EARLY RESULTS OF SEPTAL MYECTOMY IN HYPERTROPHIC OBSTRUCTIVE CARDIOMYOPATHY (HOCM)

Thesis

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باللغة العربية :
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you always give without asking for anything in return

My father; thank you for your support throughout my whole life

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LIST OF ABBREVIATIONS

±S.D	± standard deviation
°C	Degree Celsius
ABG	Arterial blood gases
ACCF	American College of Cardiology foundation
ACT	Activated clotting time
AF	Atrial fibrillation
AHA	American Heart Association
ALRP	Anterior mitral leaflet retention plasty
AML	Anterior mitral leaflet
AR	Aortic regurge
ASA	Alcohol septal ablation
AV	Atrioventricular
AVB	Atrioventricular block
bpm	Beat per minute
CAD	Coronary artery disease
CCDs	Cardiac conduction disturbances
CHB	Complete heart block
cm	Centimeter / Centimeters
CMR	Cardiovascular magnetic resonance
CPB	Cardiopulmonary bypass
DC	Direct current
DM	Diabetes mellitus
ECG	Electrocardiogram
EPS	Electrophysiological study
FC	Functional class
HCM	Hypertrophic cardiomyopathy
HOCM	Hypertrophic obstructive cardiomyopathy
hrs	Hours
ICD	Implantable cardioverter defibrillator
ICU	Intensive care unit
IHSS	Idiopathic hypertrophic subaortic stenosis
INR	International normalizing ratio
IV	Intravenous
IVS	Interventricular septum
LA	Left atrium
Labs	Laboratory investigations
LAD	Left anterior descending artery
LBBB	Left bundle branch block
LFT	Left fibrous trigone
LGE	Late gadolinium enhancement
LV	Left ventricle
LVOT	Left ventricular outflow tract
LVOTO	Left ventricular outflow tract obstruction
min	Minute / Minutes
MLE	Mitral leaflet extension
mm	Millimeter / Millimeters
mm Hg	Millimeter mercury
MR	Mitral regurgitation
MV	Mitral valve
MVD	Mitral valve disease
NA	Not available
No.	Number
NSVT	Non-sustained ventricular tachycardia
NYHA	New York Heart Association
PG	Peak gradient
PMs	Papillary muscles
PPM	Permanent pacemaker implantation
Pre-PG	Pre-operative peak gradient
PVP-I	Poly vinyl pyrlidine - iodine
RBBB	Right bundle branch block
RCTs	Randomized control trials
RPR	Resection-Plication-Rrelease
SAM	Systolic anterior motion
SCD	Sudden cardiac death
SND	Sinus node dysfunction
SWT	Septal wall thickness
TEE	Transesophageal echocardiography
TTE	Transthoracic echocardiography
VF	Ventricular fibrillation.
VSD	Ventricular septal defect
VT	Ventricular tachycardia

ABSTRACT

Background: Surgical septal myectomy has been considered the gold-standard therapeutic option for symptomatic drug refractory patients with hypertrophic obstructive cardiomyopathy for over 50 years. However, it is being challenged by less- invasive interventional tools in the last 2 decades. Unavailable surgical expertise was one of the major reasons to adopt alcohol septal ablation in many centers.

Objectives: we sought to evaluate early and late outcome of the cumulative surgical experience in managing Egyptian HOCM patients in our center, also to know whether Egyptian patients population has peculiar characteristics or not.

Patients & Methods: In this historical and prospective cohort study, 33 consecutive patients underwent trans-aortic septal myectomy by one surgeon in our center from January 2000 to December 2013. Pre-operative and operative data were collected and analyzed statistically. Post-operative evaluation was documented at different periods and data collected and analyzed in comparison with pre-operative data as well as at these different follow up periods.

Results: Mean age was 29.4 ± 16.8, with one third of patients younger than 18 years, and 58% males. All patients suffered from dyspnea FC **III, IV** (mean 3.1 ± 0.3) despite maximally tolerated medication. Family history of HCM was positive in 27% and 51% were considered to be at high risk of SCD. Pre-operative mean PG was 102.7 ± 26 mmHg, mean SWT was 2.3 ± 0.5 cm, and mean MR degree was 2.1 ± 1.1. Immediate post-operative assessment showed significant reduction of PG to 17.6 ± 8 mmHg, SWT to 1.4 ± 0.3 cm, and MR degree to 0.4 ± 0.6. There was also clinically significant improvement in dyspnea FC to a mean of 0.5 ± 0.7. With 3 deaths over 14 years, freedom from all-cause mortality was 97%, 92% and 70% at 1, 5 & 10 years respectively. All survivors showed sustained clinical and echocardiographic improvements without recurrence of obstruction.

Conclusion: Septal myectomy can be performed safely with excellent early and late outcome. HOCM Egyptian patients in this study were younger and with higher gradient compared to others.

KEYWORDS:

Septal myectomy, obstructive hypertrophic cardiomyopathy, left ventricular outflow tract obstruction, systolic anterior motion, early results.

INTRODUCTION

INTRODUCTION

Hypertrophic cardiomyopathy (HCM) is the most common genetic cardiovascular disorder, characterized by heterogeneous expression and clinical course[(1)]. It is the most common cause of sudden cardiac death in young people including athletes. However, it is often neglected or undiagnosed[(2)].

The left ventricle outflow tract (LVOT) morphology in obstructive HCM is heterogeneous and highly variable. Most commonly, the hypertrophy is asymmetric and prominent in the ventricular septum. Functional abnormalities of the mitral valve contribute to LVOT obstruction and also structural abnormalities of the mitral valve are evident in two thirds of patients and not uncommonly include congenital anomalies of the mitral valve apparatus for which the surgeon has the flexibility to adapt the repair[(3)].

Relief of left ventricular outflow obstruction in patients with hypertrophic obstructive cardiomyopathy (HOCM) and disabling symptoms refractory to maximum medical management has historically been a surgical problem. Recently, there have been major advances in the understanding of the overall clinical course, basic molecular mechanism and risk stratification of patients with HCM. Also, other therapeutic alternatives mainly alcohol septal ablation became available. However, surgery remained the time-honored and the most effective treatment strategy for HOCM[(4)].

Hypertrophic cardiomyopathy occurs with prevalence of 1 in 500 among adults in different parts of the globe[(1,5)]. So accordingly by extrapolation, it is estimated that in EGYPT, there are more than 170,000 patients with HOCM with considerable number at risk of complications. Nevertheless, very small number of patients was offered treatment. Recent interest of some cardiologists in our institution to introduce alcohol septal ablation (ASA) has lead to focusing on that disease entity and recruiting more patients for management.