Current Status of Pulmonary Artery Banding (PAB) in Staged Management Of Congenital Heart Diseases (CHD)

Thesis
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Submitted By
Al-Waleed Mohamed Ibrahim, M.B.B.Ch

Under Supervision of
Ezz El-Din A. Mostafa, M.D.
Professor of Thoracic & Cardiovascular Surgery
Ain Shams University

Gamal S. Sayed, M.D.
Associate Professor of Thoracic & Cardiovascular Surgery
Ain Shams University

Mostafa A. Abd El-Gawad, M.D.
Lecturer of Thoracic & Cardiovascular Surgery
Ain Shams University

Faculty of Medicine - Ain Shams University

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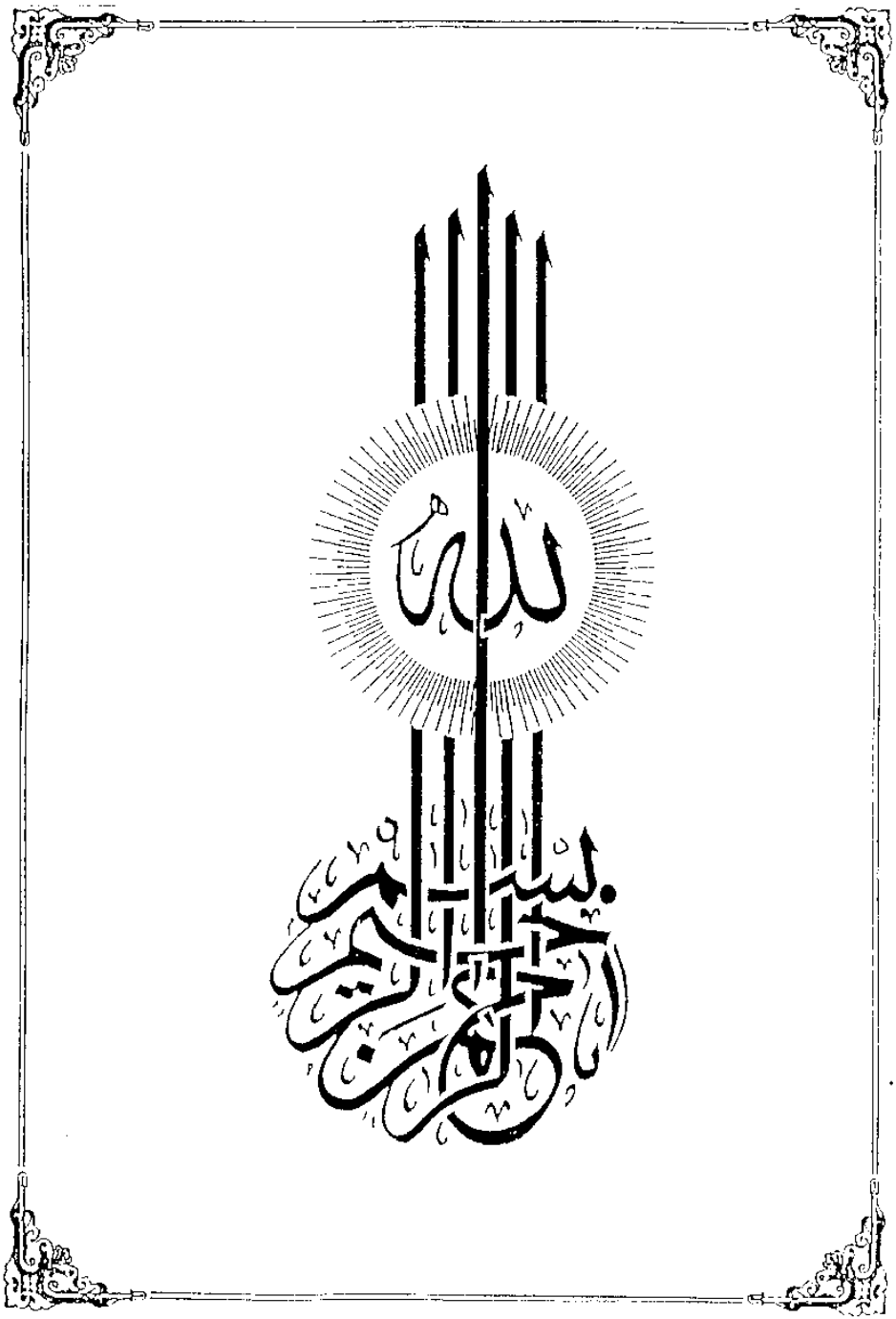

بسم الله الرحمن الرحيم

"قالوا سبحانك لا علم لنا إلا ما

علمتنا إنك أنت العليم الحكيم"

البقرة آية ٣٢

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Without the Help of Allah, This Work
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ABSTRACT

Objectives: This study is a retrospective review for the current status of PA banding at Ain Shams University Hospital through the period of June 1993 to June 1998.

Patients and Methods: During this period PA banding was performed in 57 patients having different types of congenital heart diseases with an average age of 8.8 months (range 2-48) and average weight of 6.3 kg (3.5-14 kg).

Diagnosis was: ventricular septal defect (VSD) in 24 patients, VSD + ASD in 11 patients, 7 patients had complete atrioventricular canal, 6 patients had double outlet right ventricle (DORV) with large VSD, 2 pateints had tricuspid atresia with TGA and large VSD, 1 patient had truncus arteriosus, one pateint had single ventricle, and one patient had TGA /VSD + PDA, 2 pateints had double inlet- double outlet right ventricle, and 2 patients had double inlet left ventricle with large VSD. Other procedures performed during the same time as PAB were, ligation of PDA in two patients and interatrial septectomy in one patient with TGA.

PA banding was performed according to Albus and Trusler formula in 56 patients, with one patient (truncus arteriosus) received bilateral branch pulmonary artery banding.

Results: PA banding was totally effective in decreasing PA pressure from a mean of 82.2 mmHg before banding to a mean of 39.9 mmHg after banding, in the same time there

was an increase in the systolic ABP from 93.8 mmHg to 100 mmHg. Early death occurred in 9 patients (15.7%) and late death (after one month) occurred in three patients (5.2%). Nine patients had PA debanding and definitive correction of their cardiac anomalies. There is 25 patients (43.8%) are waiting for definitive operation, one patient had pulmonary hypertension precluding definitive repair, and their were 10 patients lost to follow up (17.5%). The average age at debanding was 24 months and the average weight was 9.4 Kg. Mean PAP at debanding was 26 mmHg and the average gradient across the band was 50mmHg. Out of the 9 debanded pateints there was 22% mortality (two patients).

Conclusion: PA banding is a useful palliative procedure for a diverse group of patients with congenital cardiac anomalies and unrestricted pulmonary blood flow. PA banding is still beneficial in multiple, complicated, or medically compromised VSD, as well as in very small neonates with atrioventricular septal defects, and truncus arteriosus, and subsets of double outlet right ventricle and tricuspid atresia with high pulmonary blood flow not amenable to early complete repair. PAB in functional single ventricle allows safer delayed definitive repair. TGA + VSD and DORV + subpulmonic VSD are now repaired primarily (arterial switch) with acceptable results.

(Keyword: Pulmonary artery banding)

LIST OF ABBREVIATIONS

2-D	Tow dimensional echocardiography
ASD	atrial septal defect
ASO	Arterial switch operation
AVSD	Atrioventricular septal defect
B-T. Shunt	Blalock – Taussig shunt
CAVC	Complete atrioventricular canal
CHD	Congenital heart disease or defect
CHF	Congestive heart failure
CW Doppler	Continuous wave Doppler
DILV	Double inlet left ventricle
DIRV	Double inlet right ventricle
DKS	Damus -Kaye -Stansel procedure
DORV	Double outlet right ventricle
HLHS	Hypoplastic left heart syndrome
IAA	Interrupted aortic arch
LV	Left ventricle
LVOT	Left ventricular outflow tract

MPA	Main pulmonary artery
MRI	Magnetic resonance imaging
PA	Pulmonary artery
PAB	Pulmonary artery banding
PDA	Patent ductus arteriosus
PTFE	Poly-tetra-flouro-ethylene
PVR	Pulmonary vascular resistance
Q_p	Pulmonary blood flow
Q_s	Systemic blood flow
RV	Right ventricle
RVOT	Right ventricular outflow tract
SAS	Subaortic stenosis
SV	Single ventricle
TA	Tricuspid atresia
TAPVC	Total anomalous pulmonary venous connection
TGA	Transposition of great arteries
TR	Tricuspid regurge
Tr Art	Truncus arteriosus
UVH	Univentricular heart
VSD	Ventricular septal defect

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