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THE EARLY RESULTS OF THE CORONARY ARTERY BYPASS SURGERY IN PATIENTS WITH SIGNIFICANT LEFT MAIN CORONARY ARTERY STENOSIS

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ABSTRACT

Aims: The aim of this study is to evaluate and interpret the pre-op demographic data, post-op results and the causes of mortality and morbidity of the patients who had coronary artery bypass surgery with left main coronary artery stenosis in Trakya University Hospital.

Methods: The pre-operative characteristics, post-operative results and the causes of mortality and morbidity of the patients who had coronary artery bypass surgery with left main coronary artery stenosis in Trakya University Hospital between January 2014 and April 2016 were analyzed by using the data in the current electronic database of the hospital. The pre-operative, operative and post-operative characteristics were summarized using means ± standard deviation and minimum-maximum values in SPSS.

Results: Out of total 33 patients who were included in the study, 8 (24.24%) of them were female, while 25 (75.75%) of them were male. The mean age of the population was 64.09 ± 8.35. In examination of EuroSCORE points, 28 (84.8%) of patients were at low risk grade, 4 patients were at middle risk grade and 1 of all was at high risk grade. After operations, stay time at the hospital was minimum 2, maximum 47 days. About 94% of the patients who included in this study had <48 hours intensive care unit time. In addition, the examination showed that we have only 2 (6%) patients who had post stroke history. Usage of intra-aortic balloon pump was limited with 5 (15.1%) patients.

Conclusion: In the light of the results of this study, we could say that this study has a contribution by enlarging the data repository about left main coronary artery stenosis. Coronary artery bypass surgery is still the gold standard treatment in patients with significant left main coronary artery stenosis. These operations can be performed with acceptable morbidity and mortality rates.

Keywords: Coronary artery bypass, coronary artery, surgery

INTRODUCTION

Left main coronary artery (LMCA) stenosis is a comparatively rare but significant cause of symptomatic coronary artery disease (1). When there is a reduction of ≥ 50% of the vessel diameter at coronary angiogram, then a significant stenosis is considered (2). Significant LMCA stenosis occurs among a reported 3% to 10% of patients who undergo coronary angiography (1).

Coronary artery bypass grafting (CABG) is generally an urgent surgery in most patients with LMCA stenosis (1). It is found that 4 years survival rate increases from 71% to 89% with surgical treatment in the patients who had significant LMCA stenosis (3).

In this study, it is aimed to evaluate and interpret the pre-operative demographic data, post-operative results and the causes of mortality and morbidity of the patients who had coronary artery bypass surgery with significant LMCA stenosis.

MATERIAL AND METHODS

In this study, the data of 33 patients operated from January 2014 to April 2016 were analyzed retrospectively in Cardiovascular Surgery Department of Trakya Uni-

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versity Hospital, which is a tertiary cardiac care center. Firstly, the data of all patients who had coronary artery bypass surgery was retrieved and 33 patients who had significant LMCA stenosis were included in the study. The reports of epicrisis and surgery, lab-results, anamnesis of the patients and the reports of echocardiography and angiography were analyzed by using the electronic database of the hospital. The data was retrieved by using the protocol numbers of the patients. As pre-operative demographic data; age, gender, history of smoking, EuroSCORE point, the presence of diabetes mellitus, high density lipoprotein (HDL) and low density lipoprotein (LDL) levels, ejection fraction, the results of angiography and echocardiography were included to analysis. As post-operative results; duration of hospital stay, duration of intensive care unit (ICU) stay, usage of intra-aortic balloon pump, exitus status, causes of mortality and morbidity, complications and the presence of post-operative stroke were investigated. In addition, cross-clamp time (CCT) and total duration of bypass were studied. The pre-operative, operative and post-operative characteristics were summarized using means ± standard deviation and minimum-maximum values in SPSS.

RESULTS

The study population was composed of 33 patients from January 2014 to April 2016. Pre-operative demographic data and risk factors were summarized in Table 1. In addition, we analyzed the post-operative results and causes of mortality, morbidity in our study. Total bypass time, CCT, postoperative hospital stay time, ICU stay time, usage of intra-aortic balloon pump, exitus status, postop stroke were shown in Table 2.

Table 1: Pre-operative demographic data and risk factors (n=33)

Age (years)	64.1 ± 8.4 (48-77)
Gender (n)	Male 25 (75.75 %)
	Female 8 (24.25%)
Smoking history (n)	18 (54.5%)
EuroSCORE (n)	Low: 28
	Middle: 4
	High: 1
Diabetes Mellitus (n)	12 (36.3%)
HDL level (mg/dL)	39.8 ± 9.31
LDL level (mg/dL)	124 ± 30.9
Ejection Fraction (%)	56.1 ± 11.5

***n= number of patients**

Table 2: Operative and post-operative data

Operative Data	
Cross Clamp Time (minutes)	49.7 ± 8 (39- 74)
Total Bypass Time (minutes)	94.5 ± 13.2 (68- 120)
Type of Bypass Surgery (n)	
CABGX4	5 (15.1%)
CABGX3	28 (84.8%)
Post-operative Data	
Hospital stay time (days)	10.7 ± 10.4 (2- 47)
ICU stay time (% of patients)	
<48 hours	94
>48 hours	6
Intra-aortic balloon pump usage (n)	5 (15.1%)
Exitus (n)	2 (6%)
Stroke (n)	2 (6%)

***n= number of patients**

The indications of angiography of patients varied. Myocardial infarction and angina were seen mostly. In addition, acute coronary syndrome, positivity in effort test, low ejection fraction and cardiac insufficiency were causes of angiography in some patients.

DISCUSSION

Significant LMCA stenosis CABG is class I even in asymptomatic patients (class A evidence) (2). In our study group, all patients were with significant LMCA stenosis. Although LMCA stenosis had direct and indirect associations with operative morbidity and mortality, the operative results are acceptable and steadily improving.

After a cardiac surgery, postoperative stroke is considered as a major complication (2). In our study, the stroke rate was 6% whereas it was reported 3.5-9.8% in the literature (4). Our results are compatible with other reports in the literature.

The results of this study showed that patients with LMCA stenosis generally have several stories of harmful habits such as smoking and diseases before coronary angiography. Undeniable number of patient (54.5%) were smoking.

In this study, the mortality of CABG with LMCA stenosis was 6.06%. There was a direct relation between the duration of ICU stay and mortality rate.

Some researchers concluded that advanced age and unstable angina are major causes of LMCA stenosis (2). In another study, it is said that other than LMCA diseases; valvular diseases, peripheral coronary artery diseases and comorbidities could be important in mortality rate in advanced ages (5). In additon in our study, advanced age is 64.1 and this indicates negative effect of age on

mortality like it is said in the literature.

EuroSCORE points of nearly 85% of patients were low. Therefore, it can be said that EuroSCORE points could be used as an important data in the operations or studies which are about LMCA stenosis.

Postoperative low cardiac output syndrome is also another important complication and is not uncommon after cardiac surgery (2). Intra-aortic balloon pump may be required in patients with low cardiac output syndrome usually during or just after the coronary artery bypass operation. In our study group, the use of an intra-aortic balloon pump rate was 15.1%. This low cardiac output state after cardiac surgery may also cause to longer postoperative hospital stay and mortality after cardiac surgery. In this study, the mortality of CABG in patients with significant left main coronary stenosis was 6% comparable with other reports of an early mortality in the range of 2–5% (2).

Morton et al. (6) found that patients with LMCA stenosis to be at high risk for adverse cardiac events during cardiac catheterization or within the first few hours thereafter. Any patients in this study did not experience any situations in the first 24 hours after angiography.
It is known that patients do not develop any complications in short-term. However, the data of follow-up period was not recorded in our study.

Like all retrospective studies, our study has various limitations. The long-term follow up data was not studied as the study only includes early outcomes.

In conclusion, coronary artery bypass surgery is still the gold standard treatment in patients with significant left main coronary artery stenosis. These operations can be performed with acceptable morbidity and mortality rates.

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Ethics Committee Approval: This study was approved by Scientific Researches Ethics Committee of Trakya University Medical Faculty.
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