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Comparative Assessment of Aortic and Mitral Valve Replacement with CardiaMed Prostheses: A single Surgeon Experience

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Type: **Annual Meeting - Abstract**

Topic: **1. Adult Cardiac » 1.8 Valve Aortic » 1.8.1 Aortic valve replacement**

Objectives

We aimed to assess present study a single surgeon's (MYO) experience with the CardiaMed mechanical prosthesis for Aortic (AVR) and/or mitral (MVR) valve replacement relative to the corresponding prior experience with the St. Jude Medical (SJM) mechanical valve.

Methods

A total of 80 consecutive patients undergoing valve replacement surgery using the CardiaMed prosthesis by a single surgeon at two Lebanon hospitals (50 and 30 cases; Oct/2010-Dec/2013) were retrospectively reviewed. Age [median 57 (22-27) years], sex [56% women], and operation category [14 reoperations; 47 AVR; 26 MVR and 7 AVR/MVR] matched SJM mechanical prostheses controls from the preceding 5-year period were obtained from the same experienced surgeon's cases at same hospitals. Operative outcomes were compared.

Results

Comorbidity among CardiaMed prosthesis patients included 30% Diabetes (n=24); 63% hypertension (n=50) and 7.5 renal failure (n=6). Surgeries during same operation included: 9 CABG, 15/2 tricuspid/mitral valvuloplasty, 1/1 atrial/ventricular septal defect repairs. A total of 2 operative mortalities (2.5%) were observed- both MVR patients. Median (range) postoperative length-of-stay (POLOS) were 5(3-15), 6(1-17) and 7(5-10) days for AVR, MVR and AVR/MVR, respectively. 2 late mortalities were documented at 2 (inadequate INR/prosthesis thrombosis) and 14 (sepsis/renal failure) months. Matched SJM patients showed similar operative mortality (n=1;1.25%; p=1.0) and comparable POLOS data.

Conclusion

In experienced hands, equivalent excellent AVR/MVR outcomes may be achieved with both the CardiaMed and SJM mechanical prostheses. Late echocardiographic and mortality comparisons are needed.

Aortic and Mitral Valve Replacement with *CardiaMed* Prostheses
A single Surgeon Experience

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Cardiamed Valves

single surgeon personal experience

- 80 adult patients undergoing 1 or more valve replacement surgery between Sep 2010 and Oct 2013.
- Two Hospitals:
 - AUBMC: **50 Cases** - University hospital
 - CHN: **30 Cases** - Community hospital

Surgical Volumes – CardiaMed Sept/2010 – Oct/2013

Hospital	2010	2011	2012	2013
CHN	3	10	9	8
AUBMC	0	21	20	9
Total	3	31	29	17

A total of **80** patients have received CardiaMed valves

3

Prosthesis Volumes – CardiaMed Sept/2010 – Oct/2013

Hospital	2010	2011	2012	2013
CHN	3	10	10	8
AUBMC	0	22	23	11
Total	3	32	33	19

A total of **87** CardiaMed valves have been implanted

4

Valve Replacement Procedures (CardiaMed) By Hospital

Hospital	AVR	MVR	AVR+MVR	Total
CHN	21	8	1	30
AUBMC	26	18	6	50
Total	47	26	7	80

5

Valve Replacement Procedures (CardiaMed) By Hospital

Hospital	AVR	MVR	AVR+MVR	Total
CHN	21	8	1	30
AUBMC	26	18	6	50
Total	47	26	7	80

5

Pre-operative Factors

Factor	AVR+MVR
Male / Female	56% /44%
Age (years)	57 (22 – 77) Median (Range)
Diabetes	30%
Hypertension	63%
Renal Failure	7.5%

6

Demographics, Other Surgery & Reoperations

Factor	AVR	MVR	AVR+MVR	Total
Sex (M/F)	35/12	8/18	2/5	45/35
Median Age (yrs)	59	53	60	57
CABG	8	0	1	9
Other Surgery	8	2	3	13
Redo Surgery	5	9	0	14

7

Operative Data

Reoperations and Concomitant Surgery

Redo surgery	14
Concomitant CABG	9
Tricuspid valvuloplasty	15
Mitral valvuloplasty	2
Aortic aneurysm / plasty	4
Left Ventricular Aneurysm	1
Post-infarct VSD	1
ASD	1

8

Operative Data

Prosthesis size by Location

AVR Surgery	
size (mm)	N
19	3
21	14
23	36
25	1
Total	54

MVR Surgery	
size (mm)	N
27	10
29	13
31	10
Total	33

9

Operative Data

Cardiopulmonary Bypass (CPB)

Procedure	# Cases	Total CPB, min Median (Range)	Cross-clamp, min Median (Range)
AVR	47	55 (39 – 96)	39 (25 – 75)
MVR	26	56 (40 – 145)	35 (28 – 52)
AVR+MVR	7	96 (79 – 143)	75 (62 – 83)
Overall	80	59 (39 - 143)	40 (25 – 83)

10

Outcome: Hospital Stay (days)

Procedure	# Cases	Post-op LOS Median (Range)	TOTAL LOS Median (Range)
AVR	47	5 (3 - 15)	6 (5 – 16)
MVR	26	6 (1* - 17)	8 (3* – 25)
AVR+MVR	7	7 (5 – 10)	8 (6 – 34)
Overall	80	5 (1* – 15)	7 (3* – 34)

LOS = length of stay (days)

* In-hospital death

11

Outcome - In-hospital Mortality

- **2** in-hospital deaths out of 80 cases
- **2.5%** hospital mortality

12

OP Mortality: #1

Male; 50 yrs

Pre-op risk factors: HTN; Dyslipidemia EF = 57%

Cardiac Morbidity: Severe Aortic stenosis;
Moderate Mitral stenosis;
ASD

Surgery: Primary AVR + ASD repair

Prosthesis: CardiaMed 23 mm

Bypass/Cross-Clamp: 66 / 42 min

Hospital Outcome: sudden death on POD 9 following an uneventful pre-discharge echo-cardiography (**Describe**)

13

OP Mortality: #2

Female; 24 yrs

Pre-op risk factors: Hypertension; EF = 35%; **Severe Lupus (SLE);**
Brain emboli

Cardiac Morbidity: Severe Mitral Regurgitation with Vegetation;
Severe Tricuspid Regurgitation

Surgery: **Emergency-Salvage** MVR

Prosthesis: CardiaMed 27 mm

Bypass/Cross-Clamp: 145 / 30 min

Hospital Outcome: postoperative cardiogenic shock;
died on POD 1.

14

Late Mortality*

- 2** known late deaths
- Mortalities were identified based only on hospital admission records

* Late follow-up is not available for all patients

15

Late Mortality: #1 (14 months)

Female; 50 years

Pre-op risk factors: Diabetes; Renal Failure w/dialysis;
Peripheral vascular Disease;

Cardiac Morbidity: rheumatic heart disease; severe mitral stenosis;
severe aortic stenosis; EF = 50%;

Surgery: Primary AVR+MVR
Prosthesis: Cardiamed 19 + Cardiamed 27 mm
Bypass Cross-Clamp: 96 / 75 min

Hospital Outcome: Benign postoperative course; discharged POD 6

Late Follow-up: admitted after 14 months for sepsis
fungal peritonitis - dialysis catheter infection

16

Late Mortality: #2 (2 months)

Female; 62 yrs

Pre-op risk factors: Hypertension; Dyslipidemia; carotid stenosis

Cardiac Morbidity: severe aortic stenosis; CAD; EF = 50%

Surgery: Primary AVR+CABG (Cardiamed 21 mm)
Bypass/Cross-Clamp: 72 / 43 min

Hospital Outcome: post-op 3rd degree AV block/pacemaker;
discharged POD 12.

Late Follow-up: readmitted after 2 months for chest pain;
prosthetic valve thrombosis, anticoagulation after a
decision not to operate; Patient given thrombolytics
(**rtpa**); respiratory failure, cardiac arrest; death.

*** inadequate post-discharge INR control**

17

Conclusions

- ❑ Early experience with *CardiaMed* prostheses for valve prosthesis is associated with excellent hospital outcomes
- ❑ Echocardiographic studies of intermediate and long term *CardiaMed* valve in situ performance are needed
- ❑ Future studies comparing outcomes and performance of valve replacement surgery using *CardiaMed* prostheses versus other metallic prostheses are needed.