Case report

Coronary bypass surgery in patients with Sheehan’s syndrome

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Abstract

We present a small series of patients with Sheehan’s syndrome (postpartum panhypopituitarism) and coronary artery disease. All four had uneventful coronary bypass grafting. We have successfully managed these patients peri-operatively by using intravenous hydrocortisone and oral thyroxin replacement.

Keywords: Coronary bypass grafting; Sheehan’s syndrome; Panhypopituitarism

1. Introduction

Four females with Sheehan’s syndrome and symptomatic multi-vessel coronary artery disease had coronary artery bypass grafting (CABG) during the last 5 years, in two affiliated cardiac surgery units in Riyadh, Saudi Arabia. Very little information is available in the medical literature about this rare subset of patients.

We managed all of these patients peri-operatively with hydrocortisone, 100 mg i.v. every 6 h, and their routine thyroxin replacement (same dose the patient was taking before the operation) via the nasogastric tube. Within 48 h, the patients were switched back to their regular hormonal replacement according to the preoperative regimen of doses and route of administration.

2. Case 1

In May 1996, a 70-year-old female presented with chest pain and ECG evidence of inferior wall myocardial infarction (MI). She had well preserved myocardial function with severe stenosis of the proximal left anterior descending coronary artery (LAD) and the right coronary artery (RCA).

She was diagnosed with Sheehan’s syndrome in 1984, and was started on replacement doses of thyroxin, 150 μg/day, and prednisolone, 5 mg b.i.d. orally.

The patient had two CABGs on 20th May 1996. The left internal mammary artery (LIMA) was grafted to the LAD and a reverse saphenous vein graft to the RCA. Postoperatively, she required a short course of oral ciprofloxacin for superficial sternal wound infection. The patient went home after 14 days.

In March 1998, she started to have mild chest pain on exertion. Investigations confirmed patent previous grafts with progression of atheromatous disease in all her native coronary arteries. She was sent home on a nitroglycerine dermal patch, 5 mg daily, and remains well from a cardiorespiratory point of view.

3. Case 2

A 40-year-old female with post-infarct angina was admitted in January 1997. She was moderately obese with previous history of non-insulin dependent diabetes mellitus (NIDDM), hypertension and partial thyroidectomy for goiter.

Diagnosis of Sheehan’s syndrome was made 1 year ago, for which she was taking oral prednisolone at 10 mg twice a day, and L-thyroxin at 50 μg/day.

Echocardiogram showed left ventricular ejection fraction (EF) of around 30%. She had almost total occlusion of the LAD, tight proximal narrowing of the RCA and dyskinesia of the antero-lateral wall of the left ventricle on coronary angiography. Persantine thallium scan showed areas of viable myocardium in the LV apex and lateral wall.

Due to angina despite medical therapy, it was decided to offer her surgical myocardial revascularization. Vein graft to a large diagonal branch and the RCA were completed.
The patient was taken off bypass on epinephrine (0.2 μg/kg per min) and dopamine (3 μg/kg per min). The inotropes were weaned off over next several hours.

She went home 10 days later and remains asymptomatic on follow-up after 3 years.

4. Case 3

A 55-year-old mother of a respiratory therapist was taken to the King Khalid University Hospital, Riyadh with acute onset chest pain. She was diagnosed with Sheehan’s syndrome 5 years ago and was on thyroxin (100 μg daily) and prednisolone (10 mg twice a day). She was also an insulin dependent diabetic.

Echocardiogram showed hypokinesia of the ventricular septum and LV apex, with an EF of 45%. Coronary angiography revealed ostial stenosis of more than 80% in the LAD and near total occlusion of the mid-RCA. The patient underwent urgent coronary artery bypass grafting (CABG) with vein grafts to the LAD and the RCA.

She was discharged home on the 10th postoperative day. Her activity has progressively improved and she remains well 1 year after the surgery.

5. Case 4

A 60-year-old female presented with chest pain in December 1999. She was diagnosed with Sheehan’s syndrome in 1972.

Echocardiogram showed globally depressed LV contractility with an EF of 45%. Coronary angiography revealed greater than 60% narrowing in the proximal LAD and ostial lesions in two obtuse marginal vessels (OM1 and OM2). Her other medical problems were hypertension, NIDDM and fatty infiltration of the liver.

The patient underwent three aorto-coronary bypass grafts. She had a low cardiac output coming off bypass and required intra-aortic balloon pump (IABP) in addition to a dopamine infusion of 10 μg/kg per min and epinephrine at 0.1 μg/kg per min. She was weaned off the IABP and the inotropes prior to extubation on the first postoperative day.

Her preoperative doses of steroids, oral hypoglycemics and thyroxin were restarted as soon as she started to take fluids orally.

The patient went home on the 8th postoperative day and remains well at 1 year of follow-up.

6. Results and discussion

Table 1 summarizes some patient characteristics and operative variables. In addition to the endocrinopathy, all of our patients had significant comorbidities, i.e. hypertension, diabetes, obesity, previous MI, etc. Only one patient (Case 4) had a low postoperative cardiac output requiring significant inotropic support and IABP.

Hydrocortisone, at 100 mg i.v. every 6 h, was used in the immediate peri-operative period and the dose tapered off after 24 h. This regimen provides glucocorticoids equivalent to the maximal daily production in a normal person during periods of ‘stress’ [1]. Routine doses of thyroxin were given orally or by nasogastric tube when the patients were still ventilated. In a study in our institution, we found that oral/nasogastric thyroxin in the routine preoperative doses is all that is needed in the patients on chronic thyroxin replacement, some of whom are actually biochemically hypothryroid at the time of their coronary bypass surgery [2]. Due to the absence of established therapeutic guidelines, we chose the above-mentioned hormone replacement regime, which is quite simple and provided adequate metabolic/endocrine stability.

A literature search (Medline® from 1980 to 2000) showed only two case reports in the Japanese language. One of them is a report of CABG in a patient with Sheehan’s syndrome [3], while the second case report is about CABG in a hypophysectomized male patient [4].

<table>
<thead>
<tr>
<th>Number</th>
<th>Age (years)</th>
<th>Previous MI</th>
<th>Preoperative EF (%)</th>
<th>DM</th>
<th>HTN</th>
<th>Operation</th>
<th>CPB time (min)</th>
<th>Cross-clamp time (min)</th>
<th>ICU stay (h)</th>
<th>Hospital stay (days)</th>
<th>Follow-up (months)</th>
<th>Outcome</th>
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<tr>
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<td>70</td>
<td>No</td>
<td>60</td>
<td>NIDDM</td>
<td>No</td>
<td>CABG × 2, LIMA–LAD, SVG–RCA</td>
<td>80</td>
<td>55</td>
<td>48</td>
<td>14</td>
<td>48</td>
<td>Angina after 2 years (NYHA Class 1)</td>
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<tr>
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<td>Yes</td>
<td>30</td>
<td>NIDDM</td>
<td>Yes</td>
<td>CABG × 2, SVG-diagonal, SVG–RCA</td>
<td>80</td>
<td>52</td>
<td>24</td>
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<td>36</td>
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<tr>
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<td>45</td>
<td>IDDM</td>
<td>No</td>
<td>CABG × 2, SVG–RCA, SVG–LAD</td>
<td>60</td>
<td>45</td>
<td>48</td>
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</tr>
<tr>
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<td>45</td>
<td>NIDDM</td>
<td>Yes</td>
<td>CABG × 3, LIMA–LAD, SVG–OM1, SVG–OM2</td>
<td>90</td>
<td>42</td>
<td>72</td>
<td>8</td>
<td>12</td>
<td>Asymptomatic</td>
</tr>
</tbody>
</table>

* DM, diabetes mellitus; IDDM, insulin dependent diabetes mellitus; NYHA, New York Heart Association classification of symptoms; OM, obtuse marginal vessel; SVG, saphenous vein graft.
Hypopituitarism developing after coronary bypass surgery, however, is a known phenomenon of rare occurrence. The acute presentation is within 48 h of CABG with apoplexy and neuro-ophthalmological complications. This is presumably secondary to necrosis, hemorrhage or acute swelling in a pre-existing pituitary tumor [5]. Hypogonadism, a few months after open-heart surgery is a typical delayed presentation of pituitary infarction. Microemboli during bypass, non-pulsatile flow and haemodynamic changes in the brain during bypass are postulated as causes of pituitary infarction after CABG [6].

Hypercholestrolemia due to growth hormone deficiency was thought to be the major contributing factor in higher cardiovascular related mortality in the patients with panhypopituitarism as compared with the normal population [7]. A more recent study in 1996 found no statistically significant difference in the number of deaths attributed to cardiovascular causes, however, mortality due to all causes was higher in patients with panhypopituitarism [8].

We suggest that coronary bypass surgery, when indicated, can be safely performed in patients with Sheehan’s syndrome. ‘Stress doses’ of intravenous hydrocortisone and routine oral thyroxin provide adequate hormonal cover in the peri-operative period. Although the small number precludes any firm conclusions, the immediate and medium term results seem satisfactory.

References