomy. Herein, we describe a MICE incidentally found in a patient who underwent mitral valve replacement, as a thrombotic lesion on the left atrial auricle. Histopathologic examination suggested MICE lesions and immunohistochemical stains confirmed it. © 2008 Elsevier Inc. All rights reserved.

Keywords: Mesothelial/monocytic incidental cardiac excrescence (MICE); Mesothelin; CD68

1. Case report

1.1. Clinical finding

A 54-year-old woman with a history of severe mitral stenosis (MS), stroke, and left-sided hemiplegia underwent percutaneous transmural commissurotomy (PTMC) for severe mitral stenosis. She was admitted with severe dyspnea and palpitation. Transesophageal echocardiography showed severe MS, mild mitral regurgitation, moderate to severe tricuspid regurgitation, a small fixed clot at the tip of the left atrial auricle (LAA) with severe “smoke” in the left auricle, and an ejection fraction of 55%. Mitral valve replacement and tricuspid repair were performed and the LAA clot removed and sent for histopathologic examination.

1.2. Histopathology

The specimen received as left atrium thrombus consisted of a fragment of irregular creamy brown-colored tissue measuring 0.4×0.3×0.2 cm, and microscopic examination revealed a tumor composed of mesothelial-like cells arranged in strips, tubules, and sheets surrounded by smaller histiocytes. Large vacuoles, representative of mature adipocytes, were also present. A large amount of fibrinous material within and around the sheets of cells was present. There was no evidence of atypia or other malignant changes (Fig. 1A). Immunohistochemical stains were positive for CD68 as a marker for histiocyte (Fig. 1B), for CK-AE1/AE3, and for CK5/6 (Fig. 1C), and also for calretinin and mesothelin as markers for mesothelial cells (Fig. 1D).

2. Discussion

The MICE is a lesion composed of a mixture of histiocytes, mesothelial cells, inflammatory cells, and fibrin found incidentally in cardiac chambers, on cardiac valves, or free floating in the pericardial sac [1]. Wu et al. [2] reported in a literature review that 55% of the lesions were identified in specimens obtained from mitral valve repair surgery and other surgical procedures including coronary artery bypass, right ventricular biopsy, aortic and pulmonic valve repair, mitral valve commissurotomy, and repair of tetralogy of Fallot. Thirty-seven percent of the lesions were found in the left atrium, 16% on the mitral valve, and 20% in the pericardium.
**Figures 1 – 4.** Plain x-ray and CT scan of the hip mass.

Leila Aghaghazvini MD*, Shapoor Shirani MD**

*Authors’ affiliations:* *Department of Radiology, Amir-Alam Hospital, Tehran Heart Center, Tehran University of Medical Sciences, Tehran, Iran.*

**Corresponding author and reprints:** Leila Aghaghazvini MD, Department of Radiology, Amir-Alam Hospital, Tehran, Iran.

Cell phone: +98-123-389-318
E-mail: la_ghazvini@yahoo.com

Accepted for publication: 2 May 2007
Transcatheter Closure of a Coronary Fistula with an Amplatzer® Vascular Plug

Should a Retrograde Approach Be Standard?

Coronary artery fistulae are rare disorders. Only 2 reports in the medical literature discuss the use of vascular plugs to occlude coronary fistulae, and the same device—the Amplatzer® Vascular Plug—was deployed via different techniques to treat those patients. The safety, the feasibility, and the standard approach to deployment have yet to be established.

Herein, we describe the case of a 15-year-old boy who presented with a continuous murmur at the left sternal border. The patient was diagnosed with a large coronary fistula that originated from the right coronary artery and emptied into the right atrium. He underwent transcatheter closure of the fistula. We placed a 14-mm Amplatzer® Vascular Plug into the narrowest part of the fistula, which resulted in complete occlusion and an excellent outcome.

Our retrograde approach is simple and obviates the need to establish arteriovenous loops or to insert additional devices, such as coils. In this report, we compare our results with those of the 2 previous reports. To our knowledge, this is only the 2nd report that describes the closure of a coronary fistula in an adolescent patient by use of an Amplatzer® Vascular Plug. (Tex Heart Inst J 2008;35(1):58-61)

Despite the recent publication of 2 valuable reports on the use of the Amplatzer® Vascular Plug (AGA Medical Corporation; Plymouth, Minn) to treat coronary artery fistulae, little evidence appears in the medical literature regarding the safety and feasibility of this treatment. Furthermore, a standard application technique has yet to be established.

Herein, we describe the case of a 15-year-old symptomatic boy who had a large coronary fistula that arose from the right coronary artery (RCA) and drained into the right atrium. The patient was treated with an Amplatzer Vascular Plug via a simple technique that did not require the creation of arteriovenous loops. We compare and contrast our technique with those in the existing reports.

**Case Report**

In March 2007, a 15-year-old boy was referred to our center with dyspnea on exertion (New York Heart Association functional class II). On physical examination, a grade-3 continuous murmur was heard, most loudly at the left sternal border. An electrocardiogram showed no evidence of ischemia, and chest radiographs were normal. Transthoracic echocardiography (TTE) revealed a turbulent systolic-diastolic flow with diastolic accentuation in the right atrium. The origin of the RCA was extremely dilated (by 10 mm). There was mild right atrial and ventricular dilation (QP/QS=1.5), and the patient’s systolic pulmonary artery pressure was approximately 35 mmHg. The diagnosis was made by TTE; however, to attain a more thorough evaluation and specifically to rule out an atrial septal defect, we performed transesophageal echocardiography (TEE). On TEE, the course of the fistula in the right atrium was evident—running close to the interatrial septum, the fistula entering the atrial orifice near the right upper pulmonary vein. There was no atrial septal defect, so the TTE diagnosis was confirmed. Diagnostic cardiac catheterization and coronary angiography revealed a significant 1.7:1 left-to-right shunt, mild pulmonary hypertension (pulmonary artery pressure, 35 mmHg), normal epicardial coronary arteries, and a large coronary fistula that arose from the ostium of the RCA and drained into
Primary intimal angiosarcoma of the aorta (i.e., mostly intraluminal sarcomas with evidence of endothelial differentiation) is extraordinarily rare. We report a case in which the diagnosis was accurately made using immunohistochemistry in an embolectomy specimen. The patient was a 78-year-old man with a two-month history of bilateral claudication. Doppler ultrasound proved an embolus in both popliteal arteries, which was removed. The highly atypical cells comprising these emboli were positive immunohistochemically for CD68, vimentin, and CD31. Magnetic resonance imaging also showed an irregular tumor (invasion to the left main bronchus). This case emphasizes the need for a wide panel of immunohistochemical studies in tumor emboli of unknown origin.

Keywords: Aorta • angiosarcoma • CD31 • immunohistochemistry

Introduction

Intimal sarcoma of the aorta is a very rare, but aggressive tumor. It is mostly accompanied with embolic phenomena. En-bloc resection with postoperative chemoradiotherapy are its treatments, but in most cases, the prognosis is still dismal. Herein, we report a case of aortic angiosarcoma presented with bilateral popliteal thromboemboli.

Case Report

A 78-year-old heavy-smoker man was admitted to our center for further evaluation of cardiovascular malignancy. He had a history of bilateral claudication in the past two months. He had cold lower extremities with absence of pulses in the popliteal, tibialis posterior, and dorsalis pedis arteries two days before his first hospital admission. Doppler ultrasound of the lower extremities revealed bilateral popliteal artery thrombosis. Bilateral popliteal embolectomy was performed. The pathological study of the embolectomized material showed some spindle to ovoid cells with severe nuclear pleomorphism and hyperchromasia accompanied by multinucleated giant cells, with myxoid background. The immunohistochemical study was positive for CD68, vimentin, and CD31 and negative for CD34 and CKAЕ1/3 markers. All these findings were compatible with a diagnosis of intimal angiosarcoma. In our center, echocardiography revealed a mild diastolic dysfunction with aortic valve calcification. There was no evidence of tumor in the cardiac chambers. An irregular tumoral mass was found in the descending aorta by magnetic resonance imaging (MRI) (Figure 1A). The mass had invasion to the left bronchus (Figure 1B) with heterogeneous enhancement after contrast injection (Figure 2). Considering the extensive tumoral involvement, chemo-radiotherapy was started. The patient refused to receive the treatment and died of multi-organ failure after two months.

Discussion

There are two types of aortic sarcomas; intimal and mural sarcomas. Intimal sarcoma may cause
Case Report

Two Ecstasy-Induced Myocardial Infarctions During A Three Month Period in A Young Man

Saeed Sadeghian MD*, Soodabeh Darvish MD*, Shirin Shahbazi*, Mehran Mahmoodian MD*

Ecstasy normally contains 3,4 methylenedioxymethamphetamine (MDMA) that increases the levels of serotonin, dopamine, and epinephrine in the central nervous system with consequent adverse effects on the cardiovascular system. Herein, we presented a case of ecstasy abuse which resulted in two episodes myocardial infarction during a three month period; the second episode led to death due to thrombus formation.

Keywords: Ecstasy • 3,4 methylenedioxymethamphetamine (MDMA) • myocardial infarction • crystalline

Introduction

Amphetamine is a synthetic stimulant which has got immense popularity among teenagers and young adults in recent years. Some derivatives of amphetamine that are commonly abused include methamphetamine, also known as “speed”, used in oral or intravenous forms or synthesized into a crystalline smokeable form, the so-called “ice.”

3,4 methylenedioxymethamphetamine, “ecstasy” (MDMA) and its legal counterpart 3,4 methylenedioxyethylamphetamine, “eve” (MDEA) are analogs of 3,4 methylenedioxyamphetamine (MDA), a drug that was originally used for suppression of appetite.

Ecstasy tablets normally contain MDMA that has the similarity to both amphetamines and hallucinogens. MDMA increases the levels of serotonin, dopamine, and epinephrine in the central nervous system, which cause excitation of the sympathetic nervous system with consequent adverse effects on the cardiovascular system.

Use of MDMA has been associated with sudden death and cardiovascular collapse. However; there are few cases of myocardial infarction (MI) after using MDMA.

Herein, we reported a case with two episodes of MI, the second of which led to death, during a 3-month period of using crystalline (“ice”).

Case Report

A 24-year-old man was admitted to Tehran Heart Center on March 7, 2005 for angiography. He complained of atypical chest pain and nausea. He had also a history of an inferior wall acute MI one month before, which was not treated by thrombolytic therapy because of late referral.

He had used crystalline and denied habitual use of any other kinds of amphetamines. Other habits included smoking (10 packs/year). No heart disease was noted in his family members. He did not have hypertension or diabetes. The electrocardiogram (ECG) showed Q-wave and inverted T in II, III, and AVF (Figure 1). Cardiac catheterization showed normal coronary arteries (Figure 2) with inferoapical akinesia and ejection fraction (EF) of 50%.

The patient received diltiazem 30 mg three times a day and nitroglycerin (Nitrocontin) 6.4 mg two times a day. The patient was free of symptoms...
A Rare Cause of Chronic Mitral Regurgitation: Perivalvular Ventriculoatrial Fistulous Communication from Remote Blunt Chest Trauma

Mohammad Sahebjam, MD, Mehrab Marzban, MD, Abbas Soleimani, MD, and Arezou Zoroufian, MD, Tehran, Iran

We report a rare case of a 31-year-old man with chronic severe mitral regurgitation as a result of perivalvular ventriculoatrial fistulous communication with a history of remote blunt chest trauma at age 19 to 20 years who underwent successful surgical repair. Mitral regurgitation after blunt trauma is usually secondary to rupture of the chordae tendineae or papillary muscles and perivalvular regurgitation is a very rare event especially after remote blunt chest trauma. We present a case with severe mitral regurgitation secondary to blunt chest trauma as a result of perivalvular ventriculoatrial fistulous communication. (J Am Soc Echocardiogr 2007;20:1416.e3-1416.e5.)

CASE REPORT

A 31-year-old man with about a 2-year history of exertional dyspnea was referred to our hospital for assessment of mitral valve regurgitation severity and mechanism. He had a history of blunt chest trauma during a motor vehicle accident at age 19 to 20 years. Subsequently he had no symptoms and had good functional capacity but during routine physical examination, his doctor noticed a heart murmur and the patient was referred to a cardiologist for evaluation of cardiac murmur. Thereafter he was under observation and treatment with suggestion of rheumatic mitral valve regurgitation. Physical examination on presentation to our hospital demonstrated high-grade pansystolic murmur and atrial fibrillation rhythm.

Transthoracic echocardiography (Figure 1; Videos 1 and 2) and transesophageal echocardiography (Figures 2 and 3; Videos 3 and 4) demonstrated structurally normal mitral valve leaflets and chordae tendineae with mild central transvalvular regurgitation but there was severe eccentric mitral regurgitation away from the line of coaptation that its flow was through the annulus. The perivalvular leak was going around the posteroinferior portion of the mitral annulus. The fistulous communication around the valve measured 11 to 12 mm opening on left ventricular (LV) side and about 6 to 8 mm on left atrial side. The posteroinferior portion of mitral valve annulus was thickened and there was bulging of basal ventricular wall adjacent to this site. The aortic valve was normal. The left atrium and LV were severely dilated. The LV systolic ejection fraction was estimated to be about 35%. There was also moderate tricuspid valve regurgitation with estimated right ventricular systolic pressure of 55 mm Hg.

Cardiac catheterization and coronary angiography demonstrated normal coronary arteries with bulging of basal inferior of LV and severe eccentric mitral regurgitation. The patient was referred for surgical repair of mitral regurgitation. The findings on surgical field were the same as echocardiography and the perivalvular mitral regurgitation was successfully repaired.

Postoperative transthoracic echocardiography (Figures 4 and 5; Video 5) showed no perivalvular regurgitation and there was only minimal transvalvular mitral regurgitation. Postoperatively, the patient had pericardial effusion that was surgically drained and, currently, the patient has better exercise tolerance and less dyspnea on exertion.

DISCUSSION

The incidence of traumatic heart injury caused by motor vehicle accidents has been increasing in civilian life; however, blunt chest trauma is uncommonly followed by cardiac valvular injuries. The mitral valve apparatus injury caused by blunt chest trauma is rare and may be overlooked for months to years from the accident. There are case reports with intervals between index blunt chest trauma and surgical repair of more than 20 years. The most common mitral lesion is rupture...
DEVELOPMENT OF AN OVINE MODEL OF MYOCARDIAL INFARCTION

SHAHRAM RABBANI, HOSSEIN AHMADI, EHSAN FAYAZZADEH, MOHammad SAhebjAM, MOhammad A. BoroUMAND, MARyam sotudeh and SEyed MAhdi nAssIRI

Research Department, Tehran Heart Center, Medical Sciences, University of Tehran, Tehran, Iran

Background: We report experimental myocardial infarction by occluding coronary arteries in ovine models.

Methods: Twelve ewes were included in the study. After the chest was opened by left lateral thoracotomy incision, the second diagonal branch of the left anterior descending coronary artery was ligated at a point approximately 40% distant from its base. Prophylactic antiarrhythmics were given. Animals were mechanically ventilated during surgery and stayed in intensive care unit for 24 h postoperation. Experiments were then evaluated by echocardiographic, electrocardiographic, haemodynamic, serological and morphological investigations. Echocardiographic measurements were repeated after 2 months and animals were then killed for post-mortem cardiac examinations.

Results: All animals survived the surgical procedure. Cyanotic discoloration and hypokinesia in the cardiac tissue in an area of (30 ± 2) × (4 ± 2) mm plus ST-segment elevations was detected immediately after vessel ligation. Moreover, there were pathological Q-waves 2 months later. Echocardiographic evaluations showed an average of 30% relative decrease in cardiac ejection fraction. Wall motion analysis showed anteroseptal hypokinesia and akinesia in all animals 1 day and 2 months after operation, respectively. Thin-walled infarcted areas with tissue fibrosis were evident in pathological investigations 2 months after surgery.

Conclusion: In conclusion, we developed a practical and safe method for producing myocardial infarction in large animal models.

Key words: animal model, diagonal branch, left anterior descending coronary artery, myocardial infarction, sheep.

INTRODUCTION

Today, acute myocardial infarction (MI) is the foremost cause of mortality in many countries around the world. Despite the drawbacks in the use of large animal models for cardiovascular research, the most important being their need for substantial housing resources and care, they have recently become an issue of interest. The interest stems from their anatomical and physiological similarity to humans.1–7 Coronary artery ligation to induce MI in these models is now considered a widely used and attractive method for experimental research because of its clinical relevance.7–12 However, there are only few published studies describing the procedure in detail. Here, we report a detailed guide for induction of MI in ovine models by ligating the main diagonal branch of the left anterior descending (LAD) coronary artery (namely, homonymous artery in sheep) with echocardiographic, electrocardiographic, haemodynamic, serological and morphological evaluations.

METHODS

Animal care and selection

The study was approved by the ethical committee of Tehran University of Medical Sciences. All experiments received humane care in accordance with the ‘Guide for the Care and Use of Laboratory Animals’ published by the US National Institute of Health (NIH publication no. 85-23, revised 1996). Twelve Iranian ewes weighing 50 ± 10 kg were used. During the study, the animals were held in metabolic cages, had free access to water and were fed with a mixed diet of hay and sheep pellets. All animals were housed for 1 week in the animal house so they would be adapted to the environment. They were examined by a veterinarian and a cardiologist, both clinically and echocardiographically, and some were excluded from the study if any serious morbidity was detected.

Surgical preparation

The sheep were NPO (nil per os) 24 h before surgery. Animals were sedated using intramuscular xylazine, 0.2 mg/kg, for hair shaving and instrumentation. Body hair was shortened and then shaved in the chest area. The saphenous vein was cannulated with a #20 gauge (pink) intravenous catheter. A central venous cannula was placed in the jugular vein using Seldinger technique. Intravenous infusion of lactated Ringer’s solution (20 cc/kg in 1 h) was delivered before anaesthesia, which was maintained at a rate of 10 cc/kg per h. The urethra was catheterized by a #10 Foley catheter connected to a urine bag. A pulse oximeter transducer was connected to the ear to monitor O₂ saturation. Five electrocardiogram (ECG) electrodes were connected to the extremities and on the chest. Anaesthesia was induced by intravenous injection of sodium thiopental, 5 mg/kg and maintained by halothane (2.0–3.0 vol. %) in oxygen. Animals were then immediately intubated.
Superficial and deep sternal wound infection after more than 9000 coronary artery bypass graft (CABG): incidence, risk factors and mortality
Abbas Salehi Omran*1, Abbasali Karimi1, S Hossein Ahmadi1, Setareh Davoodi2, Mehrab Marzban1, Namvar Movahedi1, Kyomars Abbasi1, Mohammad Ali Boroumand1, Saeed Davoodi1 and Naghmeh Moshtaghi1

Address: 1Tehran Heart Center, Tehran University of Medical Science, Tehran, Iran and 2Imam Khomeini Hospital, Infection Disease Department, Tehran University of Medical Science, Tehran, Iran

Email: Abbas Salehi Omran* - abbasomran1385@yahoo.com; Abbasali Karimi - akarimi@tums.ac.ir; S Hossein Ahmadi - shossein1330@yahoo.com; Setareh Davoodi - davoudis@tums.ac.ir; Mehrab Marzban - mehrabmarzban@yahoo.com; Namvar Movahedi - nnovahedi@yahoo.com; Kyomars Abbasi - QuoAB@yahoo.com; Mohammad Ali Boroumand - borumand@tehranheartcenter.org; Saeed Davoodi - sdavoodi@yahoo.com; Naghmeh Moshtaghi - naghmeh_moshtaghi@yahoo.com

* Corresponding author

Abstract
Background: Sternal wound infection (SWI) is an uncommon but potentially life-threatening complication of cardiac surgery. Predisposing factors for SWI are multiple with varied frequencies in different studies. The purpose of this study was to assess the incidence, risk factors, and mortality of SWI after coronary artery bypass grafting (CABG) at Tehran Heart Center.

Methods: This study prospectively evaluated multiple risk factors for SWI in 9201 patients who underwent CABG at Tehran Heart Center between January 2002 and February 2006. Cases of SWI were confirmed based on the criteria of the Centers for Disease Control and Prevention. Deep SWI (bone and mediastinitis) was categorized according to the Oakley classification.

Results: In the study period, 9201 CABGs were performed with a total SWI rate of 0.47 percent (44 cases) and deep SWI of 0.22 percent (21 cases). Perioperative (in-hospital) mortality was 9.1% for total SWI and about 14% for deep SWI versus 1.1% for non-SWI CABG patients. Female gender, preoperative hypertension, high functional class, diabetes mellitus, obesity, prolonged intubation time (more than 48 h), and re-exploration for bleeding were significant risk factors for developing SWI (p = 0.05) in univariate analysis. In multivariate analysis, hypertension (OR = 10.7), re-exploration (OR = 13.4), and female gender (OR = 2.7) were identified as significant predictors of SWI (p < 0.05 for all). The rate of SWI was relatively similar in 3 groups of prophylactic antibiotic regimen (Cefazolin, Cefazolin + Gentamycin and Cefazolin + Amikacin: 0.5%, 0.5%, and 0.34% respectively).

Conclusion: Rarely reported previously, the two risk factors of hypertension and the female gender were significant risk factors in our study. Conversely, some other risk factors such as cigarette smoking and age mentioned as significant in other reports were not significant in our study. Further studies are needed for better documentation.
Outcomes of Primary Percutaneous Coronary Intervention in Acute Myocardial Infarction at Tehran Heart Center

Mohammad Alidoosti  Mojtaba Salarifar  Alimohammad Hajizeinali
Seyed Ebrahim Kassaian  Davood Kasemisaleh  Hamidreza Goodarzynejad
Tehran Heart Center, Tehran University of Medical Sciences, Tehran, Iran

Key Words
Primary percutaneous coronary intervention · ST-segment myocardial infarction · Major adverse cardiac events

Abstract
Objective: To describe our experience of primary angioplasty in ST-segment elevation myocardial infarction. Subjects and Methods: During a period of 2 years (April 2003 to May 2005), 83 high-risk patients presenting with acute ST-segment elevation myocardial infarction underwent primary angioplasty subject to availability of balloon dilation within 90 min of admission. In total, 73 stents were implanted; 69 were bare metal stents, while the remaining 4 were paclitaxel-eluting stents. Of the 83 patients, 8 presented with cardiogenic shock. Follow-up was for a period of 9 months. All angiographic, in-hospital and clinical outcomes were recorded on a database. Results: The procedure was successful in 79 of the 83 patients (95%) and unsuccessful in 4 (5%). Of these 4 patients, 3 died and 1 was treated medically. In 65 patients with zero perfusion, angioplasty was successful in 61 (93.8%), while it was completely successful (100%) in the remaining 18 patients with thrombolysis in myocardial infarction grade 3 perfusion. Vessel patency was achieved in 95% with thrombolysis in myocardial infarction grade 3 flow present in 93%. A total of 7 (8.5%) patients died while in the hospital. Of the 8 with initial cardiogenic shock on presentation, 4 (50%) died in the hospital and of the remaining 4, 1 was lost at 9-month follow-up. In-hospital reocclusion and reinfarction did not occur in any patient. Conclusion: The results suggest that primary angioplasty is logistically feasible in our center with good clinical outcomes.

Introduction
Reperfusion therapy is the cornerstone in treatment of patients with acute ST-segment elevation myocardial infarction (STSEMI). Primary angioplasty without antecedent thrombolytic therapy, an effective means of achieving coronary reperfusion in patients presenting with an acute STSEMI, has been described by Meyer et al. [1] and Hartzler et al. [2]. For over 20 years, primary percutaneous coronary intervention (primary PCI) has been advocated for treatment of STSEMI. An updated comprehensive meta-analysis of 23 multicenter randomized trials indicates that primary PCI is superior to thrombolysis, resulting in a markedly lower occurrence of short-term major adverse cardiac events (MACEs), including death, in individuals with STSEMI. Moreover, these favorable results were sustained during long-term follow-up [3]. Primary PCI has been associated with an improved clinical outcome compared to thrombolytic therapy, irrespective of the type of thrombolytic regimen used. Furthermore, most STSEMI patients are not candidates for fibrinolytic therapy, either because they have bleeding risks or shock, or do not have diagnostic electrocardio-
Safety Analysis and Improved Cardiac Function Following Local Autologous Transplantation of CD133+ Enriched Bone Marrow Cells After Myocardial Infarction

Hossein Ahmadi1, Hossein Baharvand2*, Saeed Kazemi Ashtiani2, Massoud Soleimani2, Hakimeh Sadeghian1, Jalil Majd Ardekan1, Narges Zare Mehrjerdi1, Azam Kouhkan2, Mehrnaz Namiri2, Manouchehr Madani-Civi1, Fatemeh Fattahi2, Abdolhossein Shahverdi2, and Ahmad Vosough Dizaji2

1Tehran Heart Center, Tehran University of Medical Sciences, Tehran, I.R. Iran and 2Department of Stem Cells, Royan Institute, P.O. Box: 19395-4644, Tehran, I.R. Iran

Abstract: The CD133+ bone marrow cell (BMC) population includes primitive multipotent stem cells which induce neoangiogenesis. Studies suggested transplantation of these cells to infarcted myocardium can have a favorable impact on tissue perfusion and contractile performance. We assessed the feasibility, safety and functional outcomes of autologus CD133+ BMC transplantation during coronary artery bypass grafting (CABG) in patients with recent myocardial infarction. In a prospective, nonrandomized, open-label study, 27 patients with recent myocardial infarction underwent CABG and intramyocardial injection of autologous bone marrow-derived CD133+ cells (18 patients, BMC group) or CABG alone (9 patients, control group). At 6 months after CABG, the Wall Motion Score Index (WMSI) was significantly reduced for akinetic/dyskinetic segments treated with CD133+ cells compared with the control group (P<0.006). Likewise, comparison between baseline and follow up results of dobutamine stress echocardiography and myocardial perfusion scintigraphy showed improvement of myocardial viability and local perfusion of the infarcted zone of the BMC group compared with the control group. No complications related to CD133+ cell transplantation were noted, either procedurally or during postoperative at a mean of 14 months follow up. In patients with recent myocardial infarction, transplantation of CD133+ cells to the peri-infarct zone during CABG surgery is feasible and safe, with no evidence of early or late adverse events. Moreover, these cells might restore tissue viability and improve perfusion of the infarcted myocardium, suggesting that they may induce myogenesis as well as angiogenesis.

Key Words: Myocardial infarction, stem cells, transplantation, bone marrow, adult stem cell.

INTRODUCTION

Congestive heart failure (CHF) secondary to ventricular remodeling following infarction continues to be a major medical problem world-wide. The high morbidity of CHF and the shortage of donor hearts for transplantation along with problems associated with immunosuppression complications and functional failure of the transplanted organs demand a search for new approaches to prevent heart failure after a myocardial infarction (MI) (Davani et al., 2005; Hassink et al., 2003).

Recently, many investigators have used a variety of stem and progenitor cell populations to regenerate damaged human myocardia including bone marrow-derived mononuclear cells, hematopoietic stem cells, mesenchymal stem cells, circulating blood-derived progenitor cells, skeletal myoblasts, and endothelial progenitor cells. Embryonic stem cells (ESCs) may an alternative for damaged myocardia. Kolossov et al. (2006) in a comprehensive study demonstrated that highly purified ESC-derived cardio-myocytes are the most suitable candidates for cellular cardiomyo-plasty, as these cells enhance, in contrast to BMCs, the contractile function of the lesioned myocardium without tumor formation. It is, however, still unclear and controversial which is the most promising cell source. These cells have been delivered by intracoronary injection, direct myocardial injection, or mobilization from the periphery by administration of granulocyte colony-stimulating factor (for review see Wollert et al., 2003). It has been suggested that these cells might contrib-utated to cardiac repair by transdifferentiation into cardiac myocytes, angiogenesis, and/or inhibiting apoptosis (Hassink et al., 2003; Wollert et al., 2005; Mann et al., 2005; Siminiak et al., 2003). Thus, cell transplantation has emerged as a new strategy for the therapy of a large number of patients with MI. Each potentially therapeutic cell type has its own profile of advantages, limitations, and practicability issues in specific clinical settings (Wollert et al., 2005).

To date, few human studies have been designed to investigate safety and effectiveness of CD133+ cells during coronary artery bypass grafting (CABG) after MI (Bartunek et al., 2005; Stamm et al., 2003; 2004; Agbulut et al., 2004; Ghodsizad et al., 2004; Shmelkov et al., 2005). CD133, a promin 5 transmembrane glycoprotein 1, is a marker for more primitive multipotent stem and endothelial progenitor...
Stent-Graft Exclusion of Multiple Symptomatic Coronary Artery Fistulae

Coronary artery fistulae may be congenital or acquired abnormalities in which blood is shunted into a cardiac chamber, great vessel, or other structure, bypassing the myocardial capillary network. Patients with coronary artery fistulae may present with dyspnea, congestive heart failure, angina, endocarditis, arrhythmias, or myocardial infarction. Symptomatic patients must be treated in order to prevent such complications as sudden death or myocardial infarction. Surgery is the gold standard for closure of these lesions; however, an increasing number of reports have shown that percutaneous closure may be a safe and effective alternative. We report the successful percutaneous exclusion of multiple coronary artery-to-pulmonary artery fistulae by means of several balloon-expandable stent-grafts in a patient who had a history of coronary artery bypass surgery and symptoms of congestive heart failure. (Tex Heart Inst J 2007;34:199-203)

Case Report

In August 2004, a 47-year-old man with a history of systolic hypertension, dyslipidemia, smoking, and coronary artery bypass grafting (CABG, 3 years earlier) was admitted while experiencing atypical chest pain, exertional dyspnea (New York Heart Association functional class II), and fatigue. Three years before, in a general hospital in another city, he had undergone coronary angiography, which had shown severe 3-vessel disease, normal left ventricular (LV) size, and a global LV ejection fraction (LVEF) of about 0.50. He also had 2 small and faintly visible fistulae from the left anterior descending artery (LAD) and the right coronary artery (RCA) to the PA. Right heart catheterization and saturation studies were not performed. He had then undergone urgent CABG, and for an unknown reason the fistulae were not closed at the time of surgery.

His physical examination was remarkable for a cervical venous hum, a bounding pulse, and a grade 2/6 systolic murmur in his left sternal border. His heart rate was 95 beats/min, and he had a wide pulse pressure (blood pressure, 150/50 mmHg). His electrocardiogram showed no pathologic changes; however, his thallium scan revealed inferobasal ischemia. Transthoracic echocardiography (TTE) showed an en-
Metabolic syndrome: stronger association with coronary artery disease in young men in comparison with higher prevalence in young women

Saeed Sadeghian\textsuperscript{a}, Soodabeh Darvish\textsuperscript{a}, Shabnam Salimi\textsuperscript{a}, Farah Ayatollahzadeh Esfehani\textsuperscript{a}, Nader Fallah\textsuperscript{b}, Mehran Mahmoodian\textsuperscript{a}, Mojtaba Salarifar\textsuperscript{a} and Abbasali Karimia

**Background**
Being overweight, a constituent of the metabolic syndrome, is also an important contributing factor to the development of coronary artery disease in younger patients, compared with the older patient population. Owing to the above-mentioned fact, we sought to assess the association of the metabolic syndrome with premature coronary artery disease.

**Methods**
In an analytic cross-sectional study, 940 patients (553 women \( \leq 55 \) years and 387 men \( \leq 45 \) years), 637 with coronary artery disease and 303 without coronary artery disease, were evaluated. The extent of atherosclerosis was assessed with a clinical vessel score. Besides established coronary artery disease risk factors, all patients were evaluated for the presence of metabolic syndrome based on the National Cholesterol Education Program Adult Treatment Panel III criteria.

**Results**
The overall prevalences of metabolic syndrome and coronary artery disease were 56 and 67.8\%, respectively. Metabolic syndrome prevalence was higher in women than in men (69.6 vs. 36.4\%, \( P < 0.001 \)). The odds ratio of metabolic syndrome for premature coronary artery disease was 1.82 (95\% confidence interval 1.17–2.82) after adjusting for age and multiple established coronary artery disease risk factors; the strength of this association varied by sex (2.17 in men vs. 1.22 in women).

**Conclusions**
This study revealed a stronger association between metabolic syndrome and coronary artery disease in men \( \leq 45 \) years than in women \( \leq 55 \) years. It seems that endogenous estrogens may play a role in reducing the effects of metabolic syndrome-related risk and therefore in spite of higher prevalence of metabolic syndrome in young women, the effect of this syndrome on coronary artery disease is more dominant in young men. *Coron Artery Dis* 18:163–168 © 2007 Lippincott Williams & Wilkins.

*Coronary Artery Disease* 2007, 18:163–168

Keywords: coronary artery disease, metabolic syndrome, risk factor, men, women

\*Research Department Tehran Heart Center, Tehran University of Medical Sciences and \*Department of Biostatistics, Shahed University, Tehran, Iran

Correspondence to Dr Saeed Sadeghian, Research Department, Tehran Heart Center, North Kargar Street, PO Box 1411713138, Tehran, Iran

Tel: + 98 21 88029257; fax: + 98 21 88029256; e-mail: sadeghian15@yahoo.com

Received 29 July 2006 Revised 22 October 2006 Accepted 27 October 2006

**Introduction**
Epidemiologic data suggest that risk factors may be different in younger vs. older patients [1]. Excess weight is an important contributing factor to the development of coronary artery disease (CAD) in younger compared with older patients [2]. Furthermore, being overweight is part of the metabolic syndrome (MetSyn), which is characterized by the clustering of disturbed glucose and insulin metabolism, overweight and abdominal fat distribution, dyslipidemia, and hypertension [3]. Owing to the prevalence of overweight and sedentary lifestyle worldwide [4], the MetSyn is becoming increasingly common. Knowledge of the impact of the MetSyn on cardiovascular disease in the general population is crucial for developing public health policy and clinical guidelines for its prevention and treatment.

Though several studies have assessed the existence of atherosclerosis risk factors with subclinical atherosclerosis in younger adults [5], no adequate study has evaluated the relationship between premature atherosclerosis and MetSyn in young adults [6].

We therefore assessed the association of the MetSyn on the basis of definitions by the National Cholesterol Education Program (NCEP) with premature CAD regarding the impact of sex in young adults with MetSyn on CAD.

**Material and methods**
In an analytic cross-sectional study, 940 patients (553 women aged \( \leq 55 \) years and 387 men aged \( \leq 45 \) years) selected from patients undergoing coronary angiography...
24-Hour In-hospital Mortality Predictions in Coronary Artery Bypass Grafting Patients

Hossein Ahmadi, Abbasali Karimi, Saeed Davoodi, Mehrab Marzban, Namvar Movahedi, Kyomars Abbasi, Abbas Salehi Omran, Saeed Sadeghian, Seyed Hesameeddin Abbasi, Parin Yazdanifard, and Maryam Soleymanzadeh Ardabili

Tehran Heart Center, Tehran University of Medical Sciences, Tehran, Iran

Received for publication September 11, 2006; accepted December 8, 2006 (ARCMED-D-06-00396).

Background. The purpose of this study was to determine the factors that can help predict risk of mortality in the first 24 h of coronary artery bypass grafting (CABG), because mortality within a few hours of surgery is a disastrous event for surgeons and the patient’s family.

Methods. The study population consisted of 120 in-hospital mortality cases (1.07%) from 11,183 patients who underwent CABG from February 2002 to February 2006 by the same group of surgeons in a referral center. One group consisted of 40/120 (about 33.3%) patients who died during the first 24 h after surgery. The second group consisted of 80/120 patients (66.7%) who died between the 2nd and 30th day postoperatively. A set of data was gathered from the surgery database of the hospital and analyzed in a univariate model.

Results. Among the studied variables, only the following factors proved to be significant: previous percutaneous transluminal coronary angioplasty (PTCA), previous cerebrovascular accident (CVA), cardiopulmonary bypass (CBP) time, and postoperative atrial fibrillation (AF) (p ≤0.05).

Conclusions. This study revealed that influencing factors in 24-h in-hospital mortality are previous PTCA, previous CVA, CBP time, and postoperative AF. It is interesting that influencing factors in global 30-day hospital mortality such as body mass index, diabetes mellitus, preoperative arrhythmia, ejection fraction, history of previous CABG and resuscitation, or catastrophic states like poor runoff coronary vessels, triple vessel disease or associated procedures like valve surgery were not significant in the first 24-h mortality when comparing with in-hospital mortality in this study. © 2007 IMSS. Published by Elsevier Inc.

Key Words: Cardiovascular disease, Coronary artery disease, Coronary artery bypass surgery, In-hospital mortality.

Introduction

Cardiovascular disease (CVD) is now a leading cause of death in the developing world where because of the demographic shift in population age profile, a staggering additional increase in CVD morbidity and mortality can be predicted. Coronary artery bypass grafting (CABG) remains a standard treatment for patients with advanced coronary artery disease (CAD) worldwide, having proven itself an effective method for treating angina pectoris and prolonging life in patients with severe CAD (1,3). Over the last decade, an increasingly larger proportion of high-risk patients have been undergoing CABG, resulting in greater morbidity, a longer intensive care unit (ICU) stay and mortality. During the past few decades, the mortality risk of CABG has been the focus of numerous studies, which differed with respect to the time period examined, the data elements compared, and inclusion of patients with concomitant procedures, reoperation or postoperative complications.
Ostial Lesions of Left Main and Right Coronary Arteries: Demographic and Angiographic Features

Sirous Darabian MD, Ali Reza Amizadeghan MD, Hakimeh Sadeghian MD, Saeed Sadeghian MD, Ali Abbasi MD, and Maria Raeesi MD

In 258 patients with left main tract disease, the atherosclerotic risk factors were compared between patients with ostial and nonostial lesions of the left main coronary artery. Also, it was done for patients with ostial right coronary artery. Women were more likely to have ostial left main coronary artery and/or ostial right coronary artery. A multivariate logistic regression analysis revealed that the female sex (odds ratio: 2.336) and hypertriglyceridemia (odds ratio: 1.004) were independent risk factors of ostial left main coronary artery lesion. For ostial right coronary artery lesion, the female sex and family history of coronary artery disease were independent predictors. Ostial left main coronary artery and right coronary artery lesions were strongly correlated. The demographic and clinical profiles of ostial stenosis suggest that this group may represent a distinct entity, different from the more common atherosclerotic left main trunk stenosis. The female sex and serum triglyceride level can be considered as independent predictors of ostial left main tract disease.

Keywords: left main coronary artery disease; risk factor; ostial stenosis

According to the projections for the year 2020, cardiovascular disease will remain the leading cause of death and disability in industrial countries. Coronary artery disease (CAD) currently accounts for very high mortality rates in developing countries, such as Iran. The mortality, incidence, and clinical presentation of CAD tend to vary greatly over time.1-4

Among patients with CAD, it is widely accepted that significant left main tract disease (LMTD) is associated with an increased cardiac mortality; in addition, it is the most prognostically important single lesion involving the coronary arteries. Ostial lesions presenting as an obstructive disease proximal to the bifurcation of the main stem into the left anterior descending and left circumflex coronary arteries jeopardize all but the inferior and posterior surfaces of the left ventricle.5-7 These lesions are found in 3% to 5% of patients undergoing cardiac catheterization for ischemic chest pain, congestive heart failure, or cardiogenic shock and are frequently accompanied by the concomitant involvement of 1 or more of other epicardial vessels.8-10 The present study sought to evaluate the atherosclerotic risk factors associated with the ostial lesions of the left main coronary artery (LMCA) and right coronary artery (RCA), with particular emphasis being laid on whether ostial or nonostial lesions had different risk factors profiles.

Methods

Selective coronary arteriography was performed using Judkins catheters via the femoral route in all the patients. Multiple views, including the right anterior oblique, left anterior oblique, and anterior shallow caudal, were recorded for each patient. Our study population was selected from the database of cardiac catheterizations carried out at Tehran Heart Center to identify patients with LMTD. This involved a review of 7857 patients who underwent cardiac catheterization between January 2004 and December 2005. The databank contains data of the patients collected by cardiologists and trained general practitioners, and the validity of all the data is

From the Department of Cardiology, Tehran Heart Center, Tehran University of Medical Sciences, Tehran, Iran.

Address correspondence to: Sirous Darabian, North Kargar St, Tehran Heart Center, Box 1411713138 Post Office, Tehran, Iran; e-mail: darabian@irimc.org.
The similar effect of transplantation of marrow-derived mesenchymal stem cells with or without prior differentiation induction in experimental myocardial infarction

Seyed Mahdi Nassiri1, Zohreh Khaki1, Masoud Soleimani2*, Seyed Hossein Ahmadi3, Issa Jahanzad4, Shahram Rabbani3, Mohammad Sahebjam5, Farid Azmoudeh Ardalan4 & Mahmood Sheikh Fathollahi3,5

1Department of Clinical Pathology, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran; 2Department of Hematology, School of Medical Sciences, Tarbiat Modares University, P.O. Box. 14115-111 Tehran, Iran; 3Tehran Heart Center, Medical Sciences, University of Tehran, Tehran, Iran; 4Department of Pathology, Imam Khomeini Hospital Complex, School of Medicine, University of Tehran, Tehran, Iran; 5Stem Cell Technology Company, Tehran, Iran

Received 5 March 2007; accepted 4 June 2007
© 2007 National Science Council, Taipei

Key words: myocardial regeneration, stem cell, bone marrow, ultrastructure, differentiation

Abstract

Marrow-derived mesenchymal stem cells (MSCs) have been heralded as a source of great promise for the regeneration of the infarcted heart. There is no clear data indicating whether or not in vitro differentiation of MSCs into major myocardial cells can increase the beneficial effects of MSCs. The aim of this study is to address this issue. To induce MSCs to transdifferentiate into cardiomyocyte-like and endothelial-like cells, 5-azacytidine and vascular endothelial growth factor (VEGF) were used, respectively. Myocardial infarction in rabbits was generated by ligation of the left anterior descending coronary artery. Animals were divided into three experimental groups: I, control group; II, undifferentiated mesenchymal stem cell transplantation group; III, differentiated mesenchymal stem cell transplantation group; which respectively received peri-infarct injections of culture media, autologous undifferentiated MSCs and autologous differentiated MSCs. General pathology, immunohistochemistry, electron microscopy and echocardiography were performed in order to search for myocardial regeneration and improvement of cardiac function. In Groups II and III, implanted cells transdifferentiate into myocardial cells within 28 days post injection in a similar manner, and well-developed ultrastructures formed within transplanted cells. Improvements in left ventricular function and reductions in infarcted area were observed in both cell-transplanted groups to the same degree. Vascular density was similar in Groups II and III and significantly higher in these groups compared with the control group. There is no need for prior differentiation induction of marrow-derived MSCs before transplantation and peri-infarct implantation of MSCs can efficiently regenerate the infarcted myocardium and improve cardiac function.

Introduction

The remodeling process following myocardial infarction (MI) will eventually lead to impairment of left ventricular function [1, 2]. The use of bone marrow-derived mesenchymal stem cells (MSCs) is an auspicious method which prevents deleterious remodeling and improves left ventricular (LV) function [3, 4]. 5-Azacytidine which is a DNA demethylating agent, and vascular endothelial growth factor (VEGF) can induce MSCs to transdifferentiate into cardiomyocytes and endothelial cells, respectively
RELATIONSHIP BETWEEN SERUM MAGNESIUM LEVEL AND ARRYTHMIAS FOLLOWING POST-CORONARY ARTERY BYPASS GRAFTING

MAHDI NAJAFI*, BABAK HAGHIGHAT**, AND HOSSEIN AHMADI TAFTI***

Abstract

Introduction: Atrial and ventricular arrhythmias are among the most common complications after coronary artery bypass graft (CABG) surgery. It is known that cardiopulmonary bypass reduces serum magnesium level. In this study, we evaluated the relationship between total blood magnesium level (TMG) and the incidence of perioperative arrhythmias.

Methods: TMG was measured in patients who were scheduled for CABG on three occasions: just before anesthesia, on intensive care unit (ICU) arrival and on the first morning after operation. Patients were evaluated for primary cardiac rhythm, serum creatinine, urine output in operating room and diuretic therapy. Supplemental magnesium (SMG) was also recorded in operating room and ICU. Patients were then evaluated for the rate and kind of arrhythmia occurring during the next 3 days.

Results: Mean TMG level in 170 cases was 2.2 (0.5), 2.6 (0.6) and 2.4 (0.6) mg/dl on three occasions respectively. 53 patients developed post-operative arrhythmia (31%) [Atrial Fibrillation (AF) (7.1%), Non-AF Supraventricular arrhythmia (14.7%) and Ventricular arrhythmia (16.5%)]. Although there was a significant difference between TMG on

* MD, Anesthesiologist, Assist. Prof.
** MD, Anesthesiologist.
*** MD, Cardiac Surgeon, Assist. Prof.
Corresponding author: Mahdi Najafi MD, Tehran Heart Center, North Kargar Ave. P.O. Box: 1411713138, Tehran, Iran. E-mail: najaik@sina.tums.ac.ir. Tel: 98(21)88029674, Fax: 98(21)88029724.

661 M.E.J. ANESTH 19 (3), 2007
DIET, HYPERTENSION, HYPERCHOLESTEROLEMIA AND DIABETES IN ISCHEMIC HEART DISEASES

Salimzadeh Hamideh1, Mohsenpour Behzad2, Ghaderi Ebrahim3, Eftekhar Hassan4, Salarifar Mojtaba5

ABSTRACT

Objective: Ischemic Heart Diseases (IHD) have the highest cause of mortality in the Islamic Republic of Iran. Unhealthy dietary habits as a major threat make our country prone to an epidemic of non-communicable diseases in the next two decades. The aim of this study was to determine the association of diet, hypertension, hypercholesterolemia and diabetes with risk of developing IHD in Tehran.

Methodology: This case-control study was conducted during 2003 and 2004 in Tehran Heart Center and Tehran Shahid Rajai Hospital. A sample of 100 IHD patients (cases) and 100 individuals free of cardiovascular symptoms (controls) were entered into the study; the Controls were matched to the IHD patients by age (± 5 years) and sex. Information was recorded by Food Frequency Questionnaire (FFQ). All data were analyzed with the SPSS for windows, version11.

Results: Multivariate analysis showed a significant and positive association between Hypertension, Hypercholesterolemia and Diabetes and risk of developing IHD. Odds ratios for these three risk factors with 95% confidence interval (CI) were: 3.9, 12 and 8.6 respectively. In the cases consumption of high dairy fat and fried foods were significantly high, that increased the risk of IHD 9.8 and 54.6 times, respectively. Also low intake of fish was directly associated with increase of the IHD risk (95% CI, OR: 13.9). Moreover low consumption of vegetables and fruits independently increased the risk of IHD 19.8 times in cases group.

Conclusions: Hypertension, hypercholesterolemia and diabetes have a significant association with development of IHD. High consumption of fatty food and low consumption of fish, vegetables and fruits also contribute to development of IHD.

KEY WORDS: Ischemic Heart Diseases, Cardiovascular Disease, Diet.
ICVTS on-line discussion A Restenting for ruptured aneurysm after EVAR
Mehrab Marzban
Interact CardioVasc Thorac Surg 2007;6:494-
DOI: 10.1510/icvts.2007.152447A

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://icvts.ctsnetjournals.org/cgi/content/full/6/4/494
Comparison of outcomes of percutaneous coronary intervention on proximal versus non-proximal left anterior descending coronary artery, proximal left circumflex, and proximal right coronary artery: A cross-sectional study

Mohammad Alidoosti *1, Mojtaba Salarifar1, Ali Mohammad Haji Zeinali1, Seyed Ebrahim Kassaian1 and Maria Raissi Dehkordi2

Address: 1Department of Interventional Cardiology, Tehran Heart Center, Medical Sciences/University of Tehran, Jalal Al Ahmad and North Karegar Cross PO Box: 1411713138 Tehran, Iran and 2Research Department, Tehran Heart Center, Medical Sciences/University of Tehran, Jalal Al Ahmad and North Karegar Cross. PO Box: 1411713138 Tehran, Iran

Email: Mohammad Alidoosti* - salidoosti@hotmail.com; Mojtaba Salarifar - salarifar@tehranheartcenter.org; Ali Mohammad Haji Zeinali - ali_zeinali_cardio@yahoo.com; Seyed Ebrahim Kassaian - ekassaian@yahoo.com; Maria Raissi Dehkordi - mari_d81@yahoo.com

* Corresponding author

Abstract

Background: Previous studies have shown that lesions in proximal left anterior descending coronary artery (LAD) may develop more restenosis after balloon angioplasty than lesions in other coronary segments. However, stenting seems to have reduced this gap. In this study, we compared outcomes of percutaneous coronary intervention (PCI) on proximal LAD versus proximal left circumflex (LCX) or right coronary artery (RCA) and proximal versus non-proximal LAD.

Methods: From 1737 patients undergoing PCI between March 2004 and 2005, those with cardiogenic shock, primary PCI, total occlusions, and multivessel or multi-lesion PCI were excluded. Baseline characteristics and in-hospital outcomes were compared in 408 patients with PCI on proximal LAD versus 133 patients with PCI on proximal LCX/RCA (study I) and 244 patients with PCI on non-proximal LAD (study II). From our study populations, 449 patients in study I and 549 patients in study II participated in complete follow-up programs, and long-term PCI outcomes were compared within these groups. The statistical methods included Chi-square or Fisher’s exact test, student’s t-test, stratification methods, multivariate logistic regression and Cox proportional hazards model.

Results: In the proximal LAD vs. proximal LCX/RCA groups, smoking and multivessel disease were less frequent and drug-eluting stents were used more often (p = 0.01, p < 0.001, and p < 0.001, respectively). Patients had longer and smaller-diameter stents (p = 0.009, p < 0.001, respectively). In the proximal vs. non-proximal LAD groups, multivessel disease was less frequent (p = 0.05). Patients had larger reference vessel diameters (p < 0.001) and were more frequently treated with stents, especially direct stenting technique (p < 0.001). Angiographic success rate was higher in the proximal LAD versus proximal LCX/RCA and non-proximal LAD groups (p = 0.004 and p = 0.05, respectively). In long-term follow-up, major adverse cardiac events showed no difference. After statistical adjustment for significant demographic, angiographic or procedural characteristics, long-term PCI outcomes were still similar in the proximal LAD versus proximal LCX/RCA and non-proximal LAD groups.

Conclusion: Despite the known worse prognosis of proximal LAD lesions, in the era of stenting, our long-term outcomes were similar in patients with PCI on proximal LAD versus proximal LCX/RCA and non-proximal LAD. Furthermore, we had better angiographic success rates in patients with PCI on proximal LAD.
ASSOCIATION BETWEEN HEPATITIS B SURFACE ANTIBODY SEROPOSITIVITY AND CORONARY ARTERY DISEASE

ALIREZA AMIRZADEGAN, GHOLAMREZA DAVOODI, MOHAMMAD ALI BOROUMAND, SIROUS DARABYAN, MARIA RAISSI DEHKORDI, HAMIDREZA GOODARZYNEJAD

ABSTRACT

BACKGROUND: Specific infectious agents have been found to be related to the pathogenesis of coronary atherosclerosis. AIMS: We assessed the possible association between angiographically proven coronary artery disease (CAD) and hepatitis B surface antibody (HBS Ab) seropositivity in a population with relatively high prevalence of hepatitis B virus (HBV) infection. SETTING AND DESIGN: This was a cross-sectional study. MATERIALS AND METHODS: We analyzed data from 830 consecutive subjects undergoing coronary angiography, including angiographic results reported by two cardiologists for inter-observer reliability and assessment of HBS Ab status determined by enzyme-linked immunosorbent assay (ELISA). STATISTICAL ANALYSIS USED: Chi-square test or Fisher’s exact test, independent two-sample t test and the Pearson’s Correlation Coefficient test were used, as required. Statistics were performed using SPSS software version 13 (SPSS, Chicago, IL). RESULTS: Two hundred forty-nine (30%) subjects had normal angiogram or minimal CAD, and 581 (70%) had significant CAD in at least one major coronary artery. In patients with CAD and in patients without angiographic evidence of significant atherosclerosis, 28.7% and 28.9% respectively were positive for HBV (P = 0.954). Mean C-reactive protein levels in subjects with positive and negative HBS Ab were 10.77 ± 8.37 mg/L versus 10.33 ± 7.64 mg/L respectively (P = 0.465). However, C-reactive protein levels in CAD group were significantly higher (P < 0.001). CONCLUSIONS: Our results suggested hepatitis B surface antibody seropositivity has no relationship with coronary artery disease. Moreover, no significant linear correlation exists between HBS Ab and C-reactive protein levels. However, as previously shown, C-reactive protein level in patients with coronary artery disease is significantly higher than in patients with normal coronary arteries.

Key words: C-reactive protein, coronary artery disease, hepatitis B surface antibody, infection, inflammation

INTRODUCTION

The causes of atherosclerosis are still a puzzle. Traditional and established risk factors of atherosclerosis, such as hypertension, diabetes, hyperlipidemia and cigarette smoking,
Correlation between lipoprotein(a) serum concentration and severity of coronary artery stenosis in an Iranian population according to Gensini score


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Received 3 December 2006; received in revised form 17 August 2007; accepted 8 October 2007
Available online 16 October 2007

Abstract

Objectives: To investigate the correlation between serum lipoprotein(a) concentration and existence as well as severity of coronary atherosclerosis.

Design and methods: A cross-sectional study was conducted on 826 patients who underwent angiography through measuring blood sugar, serum lipids, lipoprotein(a) and evaluation of coronary stenosis by Gensini score.

Results: Gensini score = 6 was considered as a cut-off point for coronary disease and 40 mg/dL was determined as lipoprotein(a) cut-off point. Its higher concentration was significantly more frequent in patients with Gensini score > 6 (OR: 2.50, p = 0.001), independent of gender, smoking, diabetes mellitus and hyperlipidemia. This finding was significant in patients < 55 years old. There was a significant relationship between severity of coronary stenosis and higher concentration of serum lipoprotein(a).

Conclusion: LP(a) serum concentration is an independent risk factor for coronary atherosclerosis in the Iranian population especially at the ages below 55. Also it demonstrates a direct relationship between severity of coronary atherosclerosis (by Gensini score) and serum LP(a).

Introduction

Atherosclerosis is the leading cause of death all around the world [1–3] and cholesterol content of low-density lipoproteins is a major independent risk factor for vascular atherosclerosis [4]. “Lipoprotein(a)” [LP(a)] is a genetically-determined low-density lipoprotein with a unique “Apo(a)” molecule that changes inconsistently and minimally in response to environmental, physical or life style modifications and it predisposes persons to thrombotic complications of atherosclerosis [4–8]. There is a controversy about correlation of LP(a) serum concentration with coronary atherosclerosis in different populations. While many studies proposed atherogenic mechanism(s) for LP (a) [5–8] and emphasize on the atherogenesity of LP(a) [6–16], several studies failed to demonstrate this association, including Ridker and colleagues [17] who found no evidence of association between LP(a) level and future myocardial infarction, and Gurewich and Mittelman [18] who disagreed with the existence of such relationship. Moreover there is no definite study about this issue in Iran with such great sample size and using ELISA as the analytical method; while a preceding study by Rahmani et al. recruited 251 participants and LP(a) concentration was measured by immunoturbidimetric assay [19]. Considering the socioeconomic importance of the prevalence of atherosclerotic lesions and the above-mentioned controversy we tried to determine whether there is any correlation between LP (a) mean serum concentration and coronary artery atherosclerosis and its severity.

Methods and materials

Study patients

This cross-sectional study was conducted in “Tehran Heart Center”, (a referral hospital affiliated to Tehran University of Medical Sciences) from July 2004 to July 2005. After obtaining
Magnesium Infusion and Postoperative Atrial Fibrillation: A Randomized Clinical Trial

Mahdi Naji Najafi, Reza Hamidian, Babak Haghighat, Nader Fallah Hossein Ahmadi Tafti, Abbasali Karimi, Mohammad Ali Boroumand
Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Background: Postoperative arrhythmias are among the most common complications of cardiac surgery. Total serum magnesium concentration will change after coronary bypass surgery but compensatory prophylactic administration of magnesium has remained a controversial issue. We studied whether prophylactic administration of magnesium could prevent post-coronary artery bypass grafting (CABG) arrhythmias and evaluated the effects of diabetes mellitus on prophylactic magnesium administration.

Methods: In a clinical trial, 345 consecutive CABG candidates were randomly assigned to study (n = 166, 48.1%) and control groups. Patients in study group received supplemental magnesium infusion as following: 2 g after induction of anesthesia until cardio-pulmonary bypass and then 8 g upon arrival in Intensive Care Unit (ICU) until 24 hr. Total serum magnesium concentration was measured at four designated time points: onset of induction, and 0, 24 and 48 hr after ICU admission. Cardiac arrhythmias were sought with a 12-lead electrocardiogram (ECG) from the end of surgery up till discharge.

Results: Atrial Fibrillation (AF) occurred in 34 patients (9.9%). Total serum magnesium concentration was significantly higher in patients who received supplemental magnesium (P < 0.001) and significantly lower in AF patients (P = 0.02). Among non-diabetics, AF incidence was significantly lower in study group compared with control group.

Conclusions: The occurrence of atrial fibrillation correlates with serum magnesium level. Diabetes mellitus probably hampers prophylactic effect of supplemental magnesium in preventing the occurrence of AF.

Key words: Coronary artery bypass, Atrial fibrillation, Anti-arrhythmia agents, Magnesium, Diabetes mellitus.

Cardiac arrhythmias, especially atrial fibrillation (AF), are among the most common complications after surgery of coronary artery bypass graft (CABG). Atrial fibrillation may invite complications such as hemodynamic compromise, stroke, which prolong hospital stay. The reported incidence of AF is 5–40%.1–5 Although the etiology of post-CABG AF is unclear, risk factors which prompt the development of AF are history of AF, old age, male gender, hypomagnesemia, hypertension, combined valvular and coronary surgery, preoperative congestive heart failure and postoperative complications which need supporting measures, such as intra-aortic balloon pump and mechanical ventilation longer than 24 hr.6–8 Total serum magnesium concentration significantly changes after CABG surgery.9,10 Supplemental magnesium (Mg) administration for prevention of post CABG arrhythmias has remained a controversial issue. Such treatment is shown to be efficient in many studies and clinical trials,10–22 while many others have opposite opinions.1,23–32 Considering increased risk of both coronary arteries involvement and the influence of hypomagnesemia on metabolic disorders,33–35 post-cardiac surgery arrhythmias should be more probable in diabetic patients.36,37 However the clinical relationship between AF and diabetes mellitus is not completely understood.37 Moreover, there is no study about the effects of diabetes
Case report

Delayed-onset heparin-induced thrombocytopenia presenting with multiple arteriovenous thromboses: case report
Abbas Salehi Omran*1, Abbasali Karimi1, Hossein Ahmadi1 and Parin Yazdanifard2

Address: 1Cardiovascular Surgery Department, Tehran Heart Center, Medical Sciences/University of Tehran, Iran and 2Clinical Reaserch Department, Tehran Heart Center, Medical Sciences/University of Tehran, Iran

Email: Abbas Salehi Omran* - abbasomran2006@yahoo.com; Abbasali Karimi - akarimi@sina.tums.ac.ir; Hossein Ahmadi - dr.ahmadi2006@yahoo.com; Parin Yazdanifard - parinyazdanifard@yahoo.com
* Corresponding author

Abstract

**Background:** Delayed-onset heparin-induced thrombocytopenia with thrombosis, albeit rare, is a severe side effect of heparin exposure. It can occur within one month after coronary artery bypass grafting (CABG) with manifestation of different thrombotic events.

**Case presentation:** A 59-year-old man presented with weakness, malaise, bilateral lower limb pitting edema and a suspected diagnosis of deep vein thrombosis 18 days after CABG. Heparin infusion was administered as an anticoagulant. Clinical and paraclinical work-up revealed multiple thrombotic events (stroke, renal failure, deep vein thrombosis, large clots in heart chambers) and 48 ×103/μl platelet count, whereupon heparin-induced thrombocytopenia was suspected. Heparin was discontinued immediately and an alternative anticoagulant agent was administered, as a result of which platelet count recovered. Heparin-induced thrombocytopenia, which causes thrombosis, is a serious side effect of heparin therapy. It is worthy of note that no case of delayed-onset heparin-induced thrombocytopenia with thrombosis associated with cardiopulmonary bypass surgery has thus far been reported in Iran.

**Conclusion:** Delayed-onset heparin-induced thrombocytopenia should be suspected in any patient presenting with arterial or venous thromboembolic disorders after recent heparin therapy, even though the heparin exposure dates back to more than a week prior to presentation; and it should be ruled-out before the initiation of heparin therapy.

**Background**

Heparin-induced thrombocytopenia (HIT) is a severe side effect of heparin and is associated with heparin-platelet factor (PF4) antibodies. The incidence of HIT in patients who have undergone cardiopulmonary bypass surgery has been estimated at 1.9% [1]. HIT causes not only thrombocytopenia but also arterial and venous thrombotic events such as lower limb ischemia, stroke, acute myocardial infarction and renal failure [2,3]. The time course to development of HIT is generally within 4 to 14 days after the initiation of heparin therapy.
Thymomas are slow growing neoplasms of the thorax known to have a good prognosis when classified as benign (Masaoka class I or WHO type A). However, despite the noninvasiveness of this first group, thymomas are potentially invasive [3]. Histological examination showed no evidence of metastasis or invasive growth in the case reported here, and we were able to resect the tumor in toto. This fact and the fact that it was composed on-ly of epithelial cells as demonstrated by the histological exami-nation led us to presume that there will be no risk of metastasis. Furthermore, no effect on survival has been documented for types A, AB or B1 after radiotherapy [4]. Therefore, we refrained from postoperative radiotherapy.

Nevertheless, there must have been a late phase of invasive growth in our patient, as tumorous tissue had come into contact with the pericardial space and caused an effusion, suggesting a steady state of growth for more than 20 years. As this resulted in a potentially life-threatening situation, we recommend resec-tion or at least frequent controls of patients presenting with in-trathoracic tumorous lesions, even if there has been no evidence of growth for a long period of time.

References

Survival after More than 700 DC Shocks Post-Coronary Artery Bypass Grafting: A Case Report

A. SalehiOmran, A. Karimi, P. Yazdanifard, F. Yousefshahi

1 Cardiothoracic Surgery Department, Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran
2 Clinical Research Department, Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran
3 Anesthesiology Department, Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract
Shock-resistant ventricular fibrillation is a rare but fatal situation and is defined as ventricular fibrillation persisting after three defibrillation attempts. We report the case of an unusually drug and shock-resistant, high-frequency recurrent ventricular fibrillation that was treated with 700 direct current shocks within a period of 7 days after coronary artery bypass grafting.

Key words
Cardiovascular surgery - coronary bypass surgery - thoracic surgery

Introduction
Transient ventricular arrhythmia can occur after recent cardiac surgery, but it does not adversely influence the long-term outcome [1,2]. Ventricular tachycardia (VT) can happen unexpectedly after coronary artery bypass grafting (CABG) and may be the result of several factors related to either subclinical graft occlusion or increased dispersion of repolarization secondary to reperfusion [3]. We present an unusually high-frequency recurrent VT/ventricular fibrillation (VF) (700 episodes) after CABG.

Case Report
A 58-year-old man with a history of hypertension and hyperlipi-demia was admitted with typical chest pain for the evaluation of myocardial infarction (MI). His ECG revealed anteroseptal MI with
A report of *Pseudomonas aeruginosa* antibiotic resistance from a multicenter study in Iran

MA Boroumand\(^1\), P Esfahanifard\(^1\), S Saadat\(^1\), M Sheihkvatan\(^1\), S Hekmatyazdi\(^2\), M Saremi\(^2\), L Nazemi\(^1\)

\(^1\) Clinical Laboratory and Pathology Department, Tehran Heart Center, Medical Sciences/University of Tehran, Jalal Al Ahmad and North Kargar Cross, Tehran, Iran

\(^2\) Clinical Laboratory and Pathology Department, Reference Laboratories of Iran Research Center, 1411713138 Tehran, Iran

**Date of Submission**: 14-Mar-2007  
**Date of Acceptance**: 28-May-2007

**Correspondence Address**:  
M A Boroumand  
Clinical Laboratory and Pathology Department, Tehran Heart Center, Medical Sciences/University of Tehran, Jalal Al Ahmad and North Kargar Cross, Tehran Iran

**Source of Support**: None, **Conflict of Interest**: None
Does Tranexamic Acid Reduce Blood Loss in Off-Pump Coronary Artery Bypass?

Aftaatoon Mehr-Aein, MD, Mostafa Sadeghi, MD, Manouchehr Madani-civi, MD

Department of Anesthesiology, Shariati Hospital
1 Research Department, Tehran Heart Center, Tehran University of Medical Sciences, Tehran, Iran

For reprint information contact: Aftaatoon Mehr-Aein, MD Tel: 98 91 2132 4549 Fax: 98 21 8863 3039 Email: amehraein@yahoo.com, Madani, PO Box 16765-3156, Tehran, Iran.

The hemostatic effect of tranexamic acid on the bleeding tendency and transfusion requirements in patients undergoing off-pump coronary artery bypass surgery was assessed in a prospective randomized double-blind study. Of 66 patients undergoing elective operations, 33 were given tranexamic acid (15 mg·kg⁻¹ before infusion of heparin and 15 mg·kg⁻¹ after protamine infusion), and the other 33 received only saline. Postoperative bleeding, transfusions, complications, hematological variables, and plasma D-dimer levels were recorded. Postoperative blood loss was significantly less in the tranexamic acid group compared to the control group (320 ± 38 vs 480 ± 75 mL). Patients in the tranexamic acid group received significantly less allogeneic blood products (0.46 vs 0.94 units per patient), and they had lower postoperative D-dimer levels.

No postoperative thrombotic complications were observed in either group. Although off-pump coronary artery bypass surgery is associated with reduced frequency of hemorrhagic disorders, defective hemostasis still occurs, and tranexamic acid effectively reduces postoperative blood loss and the need for allogeneic blood products.
Effect of Cardiac Rehabilitation Program on Heart Rate Recovery after Percutaneous Coronary Intervention and Coronary Artery Bypass Grafting

Abbas Soleimani, MD*, Mohammad Alidoosti, MD, Mojtaba Salariifar, MD, Seyed Ebrahim Kassaian, MD, Abbasali Karimi, MD, Saeed Davoodi, MD, Mehrab Marzban, MD, Seyed Hesameddin Abbasi, MD, Mostafa Nejatian, MD, Ali Abbasi, MD

Tehran Heart Center, Medical Sciences / University of Tehran, Tehran, Iran.

Received 13 July 2007; Accepted 25 October 2007

Abstract

Background: The objective of this study was to evaluate the effect of a hospital-based cardiac rehabilitation program on heart rate recovery (HRR) in patients who received percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG).

Methods: Two hundred forty patients, who completed 24 sessions of a cardiac rehabilitation program (phase 2) after PCI (n=62) or CABG (n=178) at the rehabilitation department of Tehran Heart Center were included in the present study. Demographic and clinical characteristics and exercise capacity at baseline and at follow-up were compared between the two groups. The main outcome measurements were: Resting heart rate, peak heart rate, and HRR.

Results: All the patients showed significant improvements in heart rate parameters from the baseline to the last sessions. The profile of atherosclerotic risk factors (except for diabetes mellitus) was similar between the PCI and CABG subjects. After eight weeks of cardiac rehabilitation, HRR increased averagely about 17 and 21 bpm among the CABG and PCI patients, respectively (p=0.019).

Conclusion: The results of the present study were indicative of an increase in HRR over 1 minute in patients irrespective of their initial revascularization modality (i.e. PCI or CABG) after the completion of cardiac rehabilitation. Be that as it may, the PCI patients achieved greater improvement in HRR by comparison with the CABG patients.

J Teh Univ Heart Ctr 1 (2008) 11-16

Keywords: Heart rate • Rehabilitation • Percutaneous coronary intervention • Coronary artery bypass grafting

Introduction

Cardiac rehabilitation is a well-established treatment in patients with coronary artery disease. Meta-analysis of pooled data from clinical trials and cohort studies has demonstrated significant reductions in all-cause and cardiovascular mortality of patients enrolled in cardiac rehabilitation programs. It has been shown that exercise training modifies...
Case Report

Coronary Artery Fistula from Left Circumflex to Coronary

Saeed Davoodi, MD1,2*, Yaddollah Dadashi, MD1, Manouchehr Madani Civi, MD1 Seyed Hesameddin Abbasi, MD1,2 Amir Hossien Sami, MD1, Kyomars Majdi, MD1

1 National Iranian Oil Company Central Hospital, Tehran, Iran. 2Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran.

Received 25 June 2007; Accepted 15 September 2007

Abstract

In this paper, we describe a case of an aneurysmal circumflex artery connected to the coronary sinus through a fistula in a 40-year-old man with a two-year history of palpitation and chest pain. We discussed surgical management for patients with coronary artery fistula (CAF), particularly for asymptomatic patients with a small left-to-right shunt.

Keywords: Coronary sinus • Fistula • Coronary vessel anomalies

Introduction

A coronary artery fistula (CAF) is a rare congenital anomaly with a reported incidence of 0.1% to 0.2% in the adult population referred for cardiac catheterization.1 A fistulous connection into a cardiac chamber or major vessel often causes a marked dilation of the donor coronary artery leading to aneurysm formation.2

Among various coronary artery anomalies, the fistulous connection of the aneurysmal circumflex coronary artery to the coronary sinus has been previously reported as an extremely uncommon form.3-8

Case report

A 40-year-old man with a two-year history of palpitation and chest pain referred to us. He had no history of myocardial infarction, CCU admission, and smoking. Chest X-rays showed no cardiomegaly or pulmonary congestion. Electrocardiography showed normal sinus rhythm and no specific changes in the ST segment and T wave. But an exertion tolerance test was positive after 8 minutes with ST-segment changes. Transesophageal echocardiography confirmed a huge and tortuous left circumflex coronary artery (LCX) with a detectable flow pattern. There was a large-
Short-Term Outcomes and Mid-term Follow-up After Coronary Angioplasty in Patients Younger Than 40 Years of Age

Seyed Ebrahim Kassaian, MD, Mohammad Alidoosti, MD, Mojtaba Salarifar, MD*, Alimohammad Haji Zeinali, MD, Ebrahim Nematipour, MD, Saeed Sadeghian, MD, Hamidreza Poorhosseini, MD, Leila Pirzadeh, MD, Hamidreza Goodarzynejad, MD, Ahmad Sharafi, MD

Tehran Heart Center, Medical Sciences / University of Tehran, Tehran, Iran

Received 7 December 2006; Accepted 24 February 2007

Abstract

Background: Stenting is currently the standard of care in percutaneous coronary intervention (PCI). Whether young patients remain at increased risk after PCI in the present stent era has not been investigated widely. We evaluated angiographic characteristics and short- and mid-term outcomes in patients younger than 40 years of age who underwent PCI.

Methods: From April 2003 to March 2005, prospective data were collected in 118 consecutive patients, who were less than 40 years of age and underwent PCI at our referral center. The PCI outcomes in these patients were compared to those in 354 patients, randomly selected from 2493 patients older than 40 years of age in our database. Follow-up was scheduled at 1 month, 5 months, and 9 months through clinic visits, telephone interviews, and reviewing hospital records.

Results: Patients<40 years of age were more often male (91.5% vs. 71.8%, P<0.001), current smokers (33.9% vs. 15.2 %, P<0.001), and had more family history of coronary artery disease (38.1% vs. 21.8%, P<0.001) and myocardial infarction (44.1 vs. 31.1, p=0.01), while diabetes mellitus (6.8% vs. 22.1%, P<0.001), hypertension (13.6% vs. 35.3%, P<0.001), and hyperlipidemia (34.7% vs. 44.8%, P=0.055) were less common in these patients. There were no significant differences between the two groups regarding vessel involvement, reference vessel diameter, stenosis rate (before and after procedure), and lesion characteristics, with an exception that angulated lesions were more common in the patients≤ 40 years of age (P<0.05). The young patients, who underwent PCI, presented more frequently with single-vessel disease (61% vs. 46%, P=0.01). The vessel and lesion sites of PCI and clinical success rates were similar in these age groups. Usage of stent was high and similar, and drug- eluting stent use was not significantly different between the two groups. With a high procedural success (94.9% vs. 91.8%), intra-hospital and late complications were very low and similar in both groups.

Conclusion: Percutaneous coronary intervention is a safe and effective procedure for young patients, and major adverse cardiac events are similar in young and older patients.

Keywords: Percutaneous coronary intervention • Young patients • Major adverse cardiac events

Introduction

Specific characteristics of the natural history and presentation of coronary artery disease (CAD) in young patients make the choice of effective therapy particularly challenging. Many young patients present with myocardial infarction without previous angina, and in some there may be a prothrombic tendency. Moreover, the natural progression...
Early Outcome of Coronary Artery Bypass Grafting in Patients Less Than 40 Years Old Comparing with Elderly Patients

Abbasali Karimi, MD*, Sayed Hosein Ahmadi, MD, Saeed Davoodi, MD, Mehrab Marzban, MD, Namvar Movahhedi, MD, Kyomars Abbasi, MD, Abbas Salehi Omran, MD, Mahmood Shirzad, MD, Mehrdad Sheikhvatan, MD, Seyed Hesameddin Abbasi, MD

Tehran Heart Center, Medical Sciences / University of Tehran, Tehran, Iran

Received 21 January 2007; Accepted 27 March 2007

Abstract

Background: Age is one of the most important factors that have consistently emerged as the most potent predictors of mortality and morbidity after coronary artery bypass graft (CABG) surgery. However, early results of CABG in young patients in comparison with elderly ones have been different in previous surveys. The aim of this study was to compare short-term mortality and morbidity in young versus older patients and evaluate the presence of risk factors and their influence on outcome in both groups.

Methods: We conducted a retrospective database review of 13222 patients divided into two age groups: patients less than 40 years old (411 patients) and those older (12811 patients), who underwent CABG at Tehran Heart Center between January 2002 and January 2007. We also compared preoperative, operative, and postoperative characteristics between them and assessed the influence of the variables on the length of stay in hospital (LOS) in the two groups.

Results: Among postoperative complications, only atrial fibrillation (P<0.001) was more prevalent in the elderly group and other complications were similar. The thirty-day mortality rate was higher in the elderly group (1.1% vs. 0%, P=0.023). Also, prolonged LOS (P<0.001) and ICU stay (P<0.001) were found more prevalent in the elderly group. Among the preoperative and postoperative variables, emergency surgery, diabetes mellitus, and previous myocardial infarction influenced the prolonged LOS in the young patients.

Conclusion: Early mortality rate and prolonged length of stay in ICU and hospital were higher in the elderly than those in the young patients; however, other postoperative early complications were similar between the two groups.

Keywords: Coronary artery bypass grafting • Age • Outcome

Introduction

During the past two decades, the mean age of patients selected for coronary artery bypass graft (CABG) surgery has increased.1 Despite the fact that improved myocardial preservation, anesthesia, surgical techniques, and postoperative care have improved the outcome of surgery, older age still causes increased morbidity and longer hospital stays.1 Thus, age is one of the most important factors that have consistently emerged as the most potent predictors of mortality and morbidity after CABG. Elderly patients being considered for CABG has a higher average risk for mortality.
Clinical and Angiographic Characteristics of Myocardial Bridges: a Descriptive Report of 19 Cases and Follow-up Outcomes

Sirus Darabian, MD*, Alireza Amirzadegan, MD, Hakimeh Sadeghian, MD, Saeed Sadeghian, MD, Maria Raissi Dehkordi, MD, Hamidreza Goodarznejad, MD

Tehran Heart Center, Medical Sciences / University of Tehran, Tehran, Iran

Received 16 December 2006; Accepted 13 March 2007

Abstract

Background: Muscle fibers overlying the intramyocardial segment of an epicardial coronary artery are termed myocardial bridge (MB). The aim of this study was to analyze the mid-term outcome of MB and to examine its possible association with angiographic findings and concomitant cardiac pathologies such as hypertrophic cardiomyopathy (HCM).

Methods: From a total of 3218 patients admitted for coronary angiography during 9 consecutive months, 28 (0.9%) were diagnosed with MBs with stenoses≥50%. Of these, 19 referred for follow-up with a median duration of 18 months.

Results: HCM was present in 5 patients (26.3%), of whom 4 had MB as the sole finding in angiography. Of the 19 patients, 14 had diastolic dysfunction. In follow-up, 2 patients were treated with revascularization strategies due to the concomitant coronary artery disease and in 2, syncope occurred. For two patients, an intra-cardiac device and a permanent pacemaker were implanted. Three patients with MB as the sole finding in angiography were readmitted because of chest pain.

Conclusion: Diastolic dysfunction may contribute to the presentation of symptoms of muscle bridging. Also, myocardial bridging as the only finding in coronary angiography is highly associated with hypertrophic cardiomyopathy and may help to detect this group of patients. The mid-term outcome of myocardial bridges is favorable.

Keywords: Myocardial infarction • Coronary artery disease • Hypertrophic cardiomyopathy

Introduction

Muscle overlying the intramyocardial segment of an epicardial coronary artery, first mentioned in 1737 [1] and described angiographically in 1960 [2] is termed a myocardial bridge (MB). This situation is characterized by the decrease in the coronary blood flow during systole due to the compression of the myocardial fibrils surrounding the epicardial coronary artery in a certain segment. Autopsy studies have found a frequency of 15 to 85 percent [3,5], while angiographic studies have noted a lower incidence of myocardial bridging ranging from 0.5 to 33 percent [6,8]. It has been suggested that bridging rarely causes myocardial ischemia and this could partly explain such discrepancies [8]. On the other hand, the wide variability in the incidence of different anatomicopathological series seems to depend on the skill of the operators performing the
Free Wall Rupture and Ventricular Septal Defect Post Acute Anterior Myocardial Infarction

Hakimeh Sadeghian, MD, Kyomars Abbasi, MD*, Naghmeh Moshtaghi, MD, Mahmood Shirzad, MD, Shahla Majidi, MD, Seyed Hesameddin Abbasi, MD, Maryam Semnani, MD, Ali Mohammad Haji Zeinali, MD, Mohammad Sahebjam, MD, Seyed Ebrahim Kassaian, MD

Tehran Heart Center, Medical Sciences / University of Tehran, Tehran, Iran

Received 12 February 2007; Accepted 19 March 2007

Abstract

Myocardial free wall rupture is a catastrophic complication of acute myocardial infarction, and prognosis will depend on the prompt diagnosis by echocardiography, extension of infarct size, and prompt surgical treatment. Free wall rupture concomitant with ventricular septal defect (VSD) may be more complicated for management. A case of a 69-year-old man with myocardial free wall rupture and VSD following acute anterior myocardial infarction is presented.

Keywords: Ventricular septal defect • Myocardial free wall rupture • Myocardial infarction

Introduction

Myocardial free wall rupture is the second most common cause of in-hospital mortality among patients with an acute myocardial infarction; and based upon several large studies, it accounts for 7-17% of all deaths. Free wall rupture may present with a constellation of symptoms that, if recognized early and diagnosed accurately, may allow for emergent successful treatment. These include chest pain, hypotension, nausea, vomiting, agitation, and signs of increased adrenergic drive. Autopsy studies suggest that a subset of free wall ruptures, up to 40%, follow a sub acute course. Numerous pathologic observations have confirmed that rupture is an ongoing stuttering process characterized by progressive tears and hemorrhage into the pericardial space, which may seal itself with an overlying clot or with the formation of a pseudoaneurysm. Ventricular septal defect (VSD) is a rare and serious complication. The incidence is 1-2% of all myocardial infarctions.

Case report

A 69-year-old man with a history of hypertension, diabetes mellitus, and acute renal failure with creatinine=3.1 mg/dl was admitted in our hospital with an acute anterior myocardial infarction. His electrocardiogram showed Q wave, elevation of ST segments, terminal T invert in the leads V1 through V6, and a rise in serum levels of the myocardial- specific isoenzyme of creatine kinase and of troponine. Transthoracic echocardiography (TTE) suggested: normal left ventricular (LV) size; concentric left ventricular hypertrophy (LVH); evidence of myocardial infarction in 6 segments in the left anterior descending artery (LAD) territory: relatively thin with akinesia of apical segments, anteroseptal mid portion, and septal mid portion with aneurismal formation in septal apical and inferoapical; large immobile LV apical clot; global left ventricular ejection fraction (LVEF) about 30%; a large ventricular septal defect (VSD) (Figure 1) in septal apical with peak systolic gradient.
Case Report

Coronary Artery Fistula with Double Outlet Right Ventricle: a Case Report

Yaser Jenab, MD1*, Ali Kazemi Khaledi, MD1, Hassan Ranjbarnejad, MD1, Arezu Zoroufian, MD2, Mahmood Shahzadi, MD1

1Imam Khomeini Hospital, Medical Sciences / University of Tehran, Tehran, Iran.
2Tehran Heart Center, Medical Sciences / University of Tehran, Tehran, Iran.

Received 15 November 2006; Accepted 10 March 2007

Abstract

The majority of coronary artery fistulas (CAFs) are congenital. The anomaly accounts for 0.4% of congenital heart defects and approximately 50% of pediatric coronary vasculature anomalies. Twenty percent of people with congenital CAFs have other concomitant cardiac anomalies, most frequently aortic and pulmonary atresia and patent ductus arteriosus. It is worthy of note that CAF with the tetralogy of Fallot has also been reported. Here we describe a patient with a double outlet right ventricle in association with a coronary artery fistula.

J Teh Univ Heart Ctr 2 (2007) 115-118

Keywords: Double outlet right ventricle • Coronary artery fistula • Tetralogy of Fallot

Introduction

Coronary artery fistula (CAF) is a rare, usually solitary, anomaly that accounts for approximately 0.4% of congenital heart defects. The majority of cases in the pediatric population are congenital in nature, while acquired fistulas are often iatrogenic as a result of coronary insult. There are some reported cases of congenital CAF in association with the tetralogy of Fallot (TOF) and some iatrogenic cases detected postoperatively in patients with TOF.

Case report

A 14-year-old girl was referred for cardiac surgery with a diagnosis of TOF. She had had central cyanosis and exertional dyspnea since birth and had not been able to walk since she was two years old. On examination, she was underdeveloped with central cyanosis, clubbing of fingers, and a squatting position. A right ventricular impulse and systolic thrill were palpable along the left sternal border. The second heart sound was single. Arterial oxygen saturation was about 55% on admission.

Transthoracic echocardiography showed a double outlet right ventricle (about 75% overriding of the aorta toward the right ventricle, lack of fibrous continuity between the posterior aortic valve leaflet and anterior mitral valve leaflet, and side-by-side position of aorta and pulmonary artery); large perimembranous ventricular septal defect; hypoplastic right ventricular outflow tract, pulmonary artery, and pulmonary artery branches; thickened pulmonary valve; small atrial septal defect; severe right ventricular enlargement
Editorial

Moderate Ischemic Mitral Regurgitation: Repair or no Intervention Concomitant with CABG?

Hakimeh Sadeghian, MD*

*Corresponding Author: Hakimeh Sadeghian, Assistant Professor of Cardiology, Department of Echocardiography, Tehran Heart Center, North Kargar Street, Tehran, Iran. 1411713138. Tel: +98-21-88029257. Fax: +98-21-88029256. E-mail: sadeghianhakimeh@yahoo.com.

The Journal of Tehran University Heart Center, Medical Sciences/University of Tehran, Tehran, Iran.

Ischemic Mitral Regurgitation (IMR) is a disease of myocardium.1 While some authors believe that myocardial infarction (MI) always precedes IMR, others believe that IMR is caused by coronary artery disease (CAD) and not necessarily MI.2 In IMR, the leaflets and subvalvular apparatus are by definition normal; the disease must be distinguished from MR associated with CAD, in which no cause and effect relationship exists.3 About half of the patients with ischemic heart disease and chronic mitral regurgitation (MR) have coexisting MR caused by rheumatic fever, myxomatous degenerative diseases, or other conditions.

IMR is divided into acute (within one week or 16 days after acute myocardial infarction [AMI]) and chronic. Acute IMR may occur as a consequence of papillary muscle (PM) rupture or may be produced without PM rupture. PM rupture may be due to the complete rupture of PM, which occurs within one week after AMI or due to the rupture of one head from several heads of PM, which occurs up to 3 months after AMI.1

Posterior PM has a single blood supply from the right coronary artery (RCA) or left circumflex artery (LCX) and is most prone to ischemia. Anterior PM has a dual supply from the left anterior descending (LAD) and LCX and is less prone to ischemia.1 Acute IMR may be begotten by acute ischemia or MI without PM rupture, previously named PM dysfunction. In this setting in animal models, PM in the infarct zone gets 2-4 mm closer to the mitral valve (MV) annulus and the opposite PM gets away from the MV annulus. Consequently, the alteration of the normal geometry between PMs and asynchronous contraction of PMs produces MR.1 In chronic IMR, factors contributing to incomplete mitral leaflets closure include abnormal leaflet tethering by displaced ischemic papillary muscles (type IIIB valve disease) or a dilated annulus (type I valve disease).5,6

Previously, there was a greater emphasis upon the role of MV annulus dilation, as the main mechanism, in the causation of MR. There is now, however, a growing awareness of the role of leaflet restriction due to tethering and leaflet tenting in the causation of MR. Some authors believe that systolic mitral valve tenting is the main mechanism of IMR due to apical and posterior papillary muscle displacements and that the annular dilation has only an adjunct role.1

Some authors believe that annular dilation is present with all the following 3 criteria: 1) Left ventricular (LV) dilation. 2) Annulus/anterior mitral leaflet parasternal long axis. 3) Central MR. Others describe annular dilation in the setting of LV dilation, central MR, and size of the annulus greater than 3 cm. There are also those who maintain that left atrial (LA) dilation is present with annulus dilation. The MV annulus is smaller in late diastole and systole; that is why we measure the mitral annulus in early diastole, and it is between 2-3.4 cm in transthoracic echocardiography (TTE) and 2-3.8 cm in transesophageal echocardiography (TEE). The MV annulus is not planar and is in the shape of a hyperbolic paraboloid; it is more cephalic in midscalopes and more caudal in commissures. The maximum height is about 14±3 mm. In functional MR (FMR), this height is reduced and the distance between the high points increases.7

Tethering is divided into symmetrical and asymmetrical types. Symmetrical tethering is due to the apical displacement of both leaflets, whereas asymmetric tethering is caused by the posterior displacement of both leaflets. Symmetrical tethering is associated more frequently with the anterior MI, three-vessel disease (3VD), and LAD lesion and is seen more often in patients with NYHA functional class (FC) III, more LV dilation, and a low ejection fraction (EF).

Asymmetrical tethering is accompanied more frequently by inferior MI, RCA lesion, and patients in NYHA FC III. Asymmetrical tethering is accompanying more frequently by inferior MI, RCA lesion, and patients in NYHA FC III.8

MV deformation indices and local and global LV deformation indices are believed to be more impaired in symmetrical than...
Using Workload to Predict Left Main Coronary Artery Stenosis in Candidates for Coronary Angiography

Saeed Sadeghian, MD*, Abbasali Karimi, MD, Mojtaba Salarifar, MD, Masoumeh Lotfi Tokaldany, MD, Elham Hakki Kazzazi, MD, Mahmoud Sheikh Fathollahi, MSc

Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran.

Received 8 February 2007; Accepted 20 April 2007

Abstract

Background: Coronary angiography, albeit a safe procedure, may cause serious complications especially in patients with left main stenosis (LMS). This study was designed to investigate the efficacy of workload achieved by exercise tolerance test (ETT) in predicting LMS in candidates for coronary angiography.

Methods: A total of 743 patients with a positive ETT who subsequently underwent cardiac catheterization were retrospectively studied. Different risk factors were compared among the patients with and without LMS. A multivariate forward stepwise logistic regression analysis was used to identify the main predictors of LMS.

Results: Among our 743 patients, 72% were male and 41 (5.5%) had LMS≥50%. Patients with LMS, by comparison with those without LMS, were older and were more likely to be male and had higher percentages of ejection fraction less than 35% (EF≤35%), history of myocardial infarction, and lower metabolic equivalent (METs). After adjusting for important variables, we found that EF≤35%, METs, and the male sex were significant independent predictors of LMS (P<0.0001, P=0.024, and P=0.006, respectively). When the patients were divided into two groups in terms of METs≤7 and METs>7, LMS was found in 8.3% and 3.6%, respectively (P=0.006). The risk of having LMS in the men with METs≤7 was higher than that in those with METs>7 (OR=3, P=0.003, 95% CI=1.50-6.00). Among the patients with LMS, stenosis≥70% was found in 44% in METs≤7 and 18.8% in METs>7.

Conclusion: Lower METs correlated with an increased likelihood of significant LMS in the patients, especially if they were male, who had a positive exercise test and were suspected of coronary artery disease. It is, therefore, advisable that patients with METs≤7 receive due attention during coronary angiography.

Keywords: Exercise test • Workload • Left main coronary artery disease • Coronary angiography

Introduction

Coronary angiography may result in life-threatening complications. The coronary angiography-related mortality rate varies from 0.02 to 0.11 percent,1,2 and independent risk factors of the complications of coronary arteriography include unstable angina, coronary multivessel disease, left main coronary artery disease, and heart failure.1 Patients with left main coronary stenosis (LMS) have a 2-fold higher risk of complications from coronary angiography and require care when the procedure is performed.1 In agreement with those results, our experiment on more than 45000 angiographies showed an angiography-related mortality rate of 0.04% (16 patients), 9 cases of which had left main artery lesion (56%). For this reason, investigators have attempted to find
Fractional Flow Reserve and Appropriateness of Angioplasty in Moderate Coronary Stenosis

Seyed Hesameddin Abbasi, MD, Seyed Ebrahim Kassaian, MD*, Mojtaba Salarifar, MD Saeed Sadeghian, MD, Davood Kazemi Saleh, MD, Mehran Mahmoodian, MD Sirous Darabian, MD, Solmaz Asaa, MD

Tehran Heart Center, Medical Sciences / University of Tehran, Tehran, Iran.

Received 25 January 2007; Accepted 5 March 2007

Abstract

Percutaneous coronary angioplasty (PTCA) of a coronary stenosis without documented ischemia at noninvasive stress testing is often performed, but its benefit is unproven. Coronary pressure– derived fractional flow reserve (FFR) is an invasive index of stenosis severity defined as the ratio of maximal blood pressure in a stenotic vessel to the normal maximal pressure in the same vessel. FFR is a reliable substitute for noninvasive stress testing and values below 75% identifies stenoses with hemodynamic significance. It is a method that can provide a reliable assessment of coronary stenosis especially in those with intermediate lesions. It can highly impact on decision-making in therapeutic planning and prevent many unnecessary procedures that are routinely done in these cases. In the present study, we report the results of FFR measurements in a series of patients, and this is the first report on the FFR measurement in Iran. The FFR measurement was performed for eleven vessels with intermediate stenosis, and in seven lesions (63.6%) it led to changes in the treatment strategy. On the basis of FFR, percutaneous coronary intervention (PCI) was changed into medical follow-up in five lesions, medical follow-up changed to PCI in one lesion, and coronary artery bypass grafting (CABG) changed to medical follow-up in another.

Keywords: Fractional flow reserve • Coronary artery disease • Noninvasive stress test

Introduction

In patients with chest pain and a coronary stenosis at angiography, revascularization is warranted if objective evidence of reversible ischemia is present and medical therapy fails.1 Yet, percutaneous coronary angioplasty (PTCA) is often recommended solely on the basis of the angiogram, although noninvasive testing for reversible ischemia is either negative, equivocal, or not performed at all.2 In such patients, it is unclear whether the chest pain must be attributed to the coronary stenosis and whether PTCA improves event-free survival or functional class.3 Fractional flow reserve (FFR) is an invasive index of the functional severity of a stenosis determined from coronary pressure measurement during cardiac catheterization.

FFR expresses maximum achievable blood flow to the
Early Outcome of Coronary Artery Bypass Grafting in Patients with Severe Left Ventricular Dysfunction

Saeed Davoodi, MD*, Abbasali Karimi, MD, Seyed Hossein Ahmadi, MD
Mehrab Marzban, MD, Namvar Movahhedi, MD, Kyomars Abbasi, MD
Abbas Salehi Omran, MD, Mahmoud Shirzad, MD, Mehrdad Sheikhvatan, MD
Seyed Hesameddin Abbasi, MD

Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran.

Received 19 February 2007; Accepted 25 May 2007

Abstract

Background: Left ventricular dysfunction is one of the most powerful predictors of early and late outcomes in patients who undergo coronary artery bypass grafting (CABG). The aim of this study was to assess the early results of CABG that predict 30-day mortality and prolonged length of hospital stay (LOS) after CABG in patients with an ejection fraction (EF) of 30% or less.

Methods: Seven hundred seven patients who underwent CABG with EF≤30% in Tehran Heart Center between January 2002 and January 2006 were entered and compared with 9467 patients with EF>30% as the control group. Demographic and clinical characteristics and postoperative complications were considered.

Results: The thirty-day mortality rate (2.3% vs. 0.8%, P<0.0001), the mean of LOS (P<0.0001), and the mean of the length of ICU stay (P<0.0001) were higher in the severe left ventricular dysfunction group than in the control group. In patients with severe left ventricular dysfunction, the mean of NYHA score (P=0.0081), prolonged ventilation (P=0.0051), and renal failure (P=0.0606) were related to the 30-day mortality rate. Also, the prolonged LOS in these patients was correlated with the female gender (P=0.0018) and atrial fibrillation (P=0.0164).

Conclusion: Although left ventricular dysfunction is itself an important strong risk factor in patients undergoing CABG, the early outcome of CABG in patients with left ventricular dysfunction is acceptable and the management of this factor will help to reduce the mortality and total length of stay in hospital.

Keywords: Left ventricular dysfunction • Coronary artery bypass grafting • Mortality

Introduction

Risk factors for operative mortality after CABG have been defined by several investigators and include urgency of operation, left ventricular ejection fraction (LVEF), reoperation, age, sex, and presence of left main coronary...
Common Polymorphism A1298C in Methylenetetrahydrofolate Reductase Gene Is not a Risk Factor for Coronary Artery Disease in Selected Iranian Patients

Mahboobeh Ghaedi, MSc¹, Ahmad Aleyasin, PhD¹*, Mohammad Ali Boroumand, MD², Seyed Hesameddin Abbasi, MD², Saeed Davoodi, MD², Mojgan Mirakhori, MSc¹

¹National Research Center for Genetic Engineering and Biotechnology, Tehran, Iran.
²Research Department, Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran.
³National Iranian Oil Company Health Organization, Central Hospital, Tehran, Iran.

Received 13 February 2007; Accepted 19 March 2007

Abstract

Background: Coronary artery disease (CAD) is emerging as a major public health concern in most developing countries. During the past 10 years, the vast majority of over 100 case-control retrospective studies have shown that elevated plasma homocysteine level is a strong independent risk factor for coronary artery disease. Methylenetetrahydrofolate reductase (MTHFR) is a key enzyme in folate and homocysteine metabolism. A second polymorphism, A1298C, in MTHFR gene, is reported to be associated with decreased enzyme activity and may give rise to elevated blood homocysteine level and increased risk of coronary artery disease.

Methods: In the present study we used PCR-RFLP analysis to investigate the association between A1298C polymorphism and blood homocysteine level and the risk of CAD in 100 patients compared to 100 normal controls.

Results: The frequency of mutated allele and genotype distribution showed no significant difference between patient and control groups. Although the elevated level in blood homocysteine were observed in Iranian CAD cases compared to the normal control, the A1298C polymorphism was not associated with increased CAD risk in studied population as supported by a P value > 0.05 and chi-square equal to 0.697.

Conclusion: An increased plasma homocysteine concentration confers an independent risk factor for CAD. Although A1298C polymorphism in MTHFR gene has effects on enzyme activity but our findings do not support a major role for this polymorphism in homocysteine metabolism and it can not be considered a major risk factor for coronary artery disease in a selected Iranian population.

Keywords: MTHFR • Polymorphism • Homocysteine • Folate

Introduction

Coronary artery disease (CAD) is the major cause of death in industrial nations. Despite advances in our understanding of cardiovascular disease, traditional risk factors such as hypertension, smoking, diabetes mellitus, and dyslipidemia do not accurately predict cardiovascular events.¹² Homocysteine is an emerging new risk factor for CAD. Mild-to-moderate hyperhomocysteinemia is a well-established independent risk factor for coronary cerebral and peripheral atherosclerotic diseases and venous thrombosis.⁴–⁶ Numerous clinical studies have shown that total homocysteine is a risk factor for CAD and stroke in humans and predicts mortality independently of traditional risk factors.⁷–¹⁰
Cardiac stem cell transplantation is being considered as a potential alternative for many patients with ischemic heart diseases. There is a variety of cells for this purpose including embryonic and adult stem cells each with unique advantages and limitations. Nevertheless, the most suitable stem cells for cardiac cellular therapy are usually characterized by their good potential for survival, growth, differentiation, and integration into the host myocardium as well as high availability and low immunogenicity and oncogenicity. Selection of proper timing and routes of delivery and the right dosings according to the lesion size and location is also critical for success of the stem cell therapy.

Today, ischemic heart diseases and the resultant heart failure are the leading cause of death and physical disability in many countries.1 However, there are still considerable rates of morbidity and mortality despite contemporary medical treatments and interventional options thus leaving heart transplantation as the ultimate therapeutic choice in the most complicated cases.2,3 Because of the many limitations of the mentioned approaches, cardiac stem cell transplantation is increasingly being considered as a potentially novel alternative to conventional therapies by restoring cardiac function and improving microcirculation in the damaged heart.3

The innovative concept and potential application of stem cells comes from the hematological field where bone marrow and hematopoietic stem cells have been used successfully for more than 30 years to treat diseases like leukemia.4 Stem cells are a population of immature tissue precursors found in various organs among the body capable of proliferation as well as differentiation in to a spectrum of different cell types under proper circumstances. Stem cells in general share the following characteristics and have a high capacity for: 1) proliferation or self-renewal; 2) differentiation; 3) trans-differentiation or plasticity; and 4) ex-vivo cultivation for tissue engineering applications.5,6 On the basis of their origins and biological potentials, stem cell can be classified into either embryonic or adult categories. Embryonic stem (ES) cells are derived from the inner mass of blastocysts and can virtually give rise to any cell type found in the body (i.e. more than 200 kinds of cells) including the cardiomyocytes.3,7 This very high differentiation capacity of ES cells is referred to as totipotency (i.e. differentiating into all cell types of the embryonic three main layers) or pluripotency (i.e. differentiating into most body cell types excluding those belonging to the germinal lineage). Adult stem cells have a much lower differentiation capacity and usually produce only limited numbers of cell types; hence they are referred to as multipotent or oligopotent stem cells. Adult stem cells in certain tissues give rise only to one type of somatic cells (monopotent stem cells). Human ES cells, on the other hand, have the disadvantage of ethical and technical limitations associated with their use in clinical trials, higher risks of arrhythmogenicity and teratogenicity, and the need for immunosuppressive therapy after transplantation.3

The concept of cardiomyocyte transplantation has been advocated since the late 1990s.8 Stem cell transplantation has since then opened a new frontier in the treatment of cardiovascular disorders. In addition to regeneration of new cardiomyocytes, stem cells can participate in angiogenesis and hence prevent remodeling in the diseased heart insulted by ischemic events.4 There are several major issues in any cardiac stem cell therapy experiment including selection of a suitable source and type of stem cells, their right dosings, the optimum timing and proper routes of cell delivery, and to decide whether to expand and differentiate them in vitro prior to implantation. These issues are the keys to success of stem cell therapy. Stem cells should also be isolated and further reintroduced in a feasible, safe and minimally invasive approach. Hence, a well-designed study should provide the following conditions to achieve the most effective tissue repair and regeneration: 1) high rates of cellular survival and proliferation (i.e. they should be able to reach the injured area, stay alive, and proliferate in the injured tissues); 2) strong

1Corresponding Author: Hossein Ahmadi Tafti, Associate Professor of Cardiac Surgery, Tehran Heart Center, North Kargar Street, Tehran, Iran. 1411713138. Tel: +98 0912 1153540. Fax: +98 21 88029731. E-mail: shossien1330@yahoo.com.
Effects of Phase III Cardiac Rehabilitation Programs on Anxiety and Quality of Life in Anxious Patients after Coronary Artery Bypass Surgery

Tahereh Dehdari, MSc1, Alireza Heidarnia, PhD1*, Ali Ramezankhani, PhD2, Saeed Sadeghian, MD3, Fazlollah Ghofranipour Ruchi, PhD1, Gholamreza Babaei, PhD1, Soraya Etemadi, MSc3

1Department of Health Education, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran.
2Department of Public Health, Shahid Beheshti University, Tehran, Iran.
3Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran.

Received 19 March 2007; Accepted 28 June 2007

Abstract

Background: Patients with psychological problems after coronary artery bypass graft surgery (CABG) show poorer outcomes; nevertheless, there is a paucity of research into the effects of cardiac rehabilitation programs on such patients. The purpose of this study was to determine the effect of phase III cardiac rehabilitation programs on the anxiety and quality of life of anxious patients who had undergone CABG in Iran.

Methods: Six weeks after CABG, 83 anxious patients participated in an 8-week cardiac rehabilitation program that consisted of formal supervised exercise training and educational sessions. The state/trait anxiety inventory and SF-36 questionnaire were two instruments for collecting data in the present study. Of the total of 83, 66 participants saw out the eight-week period.

Results: With the exception of the mental health aspect, significant improvements were noted in the following components of the quality of life measures after the cardiac rehabilitation program: physical functioning (P<0.001), role-physical (P<0.001), bodily pain (P<0.001), social functioning, (P=0.003), general health (P=0.020), vitality (P=0.006), and role-emotional (P=0.003). Additionally, significant reductions were observed in state anxiety (P=0.010) and trait anxiety (P=0.010).

Conclusion: These findings suggest that phase III cardiac rehabilitation may be an effective therapy for improving psychological outcomes of patients with psychological problems after CABG.

J Teh Univ Heart Ctr 4 (2007) 207-212

Keywords: Phase III cardiac rehabilitation • Coronary artery bypass graft surgery • Anxiety • Quality of life

Introduction

Cardiac surgery may evoke anxiety, stress, and emotional responses from patients and their families.1 Anxiety is one of the earliest and most intense psychological responses to ischemic coronary events.2 Most patients are relieved when
Accuracy of Dobutamine Stress Echocardiography in Detecting Recovery of Contractile Reserve after Revascularization of Ischemic Myocardium

Hakimeh Sadeghian, MD¹, Masoumeh Lotfi-Tokaldany, MD¹*, Nader Fallah, PhD¹ Seyed Hesameddin Abbasi, MD¹, Seyed Hossin Ahmadi, MD¹, Abas Ali Karimi, MD¹ Mojtaba Salarifar, MD¹, Salehi Rezvanieh, MD²

¹ Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran. ² Cardiology Department, Tabriz University of Medical Sciences, Tabriz, Iran.

Abstract

**Background:** This study was designed to investigate the accuracy of dobutamine stress echocardiography (DSE) in detecting the post-revascularization recovery rate of contractile reserve (CR) in ischemic myocardium.

**Methods:** A total of 112 segments from seven patients with low ejection fraction (<35%) and coronary artery disease were evaluated with DSE one week before and 12 weeks after coronary artery bypass graft surgery (CABG). Sensitivity, specificity, and positive and negative predictive values of DSE for detecting the recovery rate of CR were calculated based upon their standard definition and were presented with 95% confidence intervals (CI).

**Results:** The mean baseline left ventricular ejection fraction was 31±4%, which reached 35±7% after CABG unremarkably. The recovery rates of resting function and CR were 18.2% and 50% for hypokinetic and 15.6% and 24.1% for akinetic segments respectively. Specificity, sensitivity, and positive and negative predictive values of DSE for detecting the recovery of CR were 83% (CI=69-97), 89% (CI=83-96), 94% (CI=88-99), and 73% (CI=55-88), respectively.

**Conclusion:** Despite acceptable sensitivity, specificity, and positive predictive value, DSE has a relatively lower negative predictive value for detecting the recovery of CR in ischemic myocardium and, consequently, the full extent of myocardial viability. Further sensitive techniques may, therefore, be needed to provide complementary information regarding long-term functional outcome.

Keywords: Echocardiography • Dobutamine • Myocardial ischemia

Introduction

Hibernating myocardium defines the reversible contractile function of dysfunctional left ventricular (LV) segments subtended by stenotic coronary arteries in patients with chronic coronary artery disease following revascularization. Detection of the contractile reserve (CR) of hibernating myocardium by noninvasive testing currently helps make clinical decisions regarding recommendation for revascularization in patients with severe ischemic LV dysfunction. Among different noninvasive imaging techniques, dobutamine stress echocardiography (DSE) is usually the initial approach for detecting hibernating myocardium.

*Corresponding Author: Masoumeh Lotfi-Tokaldany, Research Department, Tehran Heart Center, North Kargar Street, Tehran, Iran. 1411713138. Tel: +98-21-88029257, Fax: +98-21-88029256. E-mail: lotti21366@yahoo.co.uk.*
Stem Cell Transplantation in Patients with Acute Myocardial Infarction: a Single Center Registry

Mojtaba Salarifar, MD1*, Kamran Ali Moghaddam, MD2, Seyed Ebrahim Kassaian, MD1, Mohammad Alidoosti, MD1, Ali Mohammad Haji Zeinali, MD1, Hakimeh Sadeghian, MD1, Jalil Majd Ardakani, MD1, Elham Hakki Kazazi, MD1, Ardeshr Ghavamzadeh, MD2

1Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran.
2Shariati Hospital, Medical Sciences/University of Tehran, Tehran, Iran.

Received 12 April 2007; Accepted 28 July 2007

Abstract

Background: Early clinical investigations indicate that an infusion of autologous bone-marrow cells into the infarct-related coronary artery is feasible after acute myocardial infarction. There is increasing evidence that cell transplantation may improve the perfusion and contractile function of the ischemic myocardium. The present study reports primarily the safety of intracoronary bone marrow mononuclear cell (BMMNC) injections and secondarily the hypothesis that intracoronary injections of autologous BMMNC in patients with acute myocardial infarction may have a favorable impact on tissue perfusion and contractile performance.

Methods: Twelve patients with acute ST-elevation myocardial infarction of the anterior wall treated with percutaneous coronary intervention were enrolled in this prospective, nonrandomized, open-label study. Left ventricular function and number of nonviable segments were assessed with the use of echocardiography and Technetium-sestamibi single photon emission tomography respectively at baseline and after a 4-month follow-up.

Results: At 4 months’ follow-up, global left ventricular ejection fraction in echocardiography increased from a mean of 31.78±7.56% at baseline to 38.89±6.97% (p=0.018). Mean wall motion score in rest echocardiography was 29.5±6.67 in basal and 26.75±5.44 at 4 months’ follow-up (p=0.05). Nuclear perfusion imaging studies in the patients for the mean number of nonviable segments were 6.5 at baseline and 6 in 4 months’ follow-up (p=0.17). Three patients were lost to follow-up and did not undergo the 4-month evaluations.

Conclusion: This study is small and very preliminary. Data from large, randomized, controlled trials are needed to clarify the effect of stem-cell injection in myocardial function.

Keywords: Stem cell transplantation • Myocardial infarction • Ventricular function

Introduction

Myocardial infarction (MI) leads to the loss of tissue and impairment of cardiac performance. The irreversible loss of cardiomyocytes after MI begets left ventricular remodeling, eventually resulting in ischemic heart failure. Remodeling of
An Ovine Model of Dilated Cardiomyopathy Induced by Doxorubicin

Mahmood Mirhoseini, MD*, Shahram Rabbani, DVM, Sirus Darabian, MD, Saeed Sadeghian, MD, Abbasali Karimi, MD, Seyed Hesameddin Abbasi, MD

Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran.

Received 25 April 2007; Accepted 7 June 2007

Abstract

Background: Dilated cardiomyopathy is associated with a progressive deterioration in cardiac function and eventually death. Initial interest in this hypothesis was to create another large animal model for dilated cardiomyopathy in addition to pigs and dogs.

Methods: After the induction of anesthesia to 10 female sheep, a carotid-jugular shunt was created in all the animals via a 1-cm fistula between the carotid artery and jugular vein. Six sheep out of the total of 10, were given intravenous Doxorubicin. Echocardiographic studies were performed before surgery and 3 months after that. The 4 animals not injected with Doxorubicin were evaluated for echocardiographic parameters after one year.

Results: There was no abnormality in echo parameters in the 4 sheep that had not received Doxorubicin; in addition, their valves and cardiac output were normal. As regards the six sheep injected with Doxorubicin, 4 received a dose of 2 mg/kg weekly and expired after the second injection due to the toxicity of the drug. 1 was given Doxorubicin 1 mg/kg and died after one week, and 1 had Doxorubicin 0.5 mg/kg but showed no abnormality in terms of dilated cardiomyopathy.

Conclusion: We conclude that the sheep is sensitive to Doxorubicin and that the dosage that is enough for creating dilated cardiomyopathy in dogs is very toxic for the sheep.

J Teh Univ Heart Ctr 4 (2007) 213-216

Keywords: Sheep • Dilated cardiomyopathy • Doxorubicin • Carotid-jugular shunt

Introduction

Dilated cardiomyopathy is associated with a progressive deterioration in cardiac function and eventually death. Heart failure is an unresolved problem in the human despite advances in pharmacological therapy. Initial interest in this hypothesis was to create another large animal model for dilated cardiomyopathy besides pigs and dogs.
The aim of this study was to determine the effects of a phase II cardiac rehabilitation programme on health-related quality of life (HRQoL) domains in cardiac patients following coronary artery bypass grafting (CABG). The study looked at post-CABG patients of Iranian origin who had been admitted to the Tehran Heart Center, Iran. Forty-four patients aged between 40–60 years, participated in the programme, 4–5 weeks after CABG. The SF-36 Health Survey was used to assess the health-related quality of life (HRQoL) domains before and after the programme, and at 3-month follow-up. The data were then compared with corresponding values for 882 healthy Iranian individuals of similar ages from the general population.

The programme was safe and well-tolerated. The mean scores for all patients showed significant gains in all HRQoL domains, both at last exercise session and follow-up. Compared with mean scores at the last exercise session, the values at follow-up remained essentially unchanged in five domains. There were further significant gains in the mean scores for Role physical, Role Emotion and Bodily Pain at follow-up.

The results suggest that the programme produced significant short-term and long-term improvements in physical, mental and emotional aspects of the patients’ quality of life in this patient group. Further research is needed to correlate the values of the SF-36 scores with clinical outcomes, and to investigate the mechanisms by which the programme is effective.
بررسی ارتباط بین عوامل خطرزاسی ایسکمی قلب با تنگی تنه اصلی شریان کرونر چپ

سیروس دارابیان

خلاصه

هدف: تجربه ای از تنگی (LMTD) در گرفتن عروق کرونر محاسبه می‌گردد و عوامل متعددی در تنگی آن موثر است. لذا پژوهش حاضر به منظور تعیین ارتباط عوامل خطرزاسی ایسکمی قلب با تنگی تنه اصلی شریان کرونر چپ انجام گرفته است.

مواد و روش‌ها: در یک مطالعه Case-Control، 785 بیمار در طی سال‌های 1383 و 1384 در مرکز قلب تهران آزمودگان شد. بیماران بر اساس یافته‌های آنژیوگرافی در 2 گروه (124 نفر) تقسیم و تنگی LMTD< 25 درصد (200 نفر) در گروه قرنطینه عوامل خطر شامل سن، جنس مرد، شمار خون، جریان خون، دیابت، مصرف سیگار، سابقه خانوادگی و مصرف ماده‌های جعدی آوریل شد. آنالیز رفتاری جهت تعیین ارتباط فاکتور با پیش‌بینی عوامل کرونر به Logisitc نمودار قرار گرفت.

نتایج: میانگین سن بیماران (27/10±5/3) سال و 35 درصد پیامرد مورد بررسی قرار گرفت. در مقاله، میانگین عوامل خطرزاسی شاخه شدید بیماری عروق کرونر به طور معنی‌دار در بین متلاهیان به LMTD و CAD و چندین متغیر دیگر مورد بررسی قرار گرفت. مناظرهRegression Multiple Logistic و One-way ANOVA و Chi² بررسی شد. خلاصه: درک عوامل خطرزاسی دوره مطالعه عوامل خطرزاسی مستقل و معنی‌دار برای LMTD و بیماران سالمند عوامل خطرزاسی ابتلا به LMTD را افزایش می‌دهد.

نتیجه‌گیری: استمتعال ماده میانگین سوابق عوامل خطر می‌تواند به عنوان یک عوامل خطرزاسی مستقل بر بیماری عروق کرونر باشد و در بحث این افراد حضور ابتلا به بیماری ایسکمی را بهتر تشخیص و درمان عوامل بیشتری را به وجود می‌آورد.

واژگان کلیدی: تنگی قلب، بیماری عروق کرونر، تریاک، آنزیم‌هایی عوامل خطر

1- منصوبات قلب و عروق مرکز قلب تهران
2- پژوهش عمومی مرکز قلب تهران
3- وبسایت سوسول: سیروس دارابیان

آدرس: تهران، کارگر شهید، پلاک شماره 1

پست الکترونیکی: cdarabian@yahoo.com

تاریخ دریافت: 85/10/19
تاریخ پذیرش نهایی: 86/4/25
دورنوس: 5209731240

مقدمه

بیماری تنگی تنه اصلی شریان کرونر چپ (LMTD) در پی James Herrick برای نخستین بار در سال 1912 توصیف شد. بیمار مبتلا به افستکس میکارداه حاد توصیف شد. در تحقیق اخیر، بیماری نوروز و سیستم پیچ چپ همراه با انسداد کامل شریان کرونر به وسیله روی ناحیه (LMCA) اصلی چپ حاصل می‌گردد. پژوهش‌های آنژیومیکوگرافی محل دوشاخ‌هندش بیماری اصلی شریان‌ها (LMCA) به داخل شریان‌های قلمداد (LCX و LAD) نژول چپ و سپیمافکس کرونری چپ (CABG) برای بررسی ارتباط بین عوامل خطرزاسی ایسکمی قلب با تنگی تنه اصلی شریان کرونر چپ (LMTD) بر روی نخستین بار در سال 1912 توصیف شد.
Title: Estimating risk ratio using modified Poisson regression for cohort studies with binary outcomes

Authors: Hassanzadeh J, (MD); Eshraghian MR, (PhD); Mohammad K, (PhD); Fotouhi A, (PhD); Salarifar M, (MD).

Introduction: Risk ratio is usually the parameter of interest in epidemiologic and medical studies. Poisson regression model is an approach used to directly estimate risk ratio. When Poisson regression is applied to binomial data, the error for the estimated risk ratio will be overestimated. In other words, Poisson regression is likely to compute a confidence interval that is conservative. In this paper we aim at devising a modified Poisson regression method to rectify this problem.

Methods: To illustrate modified Poisson regression, a simple 2-by-2 contingency table was used. Simple computation was performed to estimate variance. We compared ordinary and modified Poisson regression models by actual data from a study on predictors of coronary artery disease.

Results: Application of ordinary and modified Poisson regression methods resulted in an estimated relative risk of 1.68 for hypercholesterolemia. The confidence intervals provided by these two methods were 1.005-2.82 and 1.05-2.68, respectively. The confidence interval provided by the modified Poisson regression was 10 percent narrower than that obtained by the ordinary method.

Conclusion: Applying modified Poisson regression to cohort studies with binary data, compared with ordinary Poisson regression, reduces variance and increases precision of the estimated risk ratio. This method might result in different findings from ordinary Poisson regression for borderline statistical significance.

Keywords: Modified Poisson regression, binary outcome, risk ratio, odds ratio.

ارزش پیش‌بینی کننده استرس تست و اسکن پرفوژن میکارد در گروه‌های سنی مختلف بر اساس نتایج انژیوگرافی کرونر

چکیده

زمینه و متد: متد‌نامه‌برن روش‌های غیر‌درمانی بیماران مشکوک به ایسکمی قلبی، انجام استرس تست در شرایط خاصی، اسکن پرفوژن مبتنی بر جامدات که می‌تواند بر روی این انسجام‌های انجام انژیوگرافی عروق کرونر محاسبه می‌گردد. افزایش‌های ارجح‌پذیر بین اسکن پرفوژن مبتنی بر جامدات کرونر در افراد با نظر غیر‌مشخص ارجحی در نتایج پیش‌بینی و تخصیص در نتایج آن و توجه به تنش استرس این تکنیک در کشور ما به‌کام حسی در علائم محرومیت یا نارضایتی به صرف وقت و نیروی به‌طور قابل توجه، به طرف بازرسی استرس تست پرده‌ای و روش استرس تست مفهوم شده است. در این مقاله به روش در پیش‌بینی مشخصات بیماران از طریق مصرف و آزمایش‌ها و تبعیضات تعیین و تغییر حالت مصرف و تغییرات جسمی تحت آثار قرار گرفت. مؤسسه ارائه تحقیقات بیشگنجی کننده اند. پیش‌بینی پردازش می‌تواند بیماران در مورد قرار گرفت در انجام استرس تست در نتایج پیش‌بینی و استرس تست در نتایج پیش‌بینی مشاهده شود.

مقدمه

از ارائه کل‌گزاران اسکن پرفوژن و استرس تست به ترتیب برای 2016 و 2018 نبود. بین مقدار اسکن پرفوژن و استرس تست در مدار قرار گرفت. نتایج: مقدار اسکن پرفوژن از زبان تا زمان 60 ساعت بار داده‌ها (برابر با 60/90) تابعیت‌گر: با توجه به نتایج مطالعه کانسانترا (برابر با 60/90) نمی‌ردد. در مواردی که این استرس تست وجود دارد، انجام اسکن پرفوژن به شرایط مراکز اسکن ما برای جمع‌آوری اطلاعات به‌کار می‌رود. البته لازم است یاد داشته باشید که منابع مختلف داده شده‌اند. البته لازم است بیمار به صرف وقت و نیروی به‌طور قابل توجه، به طرف بازرسی استرس تست مفهوم شده است. در این مقاله به روش استرس تست در نتایج پیش‌بینی و استرس تست در نتایج پیش‌بینی مشاهده شود.

کلمات کلیدی: ارزش پیش‌بینی کننده استرس، اسکن پرفوژن، استرس تست، بیماری عروق کرونر

بیماری‌های عروق کرونر از جمله علائم مهم نتانو و میکرو و میکرو در اثر جوامع بیشتر می‌باشد. لذا تشخیص و درمان بیماران مبتلا به بیماری‌های عروق کرونر قلب (CAD) می‌تواند از میزان میکرو و میکرو عوارض این بیماری‌ها کاهش دردابی‌های توسط‌درمان روش جهت غیربازگری بیماران مشکوک به بیماری‌های کرونری قلب. استفاده از استرس تست (ETT) توسط بررسی که این باید مشخص شود، تحقیقات انجام شده‌اند، بررسی‌گرده اسکن پرفوژن از طریق تزریق وزن وابستگی به درجه خاصی است که از سال 1970 به طور وسیع جهت شناسایی ایسکمی میکارد و به

bibliography sample

References:


email: sadeghian15@yahoo.com

www.SID.ir
<table>
<thead>
<tr>
<th>Page</th>
<th>Event</th>
<th>Title</th>
<th>Authors</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>22nd Annual Meeting European association of Cardiothoracic Anaesthesiologists, Krakow, Poland, 2007</td>
<td>Cardiopulmonary resuscitation; early results and success predictors-a single center</td>
<td>Doctor Najafi &amp; Hekmatan</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>22nd Annual Meeting European association of Cardiothoracic Anaesthesiologists, Krakow, Poland, 2007</td>
<td>The predictors of the quality of life in diabetic and non-diabetic coronary artery surgery candidates</td>
<td>Doctor Najafi &amp; Hekmatan</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>56th ESCVS International Congress, Venice, Italy, 2007</td>
<td>Late outcomes in patients with uncorrected moderate mitral regurgitation at the time of isolated coronary artery bypass</td>
<td>Doctor Daryabi &amp; Hekmatan</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>56th ESCVS International Congress, Venice, Italy, 2007</td>
<td>Pulmonary embolism as a fatal complication after open heart surgery</td>
<td>Doctor Mohajeri &amp; Hekmatan</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>56th ESCVS International Congress, Venice, Italy, 2007</td>
<td>Superficial and deep sternal wound infection after more than 9000 coronary artery grafts: incidence, risk factors and mortality</td>
<td>Doctor Salehi &amp; Hekmatan</td>
<td></td>
</tr>
<tr>
<td>61</td>
<td>The 14th World Congress of Anaesthesiologists, Cape Town, South Africa, 2008</td>
<td>Preoperative Serum Creatinine Level is not a Reliable Estimate of Patients' Renal Function in Coronary Artery Bypass Surgery</td>
<td>Doctor Najafi &amp; Hekmatan</td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>The 14th World Congress of Anaesthesiologists, Cape Town, South Africa, 2008</td>
<td>Predictors of post-CABG length of stay in ICU and surgical ward are different</td>
<td>Doctor Najafi &amp; Hekmatan</td>
<td></td>
</tr>
<tr>
<td>64</td>
<td>The 14th World Congress of Anaesthesiologists, Cape Town, South Africa, 2008</td>
<td>The relationship between quality of life components and postoperative blood sugar concentration in patients undergoing coronary artery bypass surgery</td>
<td>Doctor Najafi &amp; Hekmatan</td>
<td></td>
</tr>
<tr>
<td>Page</td>
<td>عنوان کنگره</td>
<td>اثرات</td>
<td>عنوان خلاصه مقاله</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>--------</td>
<td>-------------------</td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>Heart Failure Congress, Hamburg, Germany, 2007</td>
<td>خانم دکتر نجفی و همکاران</td>
<td>Coronary artery bypass surgery versus medical treatment in patients with a low ejection fraction and coronary artery disease: a dobutamine stress echocardiography study</td>
<td></td>
</tr>
<tr>
<td>66</td>
<td>XLIV ERA-EDTA Congress, Barcelona, Spain, 2007</td>
<td>دکتر عباسی و همکاران</td>
<td>Clinical course of children with steroid sensitive syndrome</td>
<td></td>
</tr>
<tr>
<td>68</td>
<td>XLIV ERA-EDTA Congress, Barcelona, Spain, 2007</td>
<td>دکتر عباسی و همکاران</td>
<td>Effect of levamisole in steroid-nephrotic syndrome of childhood</td>
<td></td>
</tr>
<tr>
<td>70</td>
<td>5th International Congress of Intensive Care Medicine, Tehran, Iran, 2007</td>
<td>دکتر نجفی و همکاران</td>
<td>The effect of prophylactic magnesium infusion on the characteristics of postoperative atrial fibrillation: a randomized clinical trial</td>
<td></td>
</tr>
<tr>
<td>71</td>
<td>5th International Congress of Intensive Care Medicine, Tehran, Iran, 2007</td>
<td>دکتر نجفی و همکاران</td>
<td>The inflammatory effects of ventilator – induced lung injury and the protective role of open – lung concept</td>
<td></td>
</tr>
<tr>
<td>72</td>
<td>5th International Congress of Intensive Care Medicine, Tehran, Iran, 2007</td>
<td>دکتر نجفی و همکاران</td>
<td>Cardiopulmonary resuscitation in 1000 patients; early results and success predictors</td>
<td></td>
</tr>
<tr>
<td>73</td>
<td>The International Congress on Transfusion Medicine, Tehran, Iran, 2007</td>
<td>دکتر برهم و همکاران</td>
<td>Four years PABD results in Tehran Heart Center as a first experience in Iran</td>
<td></td>
</tr>
<tr>
<td>74</td>
<td>The 19th Scientific Session of The Saudi Heart Association</td>
<td>دکتر کریمی و همکاران</td>
<td>Tehran heart center adult cardiac surgery database: A report of 5-year registry</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Razi Congress of Dermatology, Tehran, Iran, 2007</td>
<td>دکتر عباسی و همکاران</td>
<td>The association of serum ferritin with diffuse telogen hair loss in women</td>
<td></td>
</tr>
<tr>
<td>Page</td>
<td>Title</td>
<td>Presenter/Authors</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>76</td>
<td>Concomitant carotid endarterectomy and coronary artery bypass grafting (CABG) versus staged carotid stenting followed by CABG: A cohort study</td>
<td>دکتر عباسی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td>77</td>
<td>The influencing factors of acute heart failure and requiring IABP in patients with EF more 50% undergoing CABG</td>
<td>دکتر احمدی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td>78</td>
<td>Safety of local transplantation of autologus CD133(^+) enriched bone marrow cells after recent myocardial infarction: A randomized controlled trial</td>
<td>دکتر احمدی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td>79</td>
<td>Comparison of transepicardial cell transplantation: Autologus undifferentiated versus differentiated marrow mesenchymal stem cells</td>
<td>دکتر احمدی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>Tissue engineering of myocardium using cell-seeded synthetic PCL scaffold in an ovine model of myocardial infarction</td>
<td>دکتر احمدی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td>81</td>
<td>Prosthetic valve endocarditis: Early outcome following medical or surgical treatment</td>
<td>دکترصالحی عسرا و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td>82</td>
<td>Mid term outcome of precutaneous coronary intervention (PCI) versus coronary bypass surgery (CABG) in patients with multiple vessel disease: Three years follow up</td>
<td>دکتر داوودی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td>83</td>
<td>Short term outcomes of endovascular treatment of aortic aneurysms (initial results of the first Iranian consecutive endovascular aortic repair (EVAR) experiences</td>
<td>دکتر حاجی زینی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Page</td>
<td>Title</td>
<td>Authors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>84</td>
<td>First video assisted septal myectomy for hypertrophic obstructive</td>
<td>دکتر مرزبان و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>cardiomyopathy with midventricular obstruction: a case series</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>85</td>
<td>Evaluation of acute low cardiac output syndrome after open cardiac</td>
<td>دکتر احمدی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>surgery in intensive care unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>Clinical outcome of coronary artery bypass grafting in patients with</td>
<td>دکتر عباسی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>unilateral total occlusion of the internal carotid artery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>87</td>
<td>Comparison of pre and post operative fasting blood sugar level,</td>
<td>دکتر شیرزاد و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>morbidity and mortality in addict versus non addict CABG patients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>88</td>
<td>Effects of body mass index on early outcome of coronary artery bypass</td>
<td>دکتر شیرزاد و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>surgery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>89</td>
<td>Midterm results of mitral valve replacement for moderate to severe</td>
<td>دکتر داوودی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>and severe ischemic mitral valve regurgitation: Three years follow up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>Factors associated with participation in cardiac rehabilitation</td>
<td>دکتر سلیمانی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91</td>
<td>Opium use among patients with cardiovascular disease: A novel risk</td>
<td>دکتر دارابیان و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>factor?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>92</td>
<td>The relationship between quality of life components and postoperative</td>
<td>دکتر نجفی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>blood sugar concentration in patients undergoing coronary artery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>bypass surgery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Page</td>
<td>Title</td>
<td>Author(s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-----------------------------------------------------------------------</td>
<td>-----------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>93</td>
<td>The 5th international congress of the Iranian society of cardiac surgeons, Tehran, 2007</td>
<td>Dr. نجفی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Preoperative serum creatinine level is not a reliable estimate of patients’ renal function in coronary artery bypass surgery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>94</td>
<td>The 5th international congress of the Iranian society of cardiac surgeons, Tehran, 2007</td>
<td>Dr. نجفی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Predictors of post--CABG length of stay in ICU and surgical ward are different</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>The 5th international congress of the Iranian society of cardiac surgeons, Tehran, 2007</td>
<td>Dr. نجفی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The effect of prophylactic magnesium infusion on the characteristics of postoperative atrial fibrillation: A randomized clinical trial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96</td>
<td>The 5th international congress of the Iranian society of cardiac surgeons, Tehran, 2007</td>
<td>Dr. نجفی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Predictors of postoperative length of stay in CABG candidates: Comparison of diabetics and non-diabetics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>97</td>
<td>The 5th international congress of the Iranian society of cardiac surgeons, Tehran, 2007</td>
<td>Dr. نجفی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Growing rate of diabetes increases the risks of coronary artery surgery in Iran</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>98</td>
<td>The 5th international congress of the Iranian society of cardiac surgeons, Tehran, 2007</td>
<td>Dr. نجفی و همکاران</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cardiac resynchronization therapy (CRT) in patients with heart failure</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Cardiopulmonary resuscitation; early results and success predictors- a single center registry

Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Cardiopulmonary resuscitation (CPR) is one of the most important and unfortunately disappointing components of the standard hospital cares. This study was designed to evaluate the early results and success predictors of the CPR.

Methods: This study was performed on our center database which contains demographical and clinical data for each resuscitated patient. CPR in the operating rooms was excluded. Successful CPR was defined as survival without any residual sequel or complication. Regarding CPR results patients were in one of these groups: successful or unsuccessful CPR. Also regarding first observed rhythm (FR) patients were divided into 2 groups Ventricular Fibrillation, Ventricular Tachycardia (VF/VT) and Asystol or Bradycardia (Asys).

Results: Between January 2005 and March 2006, 577 patients (320 male and 257 female, Mean age: 65.24±13.66) were resuscitated. The most important causes of the CPR were arrhythmia (38.4%), respiratory failure (30.8%), and homodynamic instability (20.0%). Success rate after resuscitation, at 24 hours and at discharge were 51.0%, 40.0% and 28.3%, respectively. Regarding the triggering arrhythmia these rates were 74.1%, 66.7% and 40% [VF-VT] vs. 43%, 25.8% and 14.3% [Asys] (P value < 0.05 for each). Age, sex, concurrent disease, and serum pH were similar between groups. As it was revealed in the table 1 Upper GCS levels (>8), Cardiac massage duration lower than 15 minutes, CPR duration <30 minutes and no need for epinephrine were strong predictors of the Successful CPR.

Conclusion: Our results are comparable with the former studies. Further studies with detailed multivariate analysis required to determine other predictive factors of the successful CPR.
Table 1: Predictive factors for the success rate in the cardiopulmonary resuscitation (Univariate Analysis)

<table>
<thead>
<tr>
<th>Factor</th>
<th>P value</th>
<th>OR</th>
<th>95 % CI LOWER</th>
<th>95 % CI UPPER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission due to unstable angina</td>
<td>0.001</td>
<td>2.14</td>
<td>1.34</td>
<td>3.41</td>
</tr>
<tr>
<td>Upper GCS levels (&gt;8)</td>
<td>&lt;0.001</td>
<td>22.17</td>
<td>5.15</td>
<td>95.39</td>
</tr>
<tr>
<td>Ventricular fibrillation vs. Asystol</td>
<td>&lt;0.001</td>
<td>3.79</td>
<td>2.42</td>
<td>5.93</td>
</tr>
<tr>
<td>No need for epinephrine</td>
<td>&lt;0.001</td>
<td>9.81</td>
<td>5.96</td>
<td>16.18</td>
</tr>
<tr>
<td>Cardiac massage duration lower than 15 minutes</td>
<td>&lt;0.001</td>
<td>16.27</td>
<td>8.34</td>
<td>31.73</td>
</tr>
<tr>
<td>Epinephrine dose lower than 3 mg</td>
<td>0.004</td>
<td>1.83</td>
<td>1.21</td>
<td>2.78</td>
</tr>
<tr>
<td>Time to first shock &lt;60 second</td>
<td>0.009</td>
<td>1.91</td>
<td>1.18</td>
<td>3.10</td>
</tr>
<tr>
<td>CPR duration &lt;30 m</td>
<td>&lt;0.001</td>
<td>4.21</td>
<td>2.91</td>
<td>6.10</td>
</tr>
<tr>
<td>Atropine dose &lt; 2 mg</td>
<td>0.003</td>
<td>1.85</td>
<td>1.23</td>
<td>2.78</td>
</tr>
<tr>
<td>Serum potassium lower than 6 mEq/L</td>
<td>0.007</td>
<td>2.49</td>
<td>1.27</td>
<td>4.87</td>
</tr>
</tbody>
</table>

OR: Odds Ratio; CI: Confidence Interval
The predictors of the quality of life in diabetic and non-diabetic coronary artery surgery candidates

Najafi M, Sarami Gh

Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran
Allameh University, Tehran, Iran

Abstract

Background: Coronary artery disease and diabetes are among the most common causes of morbidity with deterioration in patients' daily life. We carried out this study to determine the impact of diabetes on quality of life in candidates of coronary artery bypass grafting surgery (CABG).

Methods: In addition to cardiologic evaluation, we used the short form health survey (SF-36) questionnaire for quality of life measurement among isolated CABG candidates.

Results: 268 patients entered the study. 197 patients (73.5%) were men and 113 patients (42.2%) were diabetics. Total scores of the eight domains of SF-36 were lower than those of the normal population in both diabetics and non-diabetics[1]. Total scores of diabetics were lower than those of non-diabetics in all domains but the differences were significant in physical functioning, bodily pain and role emotional domains as well as physical health (PH) component (P<0.05). We observed the relationship of PH component with body mass index (BMI), hematocrit, pulmonary function test parameters and blood sugar levels before/after CABG (P<0.03). Then we performed logistic regression to find the predictors of low health related quality of life (HRQL). Predictors of PH were function class (FC), age and peripheral vascular disease (PVD) among diabetics and FC, respiratory compromise (RC), hypertension (HTN) and history of alcoholic consumption among non-diabetics. PH predictors were FC, RC, HTN and alcohol in men and FC, RC, HTN and BMI in women. PH predictors were FC, RC, HTN and BMI in women.

Conclusion: HRQL is lower than normal in diabetic and non-diabetic CABG candidates. PH in diabetics is lower than non-diabetics. FC and RC are the most important predictors of HRQL in CABG candidates. PVD and age are HRQL predictors specific to diabetics. There are some differences in PH predictors among men and women.

Late outcomes in patients with uncorrected moderate mitral regurgitation at the time of isolated coronary artery bypass


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Mitral valve intervention combined with coronary artery bypass surgery is inevitable in the case of severe mitral regurgitation in patients with coronary artery disease but the best treatment protocol for patients with a moderate degree of mitral regurgitation is under debate. We evaluate the progress of mitral regurgitation after isolated coronary artery bypass surgery in cases of ischemic mitral regurgitation.

Methods: The study was conducted between June 1998 and October 2004. Fourteen patients (85% men, with a mean age of 56 years, a mean ejection fraction of 39.3% and a mean New York heart association class of 2.53) with preoperative diagnoses of moderate degree ischemic mitral regurgitation (Grade 2 mitral regurgitation on a scale of 0 to 4) and coronary artery disease underwent isolated coronary artery bypass surgery. Patients were followed – up at a mean of 48 months and an echocardiographic evaluation was done to determine the progress of the mitral disease.

Results: In the postoperative period, the mean ejection fraction was 44.6% and the mean functional capacity of the patients was 1.31. Mitral regurgitation regressed to a mild degree in 57.1% of the patients. Grade of MR is unchanged after CABG in five (35.7%) patients with grade 2 ischemic MR. Post CABG – MR progression was present in one (7.2%) patients. No patient required subsequent mitral valve operation or other procedures in long – term follow – up. The 30-day operative mortality rate was 0%.

Conclusions: We conclude that, in patients with moderate MR, isolated CABG (without mitral valve replacement or repair) suffices, producing dramatic improvement in ejection fraction, and in degree of MR, with good long – term survival.
Pulmonary embolism as a fatal complication after open heart surgery


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Pulmonary embolus after cardiac surgery albeit rare, is a complication with high morbidity and mortality. In this study we examined the incidence and risk factors of pulmonary embolism after open heart surgery in 12311 patients.

Methods: This is a cross sectional study of 12311 patients who underwent open heart surgery from 2002 January to March 2006 at the Tehran heart center, Tehran Iran. Pulmonary embolism was diagnosed for 50 cases of 12311 (0.4%), postoperatively. Demographic and operative variables of patients who had documented pulmonary emboli were compared with others who were symptom free after surgery.

Results: Of 12311 cases, 1126 (9.1%) underwent only valve surgery and 11185 (91%) underwent coronary artery bypass grafting with or without valve surgery. Pulmonary embolism developed in 50 of the 12311 (0.4%) patients, postoperatively. Of these 50 patients, three of them (6%) underwent isolated valve surgery, 37 cases (74%) had isolated CABG and the remained patients (20%) underwent combined CABG and valve surgery.

Univariate analysis indicated that gender, hyperlipidemia, hypertension, cerebrovascular accident, blood product using in ICU and low ejection fraction were important risk factors for pulmonary emboli after cardiac surgery. The mortality rate was 10.6% in patients with pulmonary emboli in contrast to 1.3% in those without pulmonary embolism (p<0.001).

Conclusions: According this retrospective study, it seems that beside the inevitable factors such as gender, the tight control of preventable factors like hyperlipidemia and hypertension before cardiac surgery and intraoperative control of blood elements may reduce postoperative thromboembolic events.
Superficial and deep sternal wound infection after more than 9000 coronary artery grafts: incidence, risk factors and mortality


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Sternal wound infection (SWI) is an uncommon but potentially life threatening complication of cardiac surgery. Predisposing factors for SWI are multiple with different frequency in various studies. The purpose of this study was to assess the incidence, risk factors and mortality of SWI after coronary artery bypass graft (CABG) at Tehran heart center.

Methods: This study prospectively evaluated multiple risk factors in 9201 CABG patients who developed post CABG sternal wound infection (SWI) from January 2002 to February 2006 at Tehran Heart center. Cases of SWI confirmed based on criteria of centers for disease control and prevention. Deep SWI (mediastinitis) categorize according to Oakley classification.

Results: In the period of study, 9201 CABG were performed with total SWI rate of 0.5% for deep SWI against 1.1% for non-SWI CABG patients. Female gender, preoperative hypertension, high functional class, diabetes mellitus, prolonged intubation time (more than 48 h) and re-exploration for bleeding were significant risk factors for developing SWI (P=0.05) in univariate analysis that among these risk factors, hypertension, female gender and reexploration for bleeding were also significant in multivariate analysis (p=0.05). Rate of SWI was relatively similar in three groups of prophylactic antibiotic regimen (cefazolin, cefazolin + gentamycin and cefazolin + amikacin, respectively).

Conclusion: Two risk factors namely hypertension and female gender rarely reported in other studies, were found significant in our study, although further studies are needed for better documentation. On the other hand, importance of several risk factors such as cigarette smoking and obesity mentioned in other studies were not approved by our study. Low rate of SWI in our institutes and others needs persistent work.
Preoperative serum creatinine level is not a reliable estimate of patients renal function in coronary artery bypass surgery


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Conventional method of serum creatinine (sCr) measurement for renal function evaluation is limited by variations in sex, age and muscle mass. Calculated creatinine clearance (CrCl) as an alternative measure may give a better estimation of renal function.

Methods: We conducted a retrospective review of consecutive patients who underwent isolated coronary artery bypass surgery (CABG) requiring cardiopulmonary bypass from January 2002 to February 2007. Preoperative renal insufficiency (RI) was defined as CrCl of 60ml/min or less. Preoperative renal function was categorized as normal function (sCr = 100 µM and CrCl > 60ml/min), occult insufficiency (sCr = 100 µM and CrCl = 60ml/min), mild insufficiency (100µm< sCr =133) or moderate insufficiency (sCr >133).

Results: Out of 11884 patients in the sample, 5581 (47%) had normal renal function, 706 (5.9%) had occult RI, 4617 (38.9%) mild RI and 980 (8.2%) moderate RI. Approximately 11.2% of Patients with normal sCr had occult RI. Patients with occult RI were more likely to be women (65.9% versus 30.7%), older (68.6 ± 6.0 versus 56.4 ± 9.0years) and with lower body mass index (BMI) (24.8 ± 3.6 versus 27.4 ± 4.0 compared to normal group (P < 0.001). The rate of postoperative mortality, renal failure, atrial fibrillation, prolonged ventilation, intra aortic balloon pump usage and prolonged hospital stay (> 7days) was higher in patients with occult RI compared to normal group (P < 0.05) in univariate analysis.

Conclusion: The incidence of postoperative mortality and morbidity is higher among patients with occult RI compared to normal group. So we recommend the calculation of CrCl especially in older women with lower BMI before CABG.

The authors thank Dr Sheikh Fathollahi (ph D) for statistical analysis
Predictors of post-CABG length of stay in ICU and surgical ward are different

Najafi M, Soltaninia H, Ghiasi A, Sheikh fathollahi M, Goodarzynejad HR, Larijani B and Pajoohi M

Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran
Endocrine and Metabolism Research Center, Medical Sciences/University of Tehran

Abstract

Background: Many studies have performed to determine the predictors of hospital stay and mortality but there are few if any studies to determine predictors of stay in different wards separately.

Methods: In a cohort design, we studied isolated coronary artery bypass graft (CABG) candidates who were not dialysis dependent from hospitalization to discharge. In addition to demographic variables and patients’ characteristics we recorded clinical history, risk factors, preoperative complications and laboratory data. Surgeons were categorized based on mean length of hospital stay in their patients. We determined the length of stay (LOS) in ICU and surgical ward separately. We performed logistic regression analysis to determine the predictors of postoperative LOS.

Results: 570 patients (429 men, 75.3%) were studied. Mean LOS was 46.8 (34.9) hours in ICU and 2.7 (1.99) days in surgical ward. Independent predictors of extended LOS in ICU (>48 hour) were surgeon, New York Heart Association (NYHA) functional class, intra-aortic balloon pump (IABP), postoperative arrhythmias, total administered insulin during 24 hours after operation (Ins 24), and mean base excess of first six hours after operation (Hosmer-Lemeshow goodness of fit statistic (HL) 0.940, area under receiver operating characteristic (ROC) curve 0.699). Independent predictors of extended LOS in surgical ward (>3 days) were history of peripheral vascular disease, INS 24, glycosylated hemoglobin (HbA1c) and last FBS of patients before operation and arrhythmia and inotropic usage after operation (HL 0.881, ROC 0.714).

Conclusion: This study shows that surgeon, NYHA functional class, and IABP are specific predictors of extended LOS in ICU. Blood sugar control indices and peripheral vascular disease are important factors in predicting LOS among CABG candidates in surgical ward where they are not at critical situation.

Keywords: Coronary artery bypass, Outcome prediction, Length of stay, Hospital wards
Table. Predictors of length of stay at Intensive Care Unit as compared to Ward in patients undergoing bypass surgery

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Length of stay at ICU</th>
<th>Length of stay at ward</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>95% CI</td>
</tr>
<tr>
<td>NYHA functional class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 vs. 1</td>
<td>1.179</td>
<td>0.776-1.791</td>
</tr>
<tr>
<td>3 vs. 1</td>
<td>2.155</td>
<td>1.225-3.790</td>
</tr>
<tr>
<td>Peripheral vascular disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hemoglobin A1c</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Last fasting blood sugar</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Surgeon category</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2 vs. 1</td>
<td>0.698</td>
<td>0.434-1.121</td>
</tr>
<tr>
<td>Group 3 vs. 1</td>
<td>1.475</td>
<td>0.912-2.385</td>
</tr>
<tr>
<td>Inotropic drug use</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Intra-aortic balloon pump</td>
<td>25.227</td>
<td>3.144-202.431</td>
</tr>
<tr>
<td>Post-operation arrhythmia</td>
<td>1.952</td>
<td>1.331-2.862</td>
</tr>
<tr>
<td>Mean BE (+6)</td>
<td>0.903</td>
<td>0.838-0.974</td>
</tr>
<tr>
<td>Insulin (+24)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-9U vs. 0U</td>
<td>1.312</td>
<td>0.822-2.093</td>
</tr>
<tr>
<td>≥10U vs. 0U</td>
<td>2.277</td>
<td>1.458-3.557</td>
</tr>
<tr>
<td>Hosmer-Lmshow goodness of fit test</td>
<td>P=0.9397</td>
<td></td>
</tr>
<tr>
<td>Area under the ROC curve</td>
<td>c=0.6985</td>
<td></td>
</tr>
</tbody>
</table>

OR, Odds ratio; CI, Confidence interval; NYHA, New York Heart Association; Ins24, Total administered insulin during 24 hours after operation; Mean BE (+6), Mean base excess for first 6 hours following operation.
The relationship between quality of life components and postoperative blood sugar concentration in patients undergoing coronary artery bypass surgery

Najafi M, Sheikhvat M, Montazeri A and Sheikhfothollahi M

Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran
Iranian Institute for Health Sciences Research, Tehran, Iran

Abstract

Background: Quality of life reflects a measure of physical and social functioning as well as mental health and is recognized as an important component of health status. Maintenance of normal levels of blood glucose during intensive care improves survival and reduces morbidity of critically ill patients after complicated, high-risk, or extensive surgery. We considered the relation between mental and physical health components scores of quality of life and the increase of postoperative blood glucose concentration who underwent coronary artery bypass surgery (CABG).

Methods: In a cross-sectional study, 268 consecutive patients candidate for isolated CABG in Tehran Heart Center between May and September 2006 were recruited and postoperative blood sugar (each two to four hours during 24 hours after surgery) was measured. Quality of life was assessed using version 1 of the SF-36 Quality of Life and two components measuring mental health and physical functioning were considered in diabetic and non-diabetic patients.

Results: Among 268 patients (men to women ratio: 2.7), 113 patients (42.1%) were diabetic and 155 (57.9%) patients were non-diabetic with the mean age of 60.3±8.4 and 59.2±9.4 years, respectively. Analysis of Covariance showed that in non-diabetic group, after adjustment for confounding factors, patients with lower mental summary score had higher postoperative blood sugar than others (P=0.020), however this relationship was not found between physical summary score and postoperative blood sugar in non-diabetics and also in diabetic group.

Conclusion: Considering the relationship between the quality of life and blood glucose changes after CABG, improvement of patients' lifestyles and blood glucose monitoring before and after surgery in both diabetics and non-diabetics is necessary.

Keyword: Quality of Life, Blood sugar, Coronary Artery Bypass, SF-36.
Coronary artery bypass surgery versus medical treatment in patients with a low ejection fraction and coronary artery disease: a dobutamine stress echocardiography study

Sadeghian H, Karimi AL, Ahmadi H, Sadeghian S, Salarifar M, Lotfi- Tokaldany M, Abbasi SH, Shekh Fatollahi M
Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: To compare outcome of patients with a low ejection fraction (EF) and multivessel coronary artery disease who underwent (CABG) vs. medical treatment (MT) after viability study with dobutamine stress echocardiography (DSE).

Methods: We prospectively studied 112 patients (89% M, mean age: 55.8%y) with CAD and a low EF who underwent DSE and were followed for 8 month. Patients were classified in two groups: CABG (n=33) and MT (N=79).

Results: The two groups had similar baseline characteristics and rest EF. Of 112, 29.5% underwent CABG and 70.5% were treated medically. There was no significant difference between mortality rate of CABG and MT (9.1% vs 11.4 %). Number of viable segments had no significant influence in the mortality rate after CABG, but significantly reduced mortality of patients with MT (0.04) in the both groups, survived patients had markedly higher EF at rest and after stress, in CABG group: 30±7% vs 25± 0%, p = 0.02 at rest and 37 ± 10% vs 31± 1%, p= 0.05 after stress, in MT group: 30±9%, 22±5%, p-0.02 at rest and 38±10% vs. 30±7% p=0.02 after stress). Mortality rate in both groups was not affected by mean increase of ejection fraction after dobutamine infusion. Mortality was significantly lower among patients with ≤8 viable segments who underwent CABG than those received MT (0% vs 35%, p= 0.05).

Conclusion: Patients with ≤8 viable segments by DSE have better survival rate after revascularization and those with lower EF at rest and after stress demonstrates poorer prognosis after surgical or medical treatment. Future studies are needed to determine if patients with low DF and certain numbers of viable segments by DSE can have benefits after CABG.
Clinical course of children with steroid sensitive nephrotic syndrome

Esfahani ST, Madani A, Mohseni P, Ataei N, Moghtaderi M, Rahimzadeh N, Haddadi M and Abbasi A

Department of pediatric nephrology, Tehran university of medical sciences Tehran, Iran Division of Research
Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: In order evaluate the clinical course of steroid – sensitive nephrotic syndrome (SSNS) and results of current treatments in children, we conducted a retrospective study of 438 children who were referred to our clinics with SSNS from January 1978 to September 2000 and had followed for at least 3 years.

Methods: Steroid – dependent nephrotic syndrome was diagnosed with classic criteria. We prescribed prednisolone for all of patients, 2 mg/kg/day or 60 mg/m²/day. After remission prednisolone was switched to a single alternate day dose and tapered over next three months. With every relapse of nephrotic syndrome prednisolone was prescribed with the same schedule but we continued it with a dosage lower than 0.5 mg/kg qod for extra 6 months if there was danger of recurrence. If relapses occurred during tapering of steroid with doses higher than 0.5 mg/kg god or patient showed side effects of steroid we prescribed other drugs. Levamisole was used as a steroid sparing agent with a dosage of 2 -2.5 mg/kg qod. If levamisole was ineffective one of the two immunosuppressive drugs: cyclosporin A, 5 mg/kg/day for six months or longer, or cyclophosphamide 2-2.5 mg/kg/day for 8 weeks were used. With each of these drugs we prescribed low daily dose of prednisolone. For some of the patients all of these drugs were used in sequence but recurrences would not stopped.

Results: 438 patients (70.5% male, 29.5% female) were entered into the study. Age of the patients at disease onset was 4.94 ± 3.03.29 cases (7.4%) had no relapse after initial treatment but others had several relapses. Levamisole was prescribed for 199 steroid – dependent patients and it was effective for reducing prednisolone dosage and prevention of recurrence in 129 patients (64.8%). 129 patients were treated with cyclophosphamide ,51 cases (39.5%) showed long –term remission, but for 78 patients (60.5%) cyclophosphamide was not effective for prevention of recurrence. Cyclosporin was used for 74 patients. In 8 of them (10.8%) we observed long –term remission. 8 patients (10.8%) had relapses after cessation of the drug and 41(55.4%) became cyclosporin dependent. In 17 patients (23%) cyclosporin was not effective. Duration of follow – up was 7.25± 3.86 years. At last visits 259 (60.1%) were in remission (more than 3 years without any treatment), 166 (38.5%) had still recurrences and were under treatment. 5 cases (1.2%) had developed CRF. One
patient had died because of pulmonary embolism. For 103 patients kidney biopsy was performed common pathologies were: MCNS in 77 (74.8%), FSGS in 10 (9.7%), diffuse mesengial proliferation in 12 (11.6%).

**Conclusion:** Although most children with SSNS eventually achieve long – term remission and progression to CRF is rare, unfortunately a considerable numbers (in our study 38.5%) have several recurrence episodes which may continue to adult life. So controlled trial of new drug protocols are needed for better treatment of SSNS in children.
Effect of levamisole in steroid-nephrotic syndrome of childhood


Department of pediatric nephrology, Tehran University of medical sciences, Tehran, Iran, Research Department Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: In children with nephrotic syndrome (NS), steroid dependency is common problem resulting serious side effects. Adjunctive therapy with levamisole would be less toxic and have comparable effectiveness with immunosuppressive agents. We assess the effect of levamisole in 285 children with steroid –dependent nephrotic syndrome (SDNS) from January 1980 to September 2005 and had followed for at least 1 year.

Methods: 285 children with SDNS aged 1 to 20 yr (males: 70.9%), were received 2-2.5 mg/kg/qod of levamisole between 4 months to 7 yr of duration. The relapse of NS during or after levamisole therapy, treated first with steroid and then cyclophosphamide or cyclosporine A as needed.

Results: Two hundred and eighty five children with SDNS (males: 70.9%) were entered into the study. The age of the patients was 1-20 years (mean 4.75± 2.93). Long – term remission was induced for 86 patients (30.2%), but 25 patients (8.8%) had relapse after levamisole cessation. The levamisole was also effective in reducing dosage of prednisolone to maintained long term remission in 62 patients (21.8%). However, 112 patients (39.3%) showed no response to levamisole. After levamisole therapy, the mean relapse rate (2.02 ± 0.86 vs., 1.08 ± 1.23; p< 0.0001) and prednisolone doses (0.75±0.38 vs., 0.32± 0.38; p< 0.0001) were significantly reduced. There were only two patients with neutropenia and vertigo, the probable complications of levamisole.

The mean duration of follow –up was 7± 4.05 years (ranged 1 to 22 yr). At the last visits 81 patients (28.4%) were in failure (CRF). Eighty five patients underwent kidney biopsy. The most common common histopathologies were: minimal change nephritic syndrome (MCNS) IN 54 CASES (63.5%) and diffuse mesengial in 18 cases (21.2%).

Conclusion: Levamisole could induce prolonged remission in most of our children with SDNS (60.7%).Because its complications were very rate, it is recommended as an effective and safe drug second to the prednisolone in treatment of childhood nephrotic syndrome.
Basal cell carcinoma of childhood: A case report

Fathi HR, Naser A and Abbasi A

Department of plastic surgery, medical sciences, Tehran University, Tehran, Iran
Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: The peak incidence of basal cell carcinoma (BCC) occurs in the seventh decade of life and is found rarely in children. In the pediatric age group, basal cell carcinoma is usually associated with basal cell nevus syndrome, xeroderma pigmentosum, nevus sebaceous, and high dose radiotherapy. In the areas of intense ultraviolet radiation exposure, children may be at increased risk of developing this malignancy de novo.

Observation: An 11-year-old white boy presented with a lesion on the right cheek region to our department. He had first noticed the lesion 5 years earlier. On examination, the lesion was a 1-cm translucent papule with irregular borders and had overlying telangiectasias. The patient had no family history of skin cancer. Also, he had no underlying disorders, genetic and predisposing syndromes. A diagnostic biopsy specimen revealed nests of basal neoplastic cell, consistent with nodular BCC. A plastic surgeon excised the lesion with a negative border. A rotational fasciocutaneous flap was applied to fill the defect. One year after treatment, the patient had no recurrences and no new skin cancers.

Conclusion: Sporadic basal cell carcinoma that appears de novo is very rare during childhood. A high index of suspicion needs to initiate immediately appropriate treatment and to avoid extensive tissue destruction and scarring after excision.

Keywords: Basal Cell Carcinoma, Non–melanoma Skin Cancer, Children
The effect of prophylactic magnesium infusion on the characteristics of postoperative atrial fibrillation: a randomized clinical trial

Najafi M, Haghighat B, Soltaninia H, Ghiasi A, Ahmadi H and Abbasi SH

Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Postoperative atrial fibrillation (AF) is a common complication of cardiac surgery which increases the morbidity and postoperative length of stay in hospital. Total magnesium serum concentration changes after coronary bypass surgery but compensatory prophylactic administration of magnesium has remained a controversial issue. We studied whether magnesium prophylactic administration influences post-coronary artery bypass grafting (CABG) AF nature and treatment method.

Methods: In a clinical trial, 345 isolated CABG candidates randomly assigned to case (n=166, 48.1%) and control. Group of case received 2 g supplemental magnesium intravenously after induction of anesthesia until onset of cardio-pulmonary bypass and then 8 g since arrival in Intensive Care Unit (ICU) to 24 hours. Total magnesium serum concentration was measured four times: onset of induction, hours 0, 24 and 48 after ICU admission. Cardiac arrhythmias were confirmed with a 12-lead Electrocardiogram (ECG) and clinically after the end of surgery until discharge. Duration of AF and method of treatment recorded for any episode.

Results: AF episodes occurred 36 times (17 case, 19 controls). Mean duration of AF in case and control groups were 10.4(8.1) and 21.4(30.3), respectively. Total serum concentrations 24 and 48 hours after ICU admission were significantly higher in AF patients of case group (p<0.04). More patients in case group received amiodarone protocol compared to control group (64.7% vs. 42.1%). Mg48 in AF patients who received amiodarone was significantly higher compared to control group (p=0.023). Mg48 in diabetics was significantly lower compared to non-diabetics (p=0.03) and they received electrolyte for AF treatment more than non-diabetics (45% vs 18.8%).

Conclusion: AF treatment method is related to magnesium serum concentration. The nature of arrhythmia differs in AF patients who need amiodarone. It seems that electrolyte disturbances are more important in diabetic AF patients.

Keywords: Coronary artery bypass, Arrhythmia, Atrial fibrillation, Antiarrhythmic agents, Magnesium.
The inflammatory effects of ventilator – induced lung injury and the protective role of open – lung concept

Hasani V, Yousefshahi F, Davari ME, Khajave MR and Najafi M

Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

This review addresses the physiological background and the current status of evidence regarding ventilator – induced lung injury and inflammation, and related inflammatory mediators, and also the role of lung protective strategies. The development in our understanding in the role of genes transcription, and purines for release of cytokines and introduce the local and systemic inflammation process in lung injury, initiate new aspects in prevention, and treatment of lung injury. We describe the experimental and clinical evidence of the effect of lung protective ventilatory strategies and open-lung concept on the progression of lung injury. The common conventional limitation on the open-lung concept in clinical situation is mentioned by regard the new evidences. Finally, the clinician is offered directions on lung protective ventilation strategies in the early phase in surgical and non-surgical patients in intensive care unit.

Keywords: Ventilator – induced lung injury, Open – lung concept, lung inflammation, PEEP, Recruitment maneuver.
Cardiopulmonary resuscitation in 1000 patients: early results and success predictors


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Cardiopulmonary resuscitation (CPR) is one of the most important and unfortunately disappointing components of the standard hospital cares. This study was designed to evaluate the early results and success predictors of the CPR

Methods: This study was performed on our center database which contains demographical and clinical data for each resuscitated patient. CPR in the operating rooms was excluded. Successful CPR was defined as survival without any residual sequel or complication. Regarding CPR results patients were in one of these groups: successful or unsuccessful CPR. Also regarding first observed rhythm (FR) patients were divided into 2 groups: Ventricular Fibrillation, Ventricular Tachycardia (VF/VT); Asystole (Asys), Bradycardia.

Results: Between January 2005 and March 2007, 1000 patients (555 men, 445women, Mean age : (65.24±13.7) were resuscitated. The most important causes of the CPR were arrhythmia (38.4%), respiratory failure (30.8%), and homodynamic instability (20%). Survival after resuscitation, at 24 hours and at discharge was 51%, 40% and 28.3%, respectively. Regarding FR survival rates were 74.1%, 66.7% and 40 % [VF-VT] vs. 43%, 225.8% and 14.3% [Asys] (p<0.05) .Age, sex, concurrent diseases, and serum PH were similar between groups. Predictors of successful CPR are shown in table.

Conclusion: The most important determinants of successful CPR are FR, admission reason, duration of CPR, need for drugs and eurological response.

Keywords: Cardiopulmonary, resuscitation, Asystole, Patients.
Four years PABD results in Tehran Heart Center as a first experience in Iran

Boroumand MA, Sotoudeh Anvari M, Karimi AA, Ahmadi H, Jamaloo M

Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

**Background:** PABD is an effective method to reduce allogenic transfusion. Besides economic concerns, one essential argument against predonation is the lack of sufficient time before operation.

**Methods:** This study was conducted between March 2003 and February 2007. The volunteers were selected according to the standard guidelines. Data were analyzed using SPSS software.

892 candidates for PABD were selected from among 17141 patients. In 2004-2005, 317 PABDs were performed, which contributed to the highest number comparing to the lowest frequency in 2006-2007 (n= 146). The reason for this discrepancy is that formerly patients selection was performed by the blood bank pathologists, while in 2006-2007, this task was assigned to the responsible physician.

**Results:** Highest rate of PABD was between 22 November and 21 December (n=72), which coincided with the Holy Ramadan. On the contrary, no such donation was conducted in early spring and late summer. (n= zero).

The mean of allogeneic blood use reduction was 2.4 % in month (Max: 12.5 %, Min: 0%).

In our study, the mean waiting time between donation & surgery was 5.5 ± 3 days (Min : 1, max : 20 days). This shows the feasibility to supply at least one autologous blood bag in each patient.

Results showed that in 46% of patients, isolated autologous blood bags were used; autologous blood bags were used with one additional allogeneic blood bag and more than one additional allogeneic blood bag in 11.3% and 141.1% of patients, respectively. Autologous blood was not used in 26.8% of patients.

Only one vasovagal reaction was seen as a complication.

**Keyword:** Cardiac surgery, preoperative Autologous Blood Donation (PABD)
Tehran Heart Center adult cardiac surgery database: A report of 5-year registry


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: In the field of cardiothoracic surgery, the use of cardiac surgical database is necessary for evaluating and improving the quality of care. The aim of this report was to provide useful information for surgeons and other health professionals for their daily practice.

Methods: We reviewed data from 14289 consecutive patients underwent open cardiac surgery in Tehran Heart Center. Operations were divided into four different types: isolated coronary artery bypass grafting (CABG); combined CABG and valve (CABG - V); only valve (V); and other adult cardiac surgeries (between 2002 and 2006). Analysis was focused on rate of activity, in-hospital mortality, surgical priority, and hospital length of stay (LOS).

Results: The workload increased from 1765 in 2002 to 3309 surgeries in 2006 with almost 87.4% of activity being isolated CABG and in the second position operation on valvular heart disease was 7.2%. The overall mortality rate was 1.6%. Mortality rate for CABG decreased from 1.8% to 0.8% during the five years. Mortality rate for CABG-V and Valve category was 6.1% and 4.4% in the last year respectively, with nonsignificant reduction compared to the first year. The mean LOS for entire population was 8.39 ± 5.61 days and remained almost steady. CABG category had the lowest LOS and the CABG-V group had the longest. During the 5 years, proportion of urgent operations increased substantially from 4% to 24.5% (p< 0.0001) causing reduction in elective operations.

Conclusion: During 5-year process, the Tehran Heart Center research group has developed a comprehensive cardiac surgery database. This database can act as a valuable resource for surgeons and researchers on preoperative measurers and surgical outcomes to compare their activities in order to improve their surgical performance.
The association of serum ferritin with diffuse telogen hair loss in women

Mansoori P, Holakooee K, Safaee Naraghi Z, Moeenvapiri M and Abbasi A

Department of Dermatology, Tehran University of medical sciences, Razi Hospital, Tehran, Iran
Department of Pathology, Tehran university of medical sciences, Razi Hospital, Tehran, Iran
Department of Epidemiology, Tehran University of Public Health and Institute of Public Health research, Tehran, Iran
Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: From the first report demonstrating the role of iron supplements in women with hair loss, several studies have examined the relationship between iron status and different kinds of hair loss. However, clinical and laboratory findings of previous studies seem relatively discrepant. We therefore conducted an analytical case–control study to assess whether diffuse telogen hair loss in premenopausal females (15 to 45 years old) are associated with iron deficiency.

Methods: We studied 30 consecutive women with documented diffuse telogen hair loss comparing with normal group consisted of 30 women without hair loss (matched case and control subjects). All subjects had no history of nutritional supplements, chronic underlying diseases, and had normal thyroid function and inflammatory profiles. Biochemical investigations were performed for all subjects that included serum ferritin, iron and cell blood count. The data analysis was performed by using student’s t test, Mann-Whitney U test chi square for continuous and categorical variables, respectively.

Results: The mean ferritin level and transferring saturation in patients with diffuse telogen hair loss was statistically significant lower than in normal subjects without hair loss (16.3 ± 12.6 vs. 60.3 ± 50.1, ng/ml, p< 0.0001 and 20.3± 9.7 vs. 28.3 ±11.8 percent, p=0.006, respectively). Also, total iron binding capacity (TIBC) in patients was significantly higher than control group (367.8 ± 58.2 vs. 319.2± 60.1 percent, p= 0.0040). Although the mean hemoglobin (HP) concentration and hematocrit in patients were not significantly lower than normal subjects, out of 9 patients with iron deficiency anemia (Hb < 12 g/dl) eight patients had telogen hair loss (p=0.013, odds ratio: 10.5, 95% CI: 1.2-90.7). Serum ferritin ≤ 10 ng/ml gives a sensitivity of 33.3% and a specificity of 93.3% for diagnosing telogen hair loss. A cutoff of 30 ng/ml yields a sensitivity of 93.3% of and a specificity of 60%

Conclusion: This survey suggests that the low serum ferritin, low transferring saturation and high TIBC are associated with diffuse telogen hair loss. Patients with iron deficiency are at risk of hair loss. Prevalence of iron deficiency anemia in patients with telogen hair loss is significantly higher than normal childbearing women.
Concomitant carotid endarterectomy and coronary artery bypass grafting (CABG) versus staged carotid stenting followed by CABG: A cohort study


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Significant carotid stenosis (70%) in patients who underwent Coronary Artery Bypass Grafting (CABG) can increase risk of perioperative cerebral vascular accident. In this study, we compared the results of two common operative strategies (concomitant carotid endarterectomy and CABG versus carotid stenting and CABG). 

Methods: This was a cohort study from January 2001 to September 2006. Significant carotid artery stenosis was detected in patients who were candidates for CABG at Tehran Heart Center. The stenosis was detected by carotid Doppler screening and was confirmed by conventional or MR angiography. Patients were divided into two groups. Group A underwent concomitant carotid endarterectomy and CABG (n=19), while carotid stenting and CABG (1 to 2 months later) was done in group B (n=29).

Results: Mean hospital stay (day) was 18.68±7.95 in group A and 26.35±7.77 in group B (p value=0.01). Median patients' charge was 252.79$ in group A and 2206.66$ in group B (p<0.0001). There is a significant difference in rate of hypotension and bradycardia in group B in comparison with group A (P value<0.05). The length of hospitalization in group B was longer than in between the two groups (P value<0.05). There were two cases of in- hospital mortality in group A (10.5%) and group B (7.1%). Two post operative stroke in group A (10.5%) and three in group B (10.7%) were detected.

Conclusion: Concomitant carotid endarterectomy and CABG is as safe as carotid stenting and CABG with less neurologic events, hypotension, bradycardia, cost and hospital stay.

Key words: Carotid endarterectomy, Carotid stenting, CABG
The influencing factors of acute hear failure and requiring IABP in patients with EF more 50% undergoing CABG


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Back ground: Intraaortic balloon pump (IABP) is usually the first choice of mechanical device used for decreasing myocardial oxygen demand by systolic unloading in perioperative heart failure and the low cardiac output state that was refractory to maximum pharmacologic treatment and judicious volume load. The aim of this study was to determine the perioperative factors that have influencing role in acute heart failure in the coronary artery bypass grafting (CABG) patients who received the IABP.

Methods: Between January 2002 and September 2006, 6635 patients who had preoperatively ejection fraction (EF) of more than 50%, underwent CABG. Perioperative IABP was inserted for 126 cases (1.9%) and 6509 patients (98.1%) were uneventfully weaned off cardiopulmonary bypass. The perioperative risk factors of these two groups were compared.

Results: Perioperative IABP was inserted for 126 cases (1.9%). From variables entered into multivariate logistic regression following parameters identified as influencing factors for occurrence of acute heart failure and requiring IABP throughout CABG surgery: age (OR=1.03 CI=1.01-1.06), renal failure (OR=3.16 CI=1.02-9.81), hypertension (OR=2.33 CI=1.42-3.81), arrhythmia (OR=5.70 CI=2.64-12.30), prolonged cardiopulmonary bypass (OR=1.05 CI=1.03-1.07). Also the CCS in grade 4 (OR=0.001) and presence of angina (OR=0.20) identified as preventing factors for aforementioned events.

Conclusion: According to our study age, renal failure, hypertension, arrhythmia, prolonged cardiopulmonary bypass time are the factors that may influencing in occurrence of acute heart failure and we should be consider the risk of requiring IABP support for weaning of cardiopulmonary bypass even in patients with EF more 50%.

Keywords: Intraaortic balloon pump, Coronary artery bypass grafting, Ejection fraction
Safety of local transplantation of autologous CD\textsuperscript{133+} enriched bone marrow cells after recent myocardial infarction: A randomized controlled trial


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran
Royan Institute, Tehran, I.R. Iran

Abstract

Background: The CD133\textsuperscript{+} bone marrow cell (BMC) population includes primitive multipotent stem cells which induce neoangiogenesis. Studies suggested transplantation of these cells to infarcted myocardium can have a favorable impact on tissue perfusion and contractile performance. We assessed the feasibility, safety and functional outcomes of autologous CD133\textsuperscript{+} BMC transplantation during coronary artery bypass grafting (CABG) in patients with recent myocardial infarction.

Methods: In a randomized controlled trial study, 29 patients with recent myocardial infarction underwent CABG and intramyocardial injection of autologous bone marrow-derived CD133\textsuperscript{+} cells (0.2 to 5.1×10\textsuperscript{6} cells, BMC group, N= 20) or CABG alone (control group, N= 9) were compared.

Results: At a mean of 14 months after CABG, the Wall Motion Score Index (WMSI) was significantly reduced for akinetic/dyskinetic segments treated with CD133\textsuperscript{+} cells compared with the control group (p= 0.003). Likewise, comparison between baseline and follow up results of dobutamine stress echocardiography and myocardial perfusion scintigraphy showed improvement of myocardial viability of the infarcted zone of the BMC group compared with the control group. No complications related to CD133\textsuperscript{+} cell transplantation were noted, either procedurally or during postoperative follow up.

Conclusion: In patients with recent myocardial infarction, transplantation of CD133\textsuperscript{+} cells to the peri-infarct zone during CABG surgery is feasible and safe, with no evidence of early or late adverse events. Moreover, these cells might restore tissue viability and improve perfusion of the infarcted myocardium, suggesting that they may induce myogenesis as well as angiogenesis.

Keywords: Stem cell transplantation, CD133\textsuperscript{+} cells, Coronary artery bypass, Myocardial infarction
Comparison of transepicardial cell transplantation: autologous undifferentiated versus differentiated marrow mesenchymal stem cells


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran
School of Medical Sciences, Tarbiat Modares University, Tehran, Iran
Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran
Imam Khomeini Hospital Complex, Medical Sciences, University of Tehran, Tehran, Iran

Abstract

Background: Marrow-derived mesenchymal stem cells (MSCs) have been heralded as a source of great promise for the regeneration of the infarcted heart. There is no clear data indicating whether or not in vitro differentiation of MSCs into major myocardial cells can increase the beneficial effects of MSCs. The aim of this study is to address this issue.

Methods: To induce MSCs to transdifferentiate into cardiomyocytes and endothelial cells, 5-azacytidine and vascular endothelial growth factor (VEGF) were used, respectively. Myocardial infarction in rabbits was generated by ligating the left anterior descending coronary artery. Animals were divided into three experimental groups: I, control group; II, undifferentiated mesenchymal stem cell transplantation group; III, differentiated mesenchymal stem cell transplantation group; which respectively received peri-infarct injections of culture media, autologous undifferentiated MSCs and autologous differentiated MSCs. Echocardiography and pathology were performed in order to search for improvement of cardiac function and reduction in infarct size.

Results: Improvements in left ventricular function and reductions in infarcted area were observed in both cell transplanted groups (Groups II and III) to the same degree.

Conclusion: There is no need for prior differentiation induction of marrow-derived MSCs before transplantation and peri-infarct implantation of MSCs can effectively reduce the size of the infarct and improve cardiac function.

Keywords: Myocardial infarction; Stem cell; Bone marrow; Differentiation.
Tissue engineering of myocardium using cell-seeded synthetic PCL scaffold in an ovine model of myocardial infarction


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran
School of Medical Sciences, Tarbiat Modares University, Tehran, Iran
Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran

Abstract

Background: The emerging fields of tissue engineering and biomaterials have begun to provide potential treatment of cardiac infarcts. Tissue engineering approaches are designed to repair damaged cardiac tissue through the use of cellular transplantation, and biomaterial scaffolds. This study was designed to investigate the effectiveness of a cell-seeded patch including layers of cardiomyocytes and endothelial cells grafted on the infarcted area of the heart.

Methods: Myocardial infarction in sheep was induced by ligation of the distal portion of the left anterior descending coronary artery. Biopsy of the left ventricular cardiac muscle and jugular vein was obtained. Tissue samples were cultured and expanded in-vitro. Expanded cardiomyocytes and endothelial cells were seeded on to the layers of polycaprolactone (PCL) biodegradable sheets. After two months, the patch sheets were sutured on the surface of the infarcted myocardium.

Results: Eight weeks after transplantation, there was remarkable thickening as well as decreased paradoxical motion of the ventricular wall in echocardiographic evaluation. There was no significant improvement in global ejection fraction. In microscopic pathologic examinations by H&E staining, electron microscopy and immunohistochemical marking, grafted cells in the scaffold had survived and had been incorporated into the adjacent epicardium. There was also seen a spectacular amount of neovascularization in the graft.

Conclusion: Our data demonstrate that grafting of cell-seeded scaffolds can induce angiogenesis in the infarcted region. Such tissue engineered cell-seeded scaffolds are promising means of tissue cardiomyoplasty in the field of regenerative medicine. Further investigations are however encouraged to open new horizons in the treatment of heart failure.

Keywords: Myocardial regeneration, Stem cell, Bone marrow, Ultra structure, Differentiation
Prosthetic valve endocarditis: early outcome following medical or surgical treatment


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran
Imam Khomeini hospital, Medical Sciences/ University of Tehran, Iran

Abstract

Background: Prosthetic valve endocarditis is an important cause of morbidity and mortality associated with heart valve replacement surgery. The aim of present study is to describe the early outcome of medical treatment alone in patients with prosthetic valve endocarditis in a single center.

Methods: Data of all episodes of prosthetic valve endocarditis seen at our institution between 2002 and 2007 were collected and analyzed retrospectively. Patients were assessed by clinical criteria defined by Durack and colleagues (Duke Criteria). The analysis included detailed study of hospital records. Continuous variables were expressed as mean ± standard deviation. Discrete variables were presented as percentages.

Results: Thirteen patients with prosthetic valve endocarditis were diagnosed and treated at our center during the study period. In all cases mechanical prosthesis were used. The patients' mean age was 46.9 ±12.8 years. Women made up 53.8% of all cases. Early prosthetic valve endocarditis was seen in 6 patients (46.2%) and late PVE occurred in 7 cases (53.8 %). Eleven (84.6%) of them treated by intravenous antimicrobial therapy and two (15.4%) patients required surgical removal and replacement of infected prosthesis in addition to antibiotic therapy. Blood cultures became positive in 46.2% of patients. Mortality rate was 15.4% (2 patients).

Conclusion: According to our study, it seems that in selected cases with prosthetic valve endocarditis, those who remain clinically stable and show good response to antimicrobial therapy, cured could be achieved by antimicrobial treatment alone with acceptable morbidity and mortality risk.

Keywords: Prosthetic valve endocarditis, Early outcome, Antibiotic therapy
Mid term outcome of percutaneous coronary intervention (PCI) versus coronary bypass surgery (CABG) in patients with multiple vessel disease: Three years follow up


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

*Background:* The optimal revascularization strategy, percutaneous coronary intervention (PCI) or coronary artery bypass graft surgery (CABG), for patients with multivessel coronary artery disease (MVD) remains controversial. The aim of the present study was to compare the mid-term outcomes after CABG with PCI in patients with multiple vessel disease.

*Methods:* A total of 80 patients with multiple vessel disease were enrolled and randomly assigned to undergo either PCI (n = 40) or CABG (n = 40) in Tehran Heart Center. Clinical follow-up during 3 years was obtained in near to 85% of the total population after hospital discharge. The primary end point of the study was to compare freedom from mortality and revascularization and quality of life at 3 years of follow-up.

*Results:* Patients initially treated with PCI had similar survival than those initially treated with CABG (92.3% vs. 94.7% respectively, P=0.663), but freedom from repeat revascularization procedures was significantly lower with PCI compared with CABG (83.2% vs. 98.2%, P=0.020). Also, quality of life had a trend for being better in CABG than PCI (P=0.053).

*Conclusion:* At three years of follow-up, non significant difference was found in survival between CABG and PCI; however patients initially treated with CABG had better freedom from repeat revascularization procedures and quality of life.

*Keywords:* Percutaneous coronary intervention, Coronary artery bypass graft surgery, Outcome
Short term outcomes of endovascular treatment of aortic aneurysms (initial results of the first Iranian consecutive endovascular aortic repair (EVAR) experiences

Haji Zeinali A, Marzban M, Zafarghandi M, Shirzad M, Shirani Sh and Arafat M

Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Endovascular Treatment of Aortic Aneurysms demonstrated low perioperative morbidity and mortality when compared with conventional open repair. Long term effectiveness of this minimally invasive technique remains to be proven.

Methods: From sep 2006 we began a prospective case series EVAR study for the first time in IRAN and to now 10 consecutive patients (1 woman 9men) with the mean age of 67 years old underwent, endovascular Aortic Aneurysm repair (2 thoracic, 7 abdominal, 1 both thoracic and abdominal) with Medtronic talent or valiant stent grafts. Follow up analysis was based on clinical and imaging findings and were done in first month as a short term outcome and then will continue for 6.12 months.

Results: 8 abdominal aortic aneurysm (AAA) been infrarenal with acceplabe neck and maximum diameter of AAA between 5.5 to 10.2 cm in tow patients iliac aneyourysms were seen. For 7 AAA patient routine modular stentgraft were used and in the one case unilateral stent graft was implanted because of difficulty of controlateral stent graft implantation. Three thoracic aorta aneurysms (TAA) were repaired with valiant stent graft. One was a marphan patient with recent Bental surgery and another one a post Coarctoplasty secular aneurysm. In all 10 cases we did not have any major complications like death, MI, stroke or reintervention and all patients discharged successfully. In two AAA cases mild type II endoleak were seen in the end of procedure that controlled with under-observation. Minor complications like vascular access hemotorna, anemia and increased creatinine were controld in hospital stay period. No any major complications were seen in 1 month clinical follow up 6, 12 month follow up will do for assessmenr of midterm results.

Conclusion: Endovascular repair of aortic aneurysm was feasible and safe for suitable cases that scagoed base on both clinical and radiologic findings. Good case selection, good device selection and suitable follow up are the keys of EVAR successfulness.

Keyword: Aorta Aneurysm, Endovascular Repair, Stent Graft, EVAR
First video assisted septal myectomy for hypertrophic obstructive cardiomyopathy with midventricular obstruction: a case series


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Hypertrophic obstructive cardiomyopathy (HOCM) is a genetically determined disease of myocardium. There are many treatment modalities for it including medical therapy, pacing, alcohol ablation and surgery. In septal myectomy, transaortic approach for resection of basal septum is a standard procedure but resection of mid ventricular obstruction is always challenging due to inaccessibility of this part of septum. To overcome this issue we innovated a new technique as video-assisted resection.

Methods: Under cardiopulmonary bypass with cardioplegic arrest, the basal septum was resected through aortic valve and then the midsegment of interventricular septum was resected by introducing an arthroscopic lens into the LV cavity and resection of hypertrophied septum by arthroscopic scissor. Three patients (male with mean age 43.7±12.9 year) with diagnosis of hypertrophic obstructive cardiomyopathy and long left ventricular outflow tract obstruction (>3cm) underwent septal myectomy by this technique. Two of them had also release of muscle bridge of LAD and one patient had concomitant mitral valve replacement.

Results: Mean septal thickness reduced from 23.7±1.5 mm to 11.7±1.5 mm. Mean left ventricular outflow tract gradient reduced from 90.0±17.3 to 11.7±3.5mm Hg and mean New York Heart Association class (NYHA) from 2.7±0.6 to 1.0 there was no mortality or morbidity.

Conclusion: For relief of long left ventricular outflow tract obstruction, video-assisted septal myectomy is feasible and can prevent ventriculotomy or transapical approach to resect the stenosis.
Evaluation of acute low cardiac output syndrome after open cardiac surgery in intensive care unit


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Low cardiac output syndrome (LCOS) remains an important complication after open cardiac surgery. We defined LCOS as the need for high dose inotrop therapy and insertion of intraaortic balloon pump in intensive care unit (ICU). The aim of this study is evaluation of LOCS patients in early postoperative days.

Methods: We conducted a retrospective review of 12098 consecutive patients who underwent open cardiac surgery from April 2003 to March 2007 at our center. Patients divided into two groups: LCOS and normal group. Preoperative, operative and postoperative data were compared in two groups.

Results: Out of 12098 patients, LCOS developed in 91 patients (0.8%). Forty four patients (0.4%) underwent isolated coronary artery by pass surgery, 34 patients (0.3%) had valvular surgery and 13 patients (0.1%) had combination of these operations with or without congenital heart surgery. LCOS group were more likely to be women (40.7% versus 27.9%) and had lower ejection fraction (45.4% ± 13.4 versus 49.4% ± 10.5) in comparison with normal group(p< 0.05). There is no difference between age in two groups (P = 0.37). Cardiopulmonary bypass and aortic cross clamp times were significantly higher in LCOS group (p< 0.001). The rate of postoperative mortality, renal failure, stroke, atrial fibrillation and prolonged ventilation was higher in patients with LOCS compared to normal group (p< 0.001).

Conclusion: According to our study development of LCOS after open cardiac surgery associated with high morbidity and mortality. We have to consider all factors (pre and perioperative) to predict postoperative LCOS before deterioration cardiac function.

Key words: Open cardiac surgery, Low cardiac output syndrome, Mortality
Clinical outcome of coronary artery bypass grafting in patients with unilateral total occlusion of the internal carotid artery

Abbasi K, Fadaei Araghi M, Shirani Sh, Karimi AA, Ahmadi H and Moshtaghi N

Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: The presence of significant carotid stenosis in coronary artery bypass patients increases the risk of either transient ischemic attack or stroke, but there is little finding about the risk for patients with unilateral total occlusion of the carotid artery. We report our results for cardiac surgery in patients with unilateral total occlusion of carotid artery.

Methods: We examined 10,000 patients who underwent carotid artery duplex scanning before CABG or other cardiac procedures between January 2001 and September 2006 at Tehran Heart Center. The occlusion was detected by carotid Doppler screening and was confirmed by conventional or MR angiography. Among these patients, 15 patients (0.15%) had unilateral total occlusion of internal carotid artery. All of them had elective cardiac surgery. During cardiopulmonary bypass mean arterial pressure maintained above 60 mmhg with vasopressure drugs increasing flow of pump.

Results: 4 patients had left carotid occlusion and the others had right. 4 patients had history of cerebrovascular accident. The mean cross-clamp time (min) and perfusion time (min) was 50.7±17.3 and 94.2±8.7 respectively. The mean graft number was 4.1±0.9. One of these patients expired in the operation room because of low cardiac output. In one patient post operative cerebrovascular accident was occurred contra lateral side of total occlusion region. All of the patients recovered uneventfully.

Conclusion: Our results suggest that coronary artery bypass grafting can be performed without ipsilateral stroke in patients with unilateral total occlusion of internal carotid artery using our strategies.

Key words: Coronary arteries bypass grafting, Total occlusion of internal carotid artery, Cerebral vascular accident
Comparison of pre and post operative fasting blood sugar level, morbidity and mortality in addict versus non addict CABG patients

Shirzad M, Karimi AA, Ahmadi H, Marzban M, Movahedi N, Abbasi K, Salehi Omran A and Moshtaghi N
Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Because of an established habit of opium use in cardiovascular patients in Iran, we decided to evaluate the effects of opium on morbidity, mortality and the level of fasting blood sugar (FBS) pre and post coronary artery bypass grafting (CABG).

Methods: This case-control study was conducted on patients underwent CABG from January 2006 to March 2007 at our center. One hundred men with a mean age of 54±9.75 years addicted to opium (group A), were selected as the case group. One hundred men with no opium addiction served as controls (group B). Female gender and diabetes mellitus were excluded.

Results: Changes of FBS level before and after surgery was 49.88 ± 36.72 and 53.02 ± 41.70 (mean ± SD) in group A and B respectively, however this difference was not significant. There were 79% smoker in group A and 47% in group B (P<0.0001). Hypertension, family history, dyslipidemia and obesity had no significant difference between two groups. There were two cases of in-hospital mortality in non opium group. Three cases of prolonged ventilation (>24 hours) in group A and 4 in group B were detected. There were 3 cases of pneumonia and one case of pulmonary embolism in non opium group.

Conclusion: Our results suggest that opium had no influence on the changes of FBS level after CABG. Also opium did not have significant conservative influence on the incidence of mortality and morbidity after CABG.

Key words: Opium addiction, CABG, Blood sugar
Effects of body mass index in early outcome of coronary artery bypass surgery

Shirzad M, Karimi AA, Ahmadi H, Marzban M, Abbasi K and Alinejad B
Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Obesity is commonly thought to be a risk factor for morbidity and mortality after cardiac surgery. The aim of the present study is to evaluate the effects of variations in body mass index on in-hospital outcome of CABG.

Methods: We conducted a retrospective review of 10191 consecutive patients who had undergone isolated CABG at our center from February 2002 to November 2006. Patients were divided into four groups according to BMI. Underweight patients (BMI < 18.5 kg/m²) were assigned to group 1 and obese patients (BMI ≥ 30 kg/m²) were put into group 4. Patients with normal BMI and those who were overweight were placed in group 2 and 3 respectively.

Results: Analysis of the BMI groups showed: of 10191 patients 0.7% was underweight; 31.2% of cases had normal BMI, 47.2%; overweight and 21.0% were obese. Compared with other groups, the members of the obese group were younger, included more women and were more likely to have all the risk factors for coronary artery disease except for cigarette smoking (p < 0.0001). The underweight patients had an excess of left main coronary artery disease, previous history of myocardial infarction. In-hospital mortality did not show any difference between groups (p = 0.46). There was a significant increase in postoperative gastrointestinal complications among the underweight group in comparison with other groups (p = 0.027).

Conclusion: According to our study, obese patients undergoing CABG are not at a greater risk of perioperative death and other adverse outcomes compared to normal weight. After CABG, Underweight patients are at higher risk of developing gastrointestinal complications compared to normal patients.

Key words: Obesity, Coronary artery bypass, Morbidity
Midterm results of mitral valve replacement for moderate to severe and severe ischemic mitral valve regurgitation: Three years follow up


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Patients with significant mitral regurgitation in the setting of coronary artery disease (CAD) have a poor long-term prognosis whether treated medically or surgically, and those with mitral regurgitation of at least moderate severity may represent a higher risk surgical group. However, the management of this disorder remains controversial. The aim of this study was to determine the midterm results of mitral valve replacement in patients with moderate to severe and severe mitral regurgitation.

Methods: Demographic and clinical characteristics of 25 patients with moderate to severe and severe ischemic mitral regurgitation underwent concurrent coronary bypass surgery and mitral valve replacement in Tehran Heart Center from 1 January 2002 to 1 January 2006 were collected. We studied the postoperative characteristics and 30 days outcome and midterm results of surgery included survival, readmission, reintervention, and quality of life followed by telephone.

Results: The mean age of patients was 61.96±10.35 years which 56% of them were male. The most common in-hospital complications were re-intubation (9%), prolonged ventilation (4.5%), cardiac arrest (3%), atrial fibrillation (37.3%), and brain stroke (3%). prolonged length of stay in hospital (>14 days) and in ICU ward (>72 hours) were found in 33.8% and 52.5%, respectively. Thirty day mortality rate was 7.4%. At 2.9±1.1 years follow up, survival rate was 88%. Re-admission and re-intervention rates were 32% and 8%, respectively. In the assessment of quality of life, suitable physical and social activities were reported in 84% and 80% of patients. Eighty four percent of patients were satisfied with operation, whereas only 36% of them were able to continue their work.

Conclusion: The results of combined mitral valve replacement and myocardial revascularization for moderate to severe and severe ischemic mitral regurgitation are acceptable except for hospital readmission and continuing the work.

Keywords: Mitral regurgitation, Coronary artery bypass grafting, Mitral valve replacement, Outcome
Factors associated with participation in cardiac rehabilitation program


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

**Background:** The purposes of this study were to describe completion rates in a hospital-based outpatient cardiac rehabilitation program, and to identify factors associated with coronary artery disease (CAD) patients failing to complete CR.

**Methods:** Data used for the analyses were from a hospital-based CR program involving 1986 discharged patients (including subjects with ischemic heart disease, and those undergoing bypass surgery or percutaneous coronary interventions) at Tehran Heart Center between July 2004, and January 2006. The number of completed session was compared by demographic and clinical characteristics of patients.

**Results:** The CR completion rate was 18.1% (average of 11.4±8.1, ranged from 1 to 78 sessions) including patients who completed 24 (n=284) or more session (n=77) of CR program. The present study indicated that improvement in exercise capacity occurs in both PTCA and CABG patients after completion of CR. However, patients with PTCA may achieve more improvement in exercise parameters and heart rate recovery due to better functional capacity. Women and men similarly attended at CR sessions. Also, completed CR program were no significantly different between younger or older, post-CABG, post-PCI or post-myocardial infarction patients. Workers and patients who occupied in social services (average of 5-8.6 sessions, possibly with low socioeconomic status), patients with low level or without academic education (average 8.6±6.3 sessions), patients with lower risk of atherosclerotic (hypertension and positive family history of CAD), were significantly less likely to complete cardiac rehabilitation.

**Conclusion:** Less than a fifth of the patients did not complete this hospital-based cardiac rehabilitation program. Low socioeconomic and educational level and lack of family history of CAD are likely to cause drop out from cardiac rehabilitation.

**Keywords:** Cardiac rehabilitation, Attendance rate, Drop-out
Opium use among patients with cardiovascular disease: a novel risk factor?

Darabian S, Karimi AA, Davoodi S, Amirzadegan AR, Sadeghian H, Sadeghian S and Abbasi A

Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Opium use has been found to be higher prevalent among patients with coronary arteries diseases (CAD) comparing normal population in Iran. Recently, opium smoking has been shown as an atherosclerotic risk factor. This survey was designed to evaluate prevalence of substance use especially opium and cigarette among risk factors among CAD patients.

Methods: Our data was extracted from the computerized database of 15262 patients who had undergone coronary artery bypass grafting (CABG) and 16739 patients with coronary angiography in Tehran Heart Center during 2003 until 2007. We compared prevalence of opium and cigarette use between CAD and angiographically normal patients.

Results: Out of available data of cardiosurgical patients, the prevalence of opium use and cigarette smoking was 15.4% (349/2269) and 36.9% (5609/15180), respectively. Opium user and cigarette smokers consisted 10.2% (1713/16739) and 34.9% (5845/16739) of angiographic patients. Although opium use had strong association with male gender and cigarette smoking, multivariate logistic regression revealed that it can be considered as an independent predictor for CAD.

Conclusion: Opium use and cigarette smoking is significantly more prevalent among CABG and/or CAD patients than subjects with documented normal coronary arteries and normal population in Iran. Also, opium use might be considered as an independent risk factor for cardiovascular diseases.

Keywords: Coronary artery disease, Risk factor, Opium, Substance abuse
The relationship between quality of life components and postoperative blood sugar concentration in patients undergoing coronary artery bypass surgery

Najafi M, Montazeri A and Sheikhvatan M
Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran
Iranian Institute for Health Sciences Research

Abstract

Background: Quality of life reflects a measure of physical and social functioning as well as mental health and is recognized as an important component of health status. Maintenance of normal levels of blood glucose during intensive care improves survival and reduces morbidity of critically ill patients after complicated, high-risk, or extensive surgery. We considered the relation between mental and physical health components scores of quality of life and the increase of postoperative blood glucose concentration in diabetic and non-diabetic patients who underwent coronary artery bypass surgery (CABG).

Methods: In a cross-sectional study, 268 consecutive patients candidate for isolated CABG in Tehran Heart Center between May 2006 and September 2006 were recruited and postoperative blood sugar (each two to four hours during 24 hours after surgery) was measured. Quality of life was assessed using version 1 of the SF-36 Quality of Life and two components measuring mental health and physical functioning were considered. We compared postoperative glucose concentration in low score with high score groups in mental and physical components, separately.

Results: Among 268 patients (men to women ratio: 2.7), 113 patients (42.1%) were diabetic and 155 (57.9%) patients were non-diabetic with the mean age of 60.3±8.4 and 59.2±9.4 years, respectively. In multivariate regression analysis, relation between mental health score and postoperative glucose concentration was also found among all patients who underwent CABG (OR: 7.370, 95% CI: 2.324-14.416, P=0.040), whereas, this relationship was not found between physical component summary and glucose concentration after surgery.

Conclusion: Considering the relationship between the quality of life and blood glucose changes after CABG, improvement of patients' lifestyles and blood glucose monitoring before and after surgery in both diabetics and non-diabetics is necessary.

Keywords: Quality of life, Blood sugar, Coronary artery bypass, SF-36
Preoperative serum creatinine level is not a reliable estimate of patients' renal function in coronary artery bypass surgery


Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Conventional method of serum creatinine (sCr) measurement for renal function evaluation is limited by variations in sex, age and muscle mass. Calculated creatinine clearance (CrCl) as an alternative measure may give a better estimation of renal function.

Methods: We conducted a retrospective review of consecutive patients who underwent isolated coronary artery bypass surgery (CABG) requiring cardiopulmonary bypass from January 2002 to February 2007. Preoperative renal insufficiency (RI) was defined as CrCl of 60ml/min or less. Preoperative renal function was categorized as normal function (sCr /g148 100µm and CrCl > 60ml/min), occult insufficiency (sCr /g148 100µm and CrCl /g148 60ml/min), mild insufficiency (100µm< sCr /g148133) or moderate insufficiency (sCr >133).

Results: Out of 11884 patients in the sample, 5581 (47%) had normal renal function, 706 (5.9%) had occult RI, 4617 (38.9%) mild RI and 980 (8.2%) moderate RI. Approximately 11.2% of patients with normal sCr had occult RI. Patients of group two were more likely to be women (65.9% versus 30.7%) and older (68.6 ± 6.0 versus 56.4 ± 9.0 years) compared to normal group (p< 0.001). The rate of postoperative mortality, renal failure, atrial fibrillation, prolonged ventilation, intra aortic balloon pump usage and prolonged hospital stay (> 7days) was higher in patients with occult RI compared to normal group (p< 0.05). Logistic regression analysis did not show any significant difference in mortality rate between four groups.

Conclusion: The incidence of postoperative mortality and morbidity is higher among patients with occult RI compared to normal group. So we recommend the calculation of CrCl especially in older women with lower weight before CABG.

Keywords: Coronary artery bypass, Renal insufficiency, Morbidity, Risk prediction
Predictors of post CABG length of stay in ICU and surgical ward are different

Najafi M, Soltaninia H, Sheikh fathollahi M and Pajoohi M

Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran
Endocrine and Metabolism Research Center, Medical Sciences/University of Tehran

Abstract

Background: Many studies have performed to determine the predictors of hospital stay and mortality but there are few if any studies to determine predictors of stay in different wards separately.

Methods: In a cohort design, we studied isolated coronary artery bypass graft (CABG) candidates who were not dialysis dependent from hospitalization to discharge. In addition to demographic variables and patients’ characteristics we recorded clinical history, risk factors, preoperative complications and laboratory data. Surgeons were categorized based of mean length of hospital stay in their patients. We determined the length of stay (LOS) in ICU and surgical ward separately. We performed logistic regression analysis to determine the predictors of postoperative LOS.

Results: 570 patients (429 men, 75.3%) were studied. Mean LOS was 46.8 (34.9) hours in ICU and 2.7 (1.99) days in surgical ward. Independent predictors of extended LOS in ICU (>48 hour) were surgeon, New York Heart Association (NYHA) functional class, intra-aortic balloon pump (IABP), postoperative arrhythmias, total administered insulin during 24 hours after operation (Ins24), and mean base excess of first six hours after operation (Hosmer-Lemeshow goodness of fit statistic (HL) 0.940, area under receiver operating characteristic (ROC) curve 0.699). Independent predictors of extended LOS in surgical ward (>3 days) were history of peripheral vascular disease, Ins24, glycosylated hemoglobin (HbA1c) and last FBS of patients before operation and arrhythmia and inotropic usage after operation (HL 0.881, ROC 0.714).

Conclusion: This study shows that surgeon, NYHA functional class, and IABP are specific predictors of extended LOS in ICU. Blood sugar control indices and peripheral vascular disease are important factors in predicting LOS among CABG candidates in surgical ward where they are not at critical situation.

Key words: Coronary artery bypass, Outcome prediction, Length of stay, Hospital wards
The effect of prophylactic magnesium infusion on the characteristics of postoperative atrial fibrillation: A randomized clinical trial

Najafi M, Haghighat B, Soltaninia H, Ghiasi A, Ahmadi H and Abbasi SH
Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Postoperative atrial fibrillation (AF) is a common complication of cardiac surgery which increases the morbidity and postoperative length of stay in hospital. Total magnesium serum concentration changes after coronary bypass surgery but compensatory prophylactic administration of magnesium has remained a controversial issue. We studied whether magnesium prophylactic administration influences post-coronary artery bypass grafting (CABG) AF nature and treatment method.

Methods: In a clinical trial, 345 isolated CABG candidates randomly assigned to case and control. Group case received 2 g supplemental magnesium intravenously after induction of anesthesia until onset of cardio-pulmonary bypass and then 8 g since arrival in Intensive Care Unit (ICU) to 24 hours. Total magnesium serum concentration was measured four times: onset of induction, hours 0, 24 and 48 after ICU admission. Cardiac arrhythmias were confirmed with a 12-lead Electrocardiogram (ECG) and clinically after the end of surgery until discharge. Duration of AF and method of treatment recorded for any episode.

Results: AF episodes occurred 36 times (17 case, 19 control). Mean duration of AF in case and control groups were 10.4(8.1) and 21.4(30.3) respectively. Total magnesium serum concentrations 24 and 48 hours after ICU admission were significantly higher in AF patients of group case (p<0.04). More patients in group case received amiodarone protocol compared to control group (64.7% vs. 42.1%). Mg48 in AF patients who received amiodarone was significantly higher compared to control group (p=0.023). Mg48 in diabetics was significantly lower compared to non-diabetics (p=0.03) and they received electrolyte for AF treatment more than non-diabetics (45% vs 18.8%).

Conclusion: AF treatment method is related to magnesium serum concentration. The nature of arrhythmia differs in AF patients who need amiodarone. It seems that electrolyte disturbances is more important in diabetic AF patients.

Key words: Coronary artery bypass, Arrhythmia, Atrial fibrillation, Antiarrhythmic agents, Magnesium.
Predictors of post operative length of stay in CABG candidates: Comparison of diabetics and non-diabetics

Najafi M, Ghiasi A, Adibi H and Amini MR
Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran
Endocrine and Metabolism Research Center, Medical Sciences/University of Tehran

Abstract

**Background:** Diabetes has long been described as an independent risk factor for development of coronary artery disease. Diabetes increases adverse outcome in coronary artery bypass grafting (CABG) surgery. This study investigates the determinants of the length of stay (LOS) among diabetics and non-diabetic CABG candidates.

**Methods:** In a cohort study, we assessed isolated CABG candidates who were not dialysis dependent from hospitalization to discharge as two groups of diabetics and non-diabetics. In addition to demographic variables and patients’ characteristics we recorded clinical history, risk factors, perioperative complications and laboratory data. We performed logistic regression analysis to determine the predictors of postoperative LOS in diabetics and non-diabetics.

**Results:** 570 patients (429 men, 75.3%) were studied. Based on defined criteria 233 patients (40.9%) were diabetic. Mean postoperative LOS was 8.5(5.3) days in diabetics and 7.8(4.7) days in non-diabetics. Independent predictors of extended postoperative LOS (>7 days) were sex, serum creatinine, last preoperative FBS, total administered insulin during 24 hours after operation (Ins24), inotropic drug usage and surgeon among diabetics and Ins24, postoperative respiratory compromise and surgeon among non-diabetics.

**Conclusion:** Specific predictors of postoperative LOS were sex and last FBS among diabetics and respiratory compromise among non-diabetics. Dosage of administered insulin after operation is an important predictor of LOS among all CABG patients. Differences in postoperative LOS predictors among diabetics and non-diabetics shows that we need different protocols to decrease postoperative LOS in diabetic and non-diabetic CABG candidates.

**Key words:** Coronary artery bypass, Diabetes Mellitus, Outcome prediction, Length of stay
Growing rate of diabetes increases the risks of coronary artery surgery in Iran

Najafi M, Haghighat B, Larijani B and Abbasi SH

Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran
Endocrine and Metabolism Research Center, Medical Sciences/University of Tehran

Abstract

Background: Diabetes mellitus with growing rate in western countries is associated with more morbidity and less favorable results after coronary revascularization. Diabetes prevalence is expected to be high among Iranian CABG candidates due to similar changes in life style and life expectancy.

Methods: In a cohort study, we assessed isolated CABG candidates from hospitalization to discharge as two groups of diabetics and non-diabetics. In addition to demographic variables and patients' characteristics we recorded clinical history, risk factors, perioperative complications and laboratory data.

Results: 570 patients (233 diabetics, 40.9%) were studied. Mean duration of diabetes was 7.3 (5.8) years and mean glycosylated hemoglobin (HbA1c) at admission was 6.9 (1.6). Regarding diabetes control, the rate of patients with regimen, oral drugs and insulin was 21.6, 69.2 and 9.3 percent respectively. Patients with diabetes were more likely to be women, had a higher BMI and higher rate of hyperlipidemia, hypertension and CVA in their history. Laboratory data showed higher BUN, lower hematocrit and lower serum magnesium (p<0.05 for all). Mean blood sugar during 72 hours before operation and 72 hours after operation as well as HbA1c at operating room admission were higher in diabetics compared to non-diabetic patients (p<0.001 for all). Two diabetics and one non-diabetic died in hospital (0.9% and 0.3% respectively). Euroscore was higher in diabetics (2.5 vs. 2.3) and there were more diabetics with grade III NYHA functional class (17.6% vs. 12.5%) but the difference was not significant.

Conclusion: The prevalence of diabetes among Iranian CABG candidates is high and diabetics have less favorable clinical characteristics than non-diabetics.

Key words: Diabetes mellitus, Coronary artery bypass, Risk
Cardiac resynchronization therapy (CRT) in patients with heart failure

Yamini Sharif A
Tehran Heart Center, Medical Sciences/University of Tehran, Tehran, Iran

Abstract

Background: Cardiac Resynchronization Therapy (CRT) is a new therapy for patients with advanced heart failure and ventricular dyssynchrony. Several studies have shown a chronic functional improvement due to reverse remodeling of the left ventricular (LV) with a subsequent reduction of hospitalization and decreased mortality. The implantation of a CRT device requires LV stimulation achieved usually by a transvenous approach through the venous branches of coronary sinus (CS). Failure to pacing through the CS is still a limitation of the technique that occurs in 5 to 10% of cases. The main difficulty is the impossibility to locate and cannulated the CS. After CS cannulation sometimes it is difficult to advance the guiding catheter because of acute angulation, stenosis or intravenous valves (the besian and veiussens valve). A significant complication is CS dissection. The incidence of reported CS dissection in several studies is 1.5 to 5%. Generally CS dissection is caused by the advancement of the guiding catheter into the vessel or by injection of contrast media through an angiography catheter with its tip impacted against CS wall.

The LV lead is usually implanted in the lateral region but sometimes there is no suitable vein in this region and other veins are chosen. In addition, long procedure time and long fluoroscopy time has made CRT device implantation as an unpleasant procedure for operators. To solve this problem, improvement in facilities could be promising but at present time operators should tolerate a lot of difficulties for transvenous device implantation. Totally endoscopic epicardial lead placement on the left ventricular allows to position left ventricular lead. This approach is feasible, low cost and safe. It could be an alternative procedure.

After LV lead implantation and removal of chest tube by surgeons, second operator (electrophysiologists) is able to position RV and RA leads transvenously and completes the procedure. By using this method stem cell therapy during LV lead implantation is also feasible. Now a days endoscopic epicardial lead placement on the left ventricle is usually recommended after transvenous LV lead positioning failure but it could be an attractive idea to implant LV lead by using video assisted thoracoscopy (VAT) by surgeons in the operating room and other leads in the cath lab by electrophysiologists.
### Index

<table>
<thead>
<tr>
<th>Page</th>
<th>Arabic</th>
<th>Persian</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>أرامي</td>
<td>ارامی</td>
</tr>
<tr>
<td>79-19</td>
<td>إزومده</td>
<td>ازومده</td>
</tr>
<tr>
<td>40</td>
<td>أسا</td>
<td>أسا</td>
</tr>
<tr>
<td>6</td>
<td>آفاقزويني</td>
<td>آفاقزوینی</td>
</tr>
<tr>
<td>42</td>
<td>آل ياسين</td>
<td>آل یاسین</td>
</tr>
<tr>
<td>16</td>
<td>أيت اله زاده</td>
<td>آیت اله زاده</td>
</tr>
<tr>
<td>80</td>
<td>أصفهاني</td>
<td>اصفهانی</td>
</tr>
<tr>
<td>68-66</td>
<td>أحمدی</td>
<td>ادیبی</td>
</tr>
<tr>
<td>96</td>
<td>ادیبی</td>
<td>ادیبی</td>
</tr>
<tr>
<td>50</td>
<td>اشراقيان</td>
<td>اشراقیان</td>
</tr>
<tr>
<td>29</td>
<td>اصفهاني</td>
<td>اصفهانی</td>
</tr>
<tr>
<td>44</td>
<td>اعتمادي</td>
<td>اعتمادی</td>
</tr>
<tr>
<td>21</td>
<td>افتخار</td>
<td>افتخار</td>
</tr>
<tr>
<td>91-18</td>
<td>اميرزادگان</td>
<td>امیرزادگان</td>
</tr>
<tr>
<td>96</td>
<td>اميني</td>
<td>امینی</td>
</tr>
<tr>
<td>44</td>
<td>بابابي</td>
<td>بابابی</td>
</tr>
<tr>
<td>48</td>
<td>باقري</td>
<td>باقری</td>
</tr>
<tr>
<td>79-115</td>
<td>بروند</td>
<td>بروند</td>
</tr>
<tr>
<td>78-14</td>
<td>برهوند</td>
<td>برهوند</td>
</tr>
<tr>
<td>72-55</td>
<td>پادرپ</td>
<td>پادری</td>
</tr>
<tr>
<td>94-62</td>
<td>پژوهي</td>
<td>پژوهی</td>
</tr>
<tr>
<td>50</td>
<td>پنی خواهی</td>
<td>پنی خواهی</td>
</tr>
<tr>
<td>33</td>
<td>پورحسین</td>
<td>پورحسین</td>
</tr>
<tr>
<td>33</td>
<td>پیرزاد</td>
<td>پیرزاد</td>
</tr>
<tr>
<td>25</td>
<td>پورقلي</td>
<td>پورقلي</td>
</tr>
<tr>
<td>سر</td>
<td>نام</td>
<td>توضیحات</td>
</tr>
<tr>
<td>----</td>
<td>-----</td>
<td>----------</td>
</tr>
<tr>
<td>48</td>
<td>توكل</td>
<td>جلال منش</td>
</tr>
<tr>
<td>58</td>
<td>جلالی</td>
<td>جمالور</td>
</tr>
<tr>
<td>48</td>
<td>جمالور</td>
<td>جناب</td>
</tr>
<tr>
<td>73</td>
<td>جناب</td>
<td>جوانبیور</td>
</tr>
<tr>
<td>37</td>
<td>جوانبیور</td>
<td>جهانزاد</td>
</tr>
<tr>
<td>58</td>
<td>جهانزاد</td>
<td>حاجی زاده</td>
</tr>
<tr>
<td>82</td>
<td>حاجی زاغی</td>
<td>حاجی زینعلی</td>
</tr>
<tr>
<td>68.2</td>
<td>حداذی</td>
<td>حسن زاده</td>
</tr>
<tr>
<td>50</td>
<td>حسن زاده</td>
<td>حسنی</td>
</tr>
<tr>
<td>71</td>
<td>حسنی</td>
<td>حسنی</td>
</tr>
<tr>
<td>72</td>
<td>حسنی</td>
<td>حقیقت</td>
</tr>
<tr>
<td>97</td>
<td>حقیقت</td>
<td>حکمت یزدی</td>
</tr>
<tr>
<td>29</td>
<td>حکمت یزدی</td>
<td>حکی</td>
</tr>
<tr>
<td>51.46.39</td>
<td>حکی</td>
<td>حمیدیان</td>
</tr>
<tr>
<td>26.20</td>
<td>حمیدیان</td>
<td>حیدریا</td>
</tr>
<tr>
<td>44</td>
<td>حیدریا</td>
<td>حکی</td>
</tr>
<tr>
<td>79.19</td>
<td>حکی</td>
<td>خواجه</td>
</tr>
<tr>
<td>72.71.55</td>
<td>خواجه</td>
<td>داداشی</td>
</tr>
<tr>
<td>08.32</td>
<td>داداشی</td>
<td>دارابیان</td>
</tr>
<tr>
<td>91.47.46.45</td>
<td>دارابیان</td>
<td>داوود، ستاره</td>
</tr>
<tr>
<td>12</td>
<td>داوود، ستاره</td>
<td>داوود، سعید</td>
</tr>
<tr>
<td>93.91</td>
<td>داوود، سعید</td>
<td>غلامرضا</td>
</tr>
<tr>
<td>20.24.4</td>
<td>غلامرضا</td>
<td>داوود</td>
</tr>
<tr>
<td>72.71</td>
<td>داوود</td>
<td>72.71</td>
</tr>
<tr>
<td>درویش</td>
<td>16-9-44</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>دهداری</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>رامش</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>ربانی</td>
<td>80-79-47-19-11</td>
<td></td>
</tr>
<tr>
<td>رحمت زاده</td>
<td>68-66</td>
<td></td>
</tr>
<tr>
<td>رضوانیه</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>رکابی</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>رمضان خوانی</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>رنجفرنگاد</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>روزگاری</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>ریبیسی</td>
<td>35-24-23-18-7</td>
<td></td>
</tr>
<tr>
<td>زارع</td>
<td>78-14</td>
<td></td>
</tr>
<tr>
<td>سالاریفرز</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>سامی</td>
<td>32-11-5</td>
<td></td>
</tr>
<tr>
<td>سفیه انواری</td>
<td>73-26</td>
<td></td>
</tr>
<tr>
<td>سعادت</td>
<td>29-26</td>
<td></td>
</tr>
<tr>
<td>سلیمانزاده اردبیلی</td>
<td>17-8</td>
<td></td>
</tr>
<tr>
<td>سلیمانی عباس</td>
<td>90-80-79-78-55-33-10</td>
<td></td>
</tr>
<tr>
<td>سلیمانی مسعود</td>
<td>19-14</td>
<td></td>
</tr>
<tr>
<td>سلیم زاده</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>سلیمی</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>سمنانی</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>شاهوردی</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>شریف</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>شهبازی</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>رقم</td>
<td>اسم</td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>-----</td>
<td></td>
</tr>
<tr>
<td>69</td>
<td>فتحي</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>قلبي</td>
<td></td>
</tr>
<tr>
<td>4.76</td>
<td>فلاح</td>
<td></td>
</tr>
<tr>
<td>78-2-16-4</td>
<td>قيام زادة</td>
<td></td>
</tr>
<tr>
<td>80.2-13</td>
<td>قادر</td>
<td></td>
</tr>
<tr>
<td>271</td>
<td>قادري</td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>قادر</td>
<td></td>
</tr>
<tr>
<td>78-37-15</td>
<td>قادر</td>
<td></td>
</tr>
<tr>
<td>40-13</td>
<td>قادر</td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>سهيل</td>
<td></td>
</tr>
<tr>
<td>78-79</td>
<td>كاظم</td>
<td></td>
</tr>
<tr>
<td>80-14</td>
<td>محسن</td>
<td></td>
</tr>
<tr>
<td>22-35-34</td>
<td>فطرزى نزار</td>
<td></td>
</tr>
<tr>
<td>74-25-45</td>
<td>لطفي</td>
<td></td>
</tr>
<tr>
<td>78-77</td>
<td>منسي</td>
<td></td>
</tr>
<tr>
<td>78-68-39</td>
<td>مرزبان</td>
<td></td>
</tr>
<tr>
<td>22-34</td>
<td>مجد اردنى</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>مجدي</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>مجيد</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>محسن بور</td>
<td></td>
</tr>
<tr>
<td>88-26</td>
<td>محسن</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>محمد</td>
<td></td>
</tr>
</tbody>
</table>
محمدان
متشاقي
75
مقدرى
68-66
مقيم
48-46
منتظرى
92-64-48
منصورى
75
موحدى
30
مهايين
42
میرخوی
58-47
میرحسینی
69
ناصر
29
ناظمی
نجاتیان
نجفی
نسری
نعمتی پور
33
نموری
14
نوری
78-14
نوری
48
ناناهان
75
الواکی
یزدانی فرد
77-59-28-77-17-3
يمنی شریف
98
یوسف شاهی
71-28