

Comparative Analysis of Outcomes in Deep Hypothermic Circulatory Arrest and Left Heart Bypass Perfusion Techniques in Thoracic and Thoraco-Abdominal Aorta Repair

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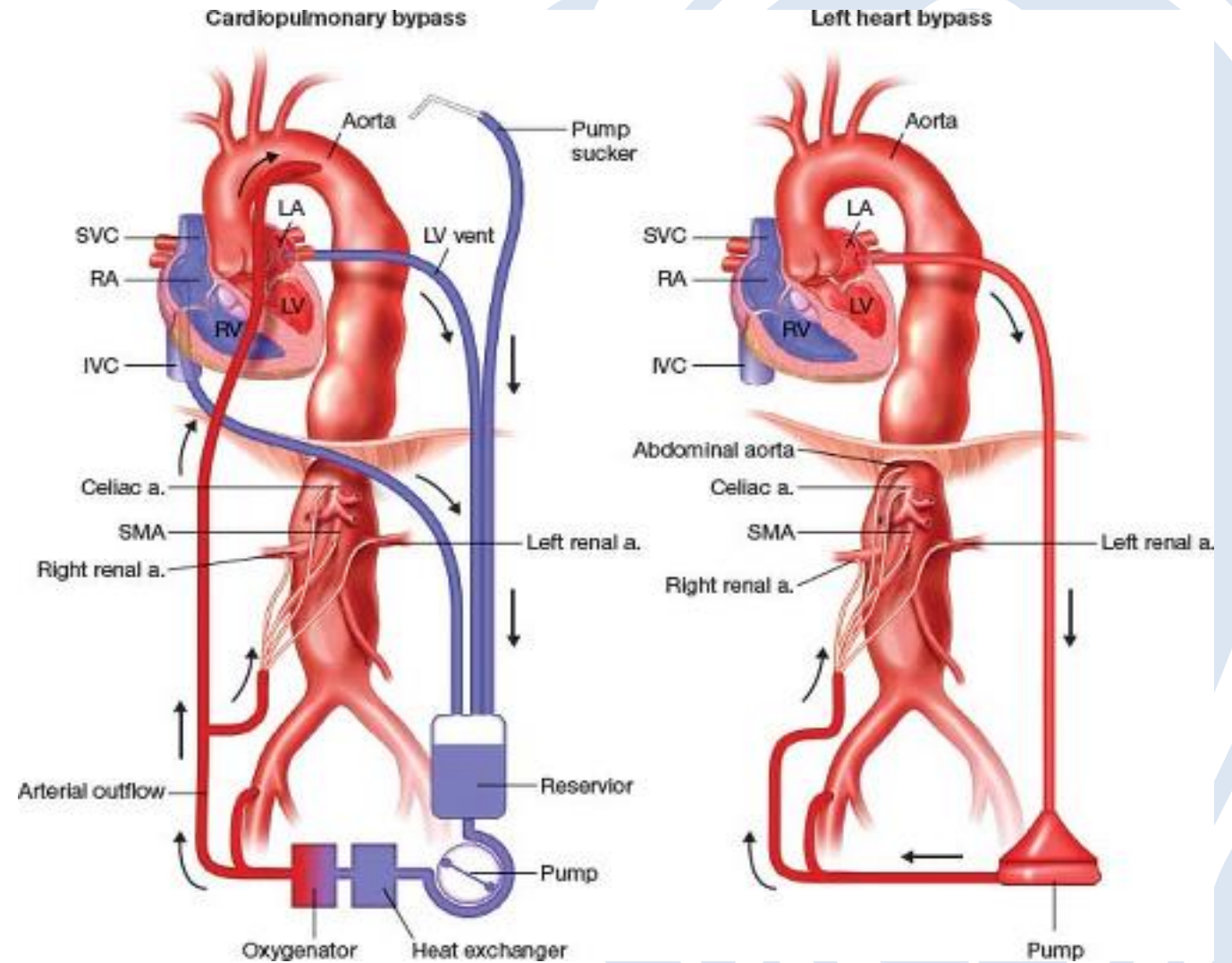


Objective:

CPB-DHCA

VS

Left Heart Bypass
(LHB)



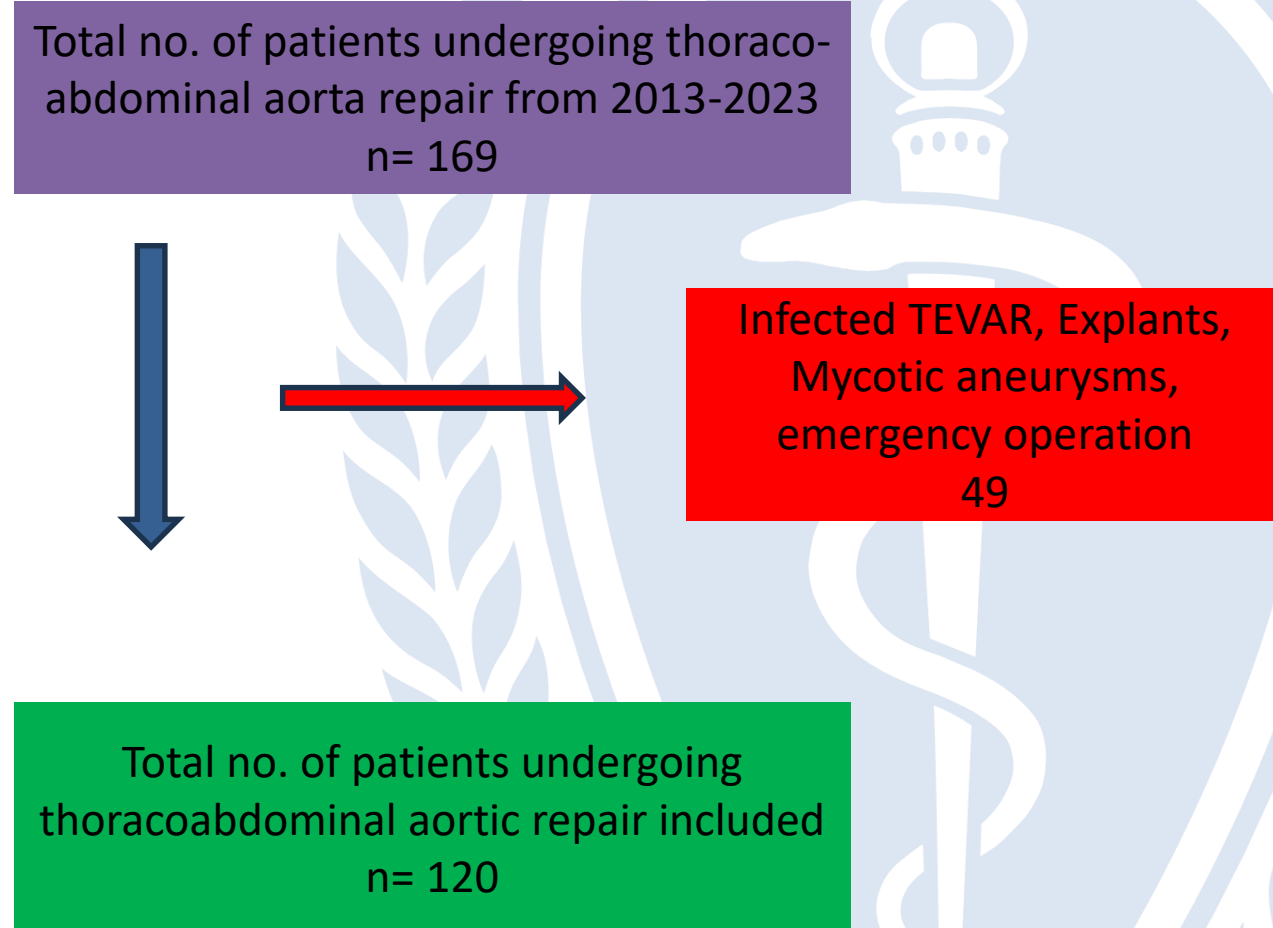
Methods:

- Retrospective analysis
- Patients from 2013 to September 2023

Data analysed:

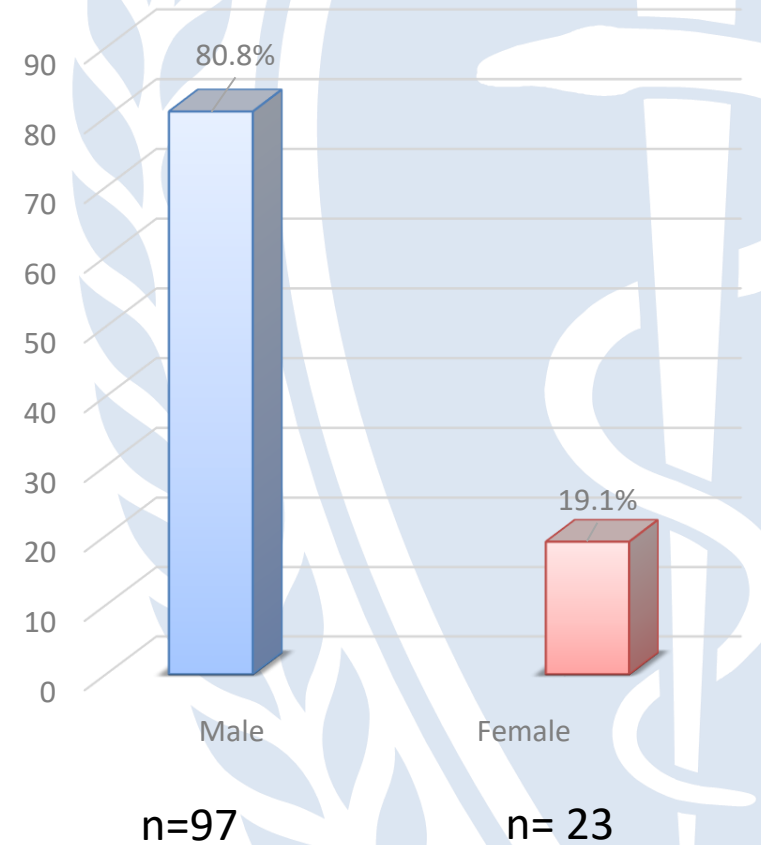
- Demographics
- Perfusion strategies
- Complications: stroke, paraplegia, kidney injury requiring dialysis and bowel ischemia.
- Mortality

- Univariate analysis using SPSS and WIZZ



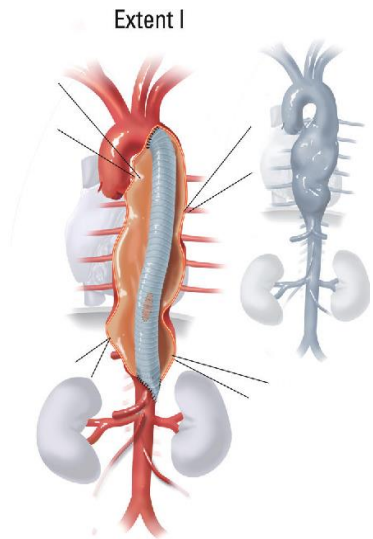
Study Population

- Average age = 60 years (22-84 years)
- Average aneurysm size = 6.8 cm (5.6-9 cm)
- Known connective tissue disorder = 20 (14.1%)
 - Marfan 17 (14%)
 - Loeys-Dietz 3 (0.2%)



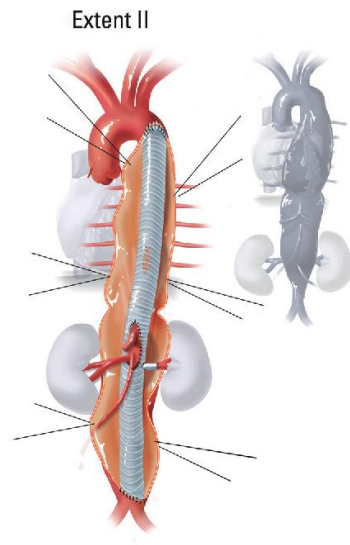
Type I

n= 29
(24.1%)



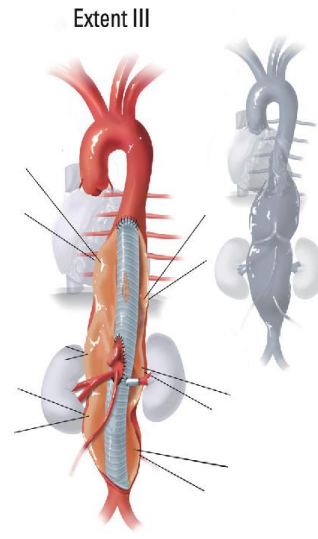
Type II

n= 27
(22.5%)



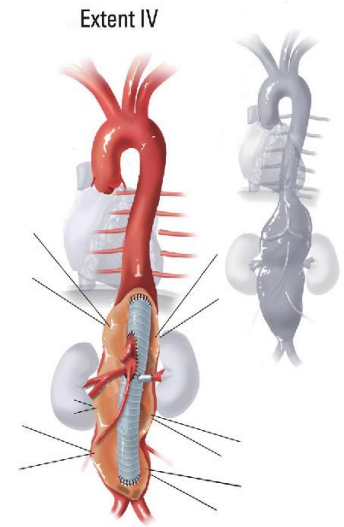
Type III

n= 23
(19.1%)



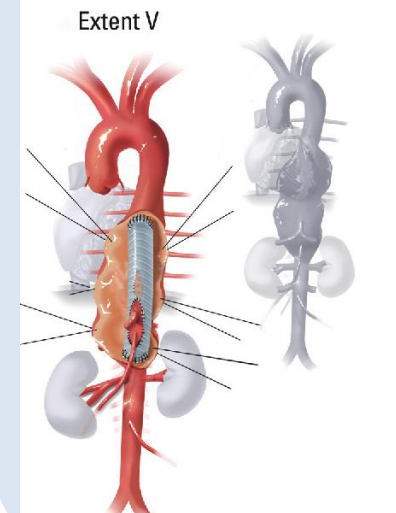
Type IV

n= 38
(31.6%)



Type V

n= 3
(2.5%)



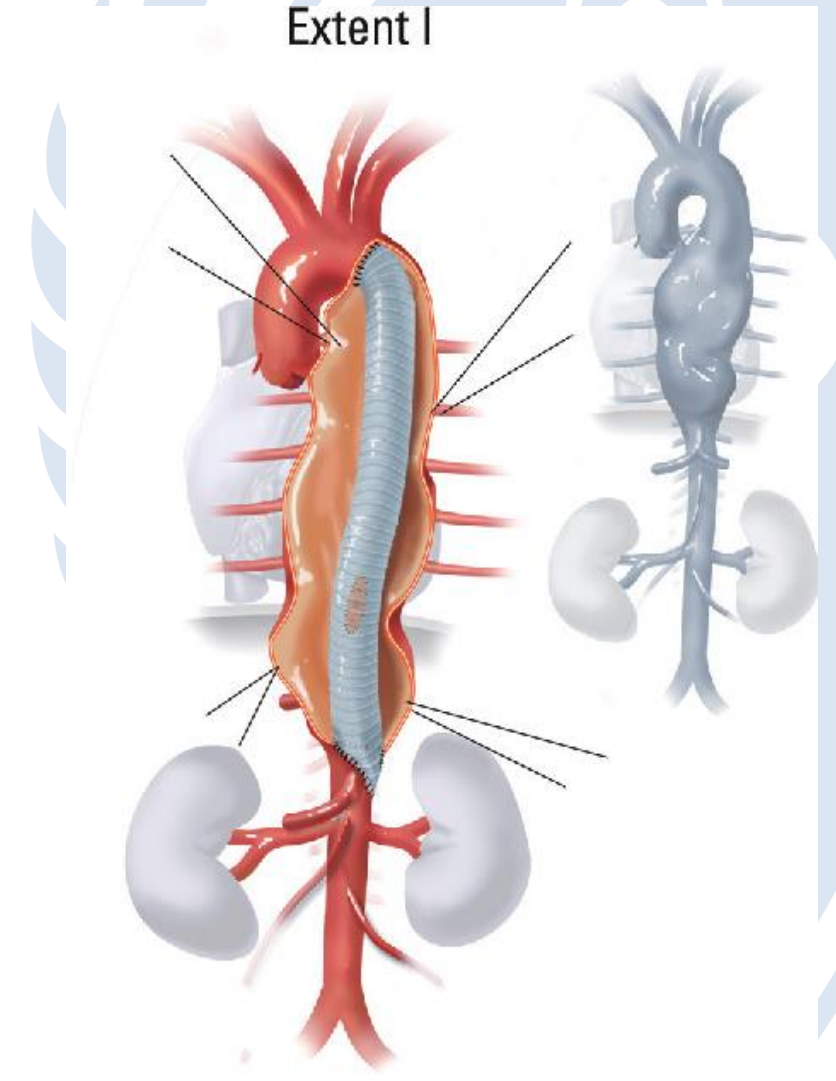
Type I

n= 29 (24.1%)

RESULTS

CPB	CPB-DHCA	LHB	C & S
4 (14.2 %)	18 (60.7 %)	7 (25%)	0

n= 29	DHCA (18)	LHB (7)	C&S (0)	p-value
30 Day Mortality	1 (5.5%)	1 (14.2%)	0	0.12
Stroke	3 (16.7%)	1 (14.2%)	0	0.044
Paraplegia	0	1 (14.2%)	0	0.69
Kidney Injury	0	1 (14.2%)	0	0.17
Bowel Ischemia	0	0	0	

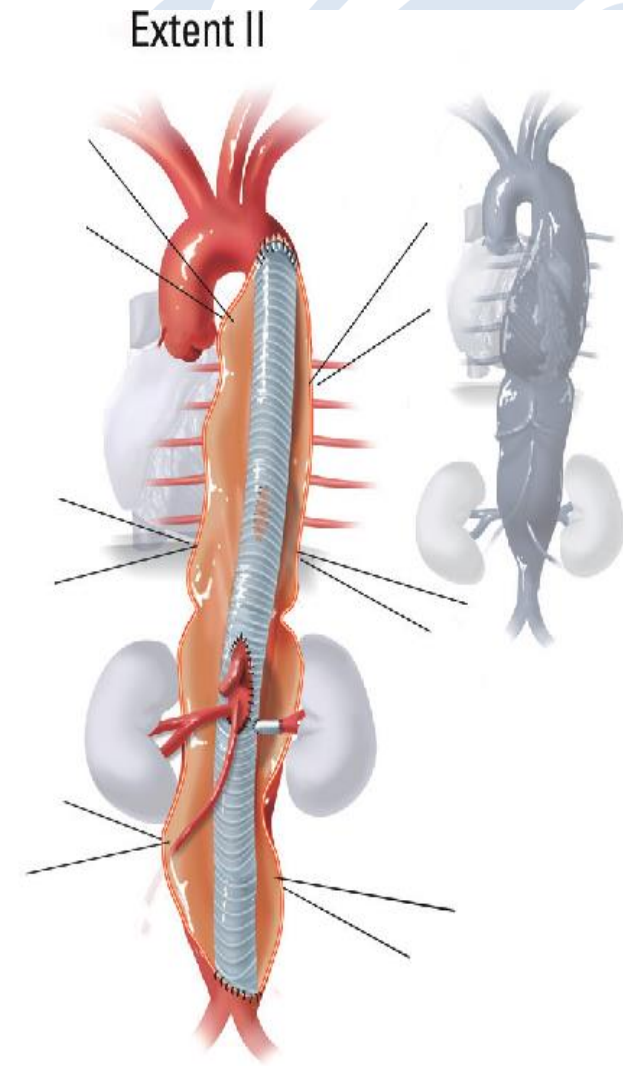


Type II

n= 27 (22.5%)

CPB	CPB-DHCA	LHB	C & S
4 (14.8%)	21 (77.7%)	2 (4.4%)	0

n= 27	DHCA (21)	LHB (2)	C&S (0)	p-value
30 Day Mortality	2 (9.5%)	0	0	0.31
Stroke	3 (14.1%)	0	0	0.773
Paraplegia	3 (14.1%)	0	0	0.998
Kidney Injury	3 (14.1%)	0	0	0.21
Bowel Ischemia	1 (4.7%)	0	0	0.932



Type III

n= 23 (19.1%)

CPB	CPB-DHCA	LHB	C & S
0	3 (13%)	19 (82.6%)	0

n= 23	DHCA (3)	LHB (19)	C&S (0)	p-value
30 Day Mortality	0	0	0	-
Stroke	0	0	0	-
Paraplegia	0	2	0	0.778
Kidney Injury	0	1	0	0.312
Bowel Ischemia	0	1	0	0.332

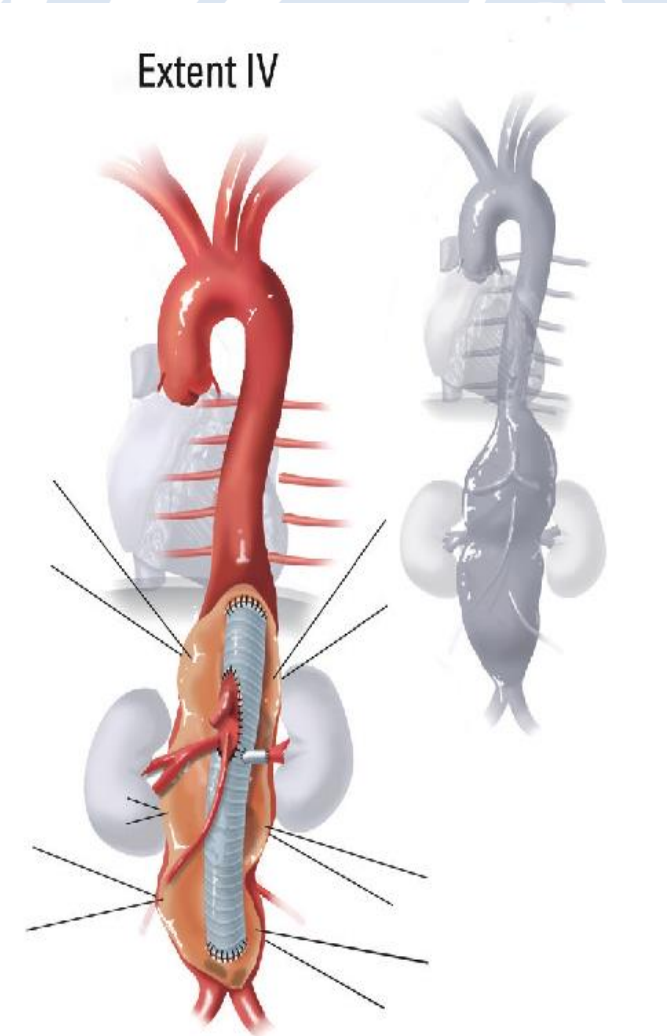


Type IV

n= 38 (31.6%)

CPB	CPB-DHCA	LHB	C & S
1 (2.6%)	0	17(47.3%)	19 (50%)

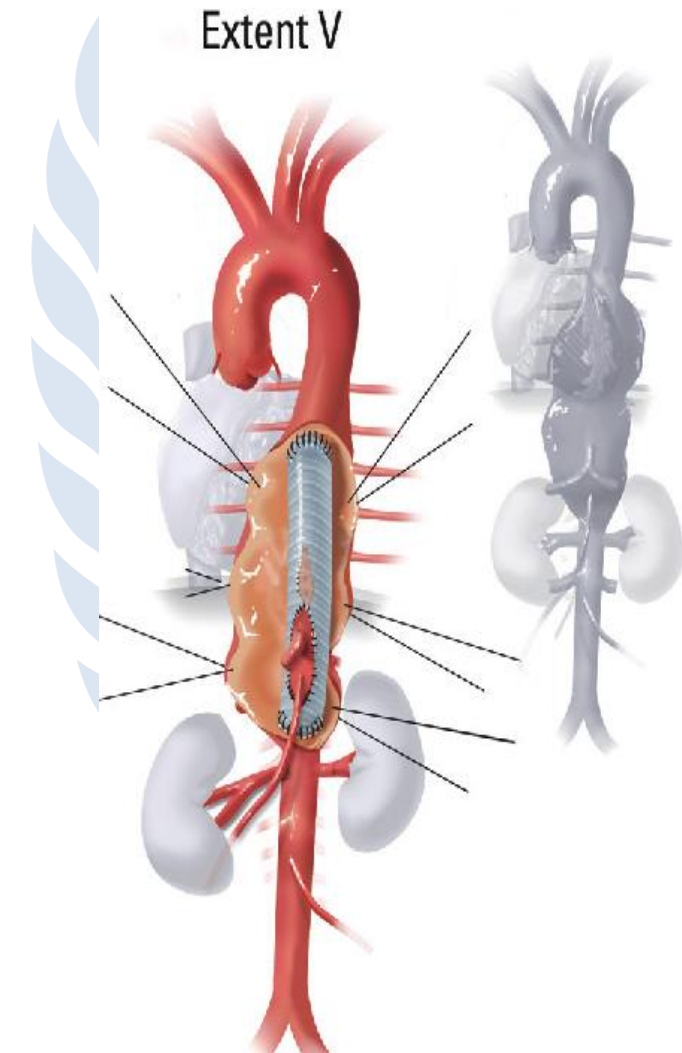
n= 38	DHCA (0)	LHB (18)	C&S (19)	p-value
30 Day Mortality	0	0	0	-
Stroke	0	0	0	-
Paraplegia	0	1	0	0.918
Kidney Injury	0	0	1	0.119
Bowel Ischemia	0	0	1	0.24



Type V
n= 3 (2.5%)

CPB	CPB-DHCA	LHB	C &S
0	0	2 (66.6%)	0

No Complications in Type V



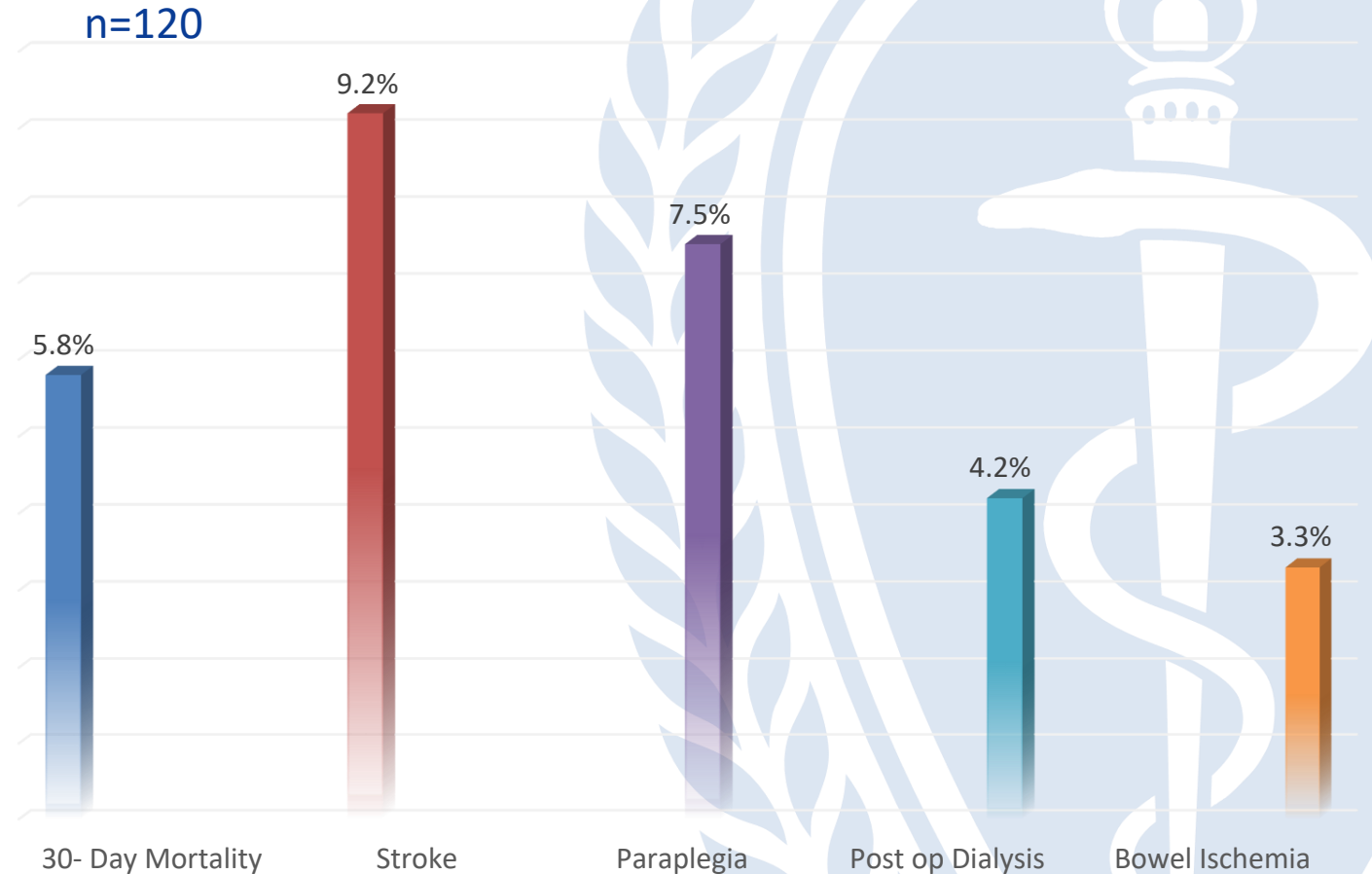
RESULTS

30-Day mortality (7/120, 5.8%)

Complications (25/120, 20.8%):

- **Stroke (11, 9.2%)**
- **Paraplegia (9, 7.5%)**
- **Post operative dialysis (5, 4.2%)**
- **Bowel ischaemia (4, 3.3%)**

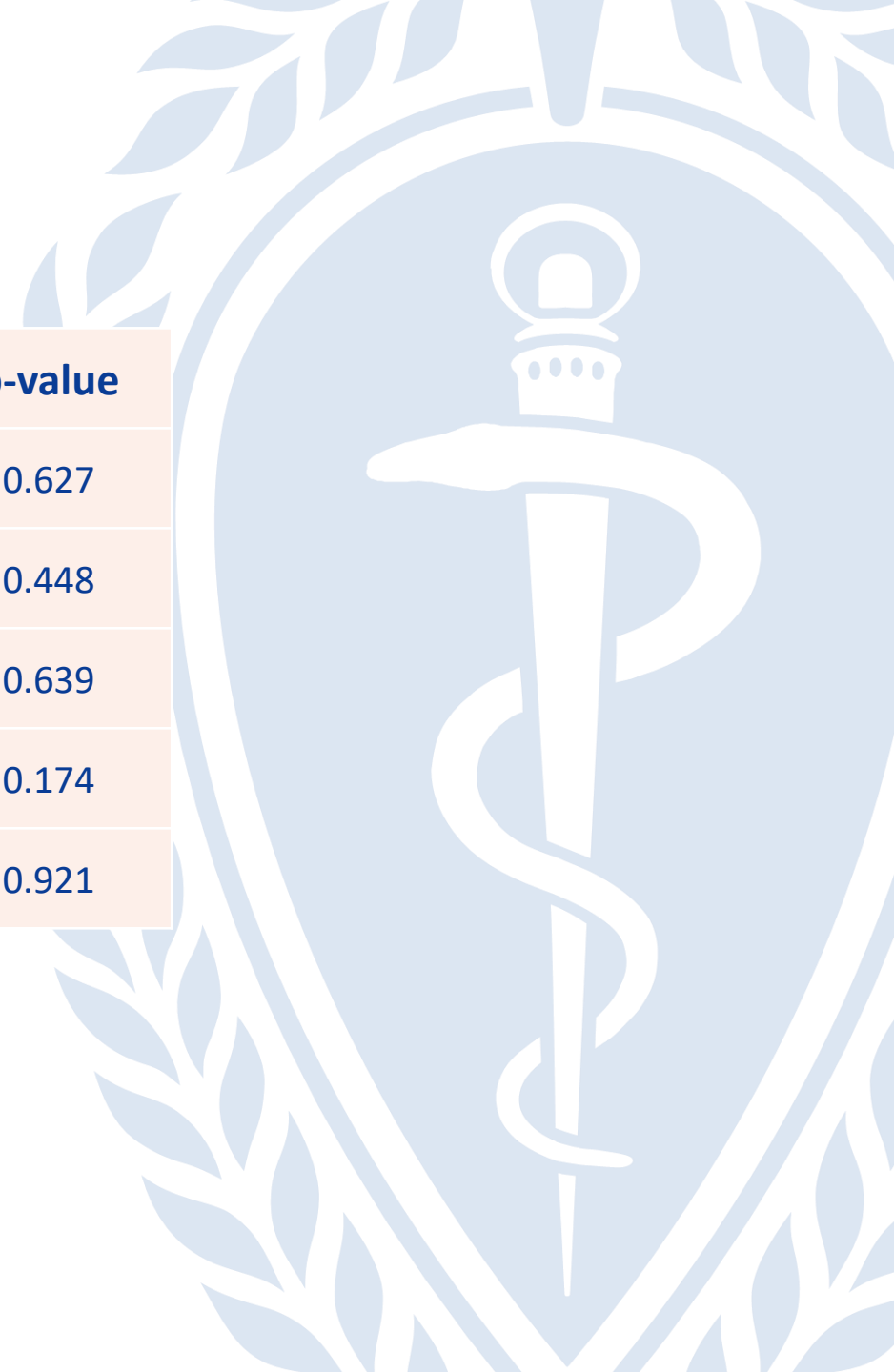
- **Average circulatory arrest time – 26 mins (range 10-31 mins)**
- **Average Left Heart Bypass Time – 187.7 mins (107-401 mins)**



RESULTS

Complications	LHB (48)	DHCA (42)	p-value
30 Day Mortality	1 (2%)	3 (7.1%)	0.627
Stroke	1 (2%)	6 (14.2%)	0.448
Paraplegia	4 (8.3%)	3 (7.1%)	0.639
Kidney Injury	2 (4.1%)	3 (7.1%)	0.174
Bowel Ischemia	0	1 (2.3%)	0.921

Prolonged DHCA time was associated with an increase in complications (Mann-Whitney U, $p=0.038$).



Conclusion

- There is no difference in post operative complications and mortality between CPB-DHCA and LHB
- Longer DHCA time is associated with higher incidence of complications (stroke).
- Longer DHCA time had no effect on 30-day mortality.

