Compare with initial results of robot assisted mitral valve repair and concomitant cases : report of first 150 cases

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OBJECTIVE

Minimally Invasive Cardiac Surgery Mitral valve repair (MICS MVP) was performed 227 cases in our center from December 2013. After that experience, we introduced Robotically assisted mitral valve repair (RMVR) in June 2018.

The study objective was to assess the safety and clinical outcomes of RMVR in the first 150 cases performed in our center.

METHODS

Period : June 2018 – December 2020
Cases : underwent RMVR
inclusion : AVR, TAP, MAZE
Patients : initial 150 cases

Studies : 1. Two groups comparison
"Isolated" or "Concomitant"
2. CUSUM analysis

Table 1 : Concomitant procedures

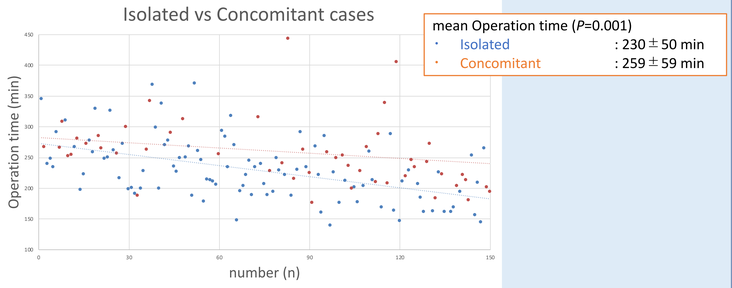
Variable	total (n=150)	Isolated (n=99)	Concomitant (n=51)	P value (<0.05)
Concomitant procedures				
AVR, n (%)	2	–	2 (4)	–
TAP, n (%)	18	–	18 (35)	–
MAZE, n (%)	41	–	41 (80)	–

RESULTS

Table 2 : Intra-operative characteristics and Short term clinical outcome

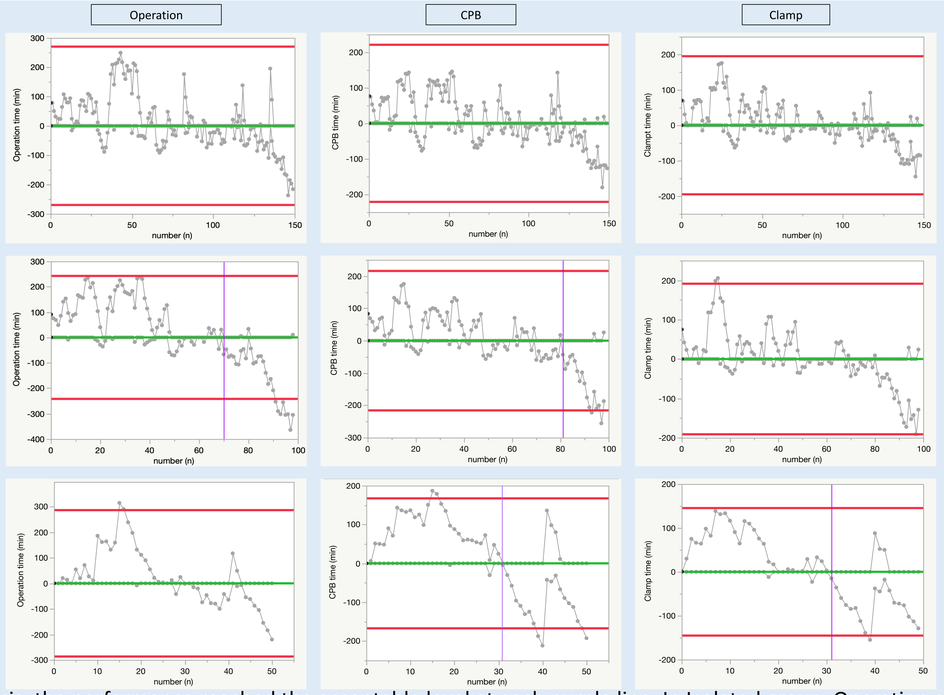
Variable	total (n=150)	Isolated (n=99)	Concomitant (n=51)	P value (<0.05)
Operative time, min (mean ± SD)	240 ± 55.2	230 ± 50.2	259 ± 59.3	**0.0012**
Cardiopulmonary bypass time, min (mean ± SD)	165 ± 43.2	159 ± 43.0	177 ± 40.8	**0.0069**
Cross-clamp time, min (mean ± SD)	132 ± 36.4	128 ± 37.3	141 ± 32.7	**0.015**
In Hospital Mortality, n (%)	0 (0)	0 (0)	0 (0)	–
Intensive care unit stay, days (median, IQR)	2.7 (2)	2.6 (2)	2.7(2)	0.41
Hospital stay, days (median, IQR)	12.1 (9)	11.8 (8)	12.6 (9)	0.43
Duration of Ventilation, hours (median ± S.D.)	9.5 ± 12.1	9.1 ± 13.3	10.1 ± 9.4	0.32
Blood transfusion (intra or post op.) , n (%)	41 (27)	26 (26)	15 (29)	0.34
Low-cardiac output syndrome, n (%)	1 (1)	1 (1)	0 (0)	–
Re-exploration, n (%)	1 (1)	1 (1)	0 (0)	–
Respiratory insufficiency, n (%)	1 (1)	1 (1)	0 (0)	–
Cerebral infarction, n (%)	1 (1)	1 (1)	0 (0)	–
Postoperative hemolysis, n (%)	3 (3)	3 (3)	0 (0)	–
Surgical re-intervention, n (%)	1 (1)	1 (1)	0 (0)	–

Figure 1 : Changes in Operation time with the number of cases



- There was a significant difference between the two groups in the operation time, CPB time, Clamp time. There was no significant difference in the short term clinical outcome (Table 2).
- In both groups, there were shorter trend in the operation time with more caseloads (Figure 1).

Figure 2 : CUSUM analysis



- In CUSUM analysis, the performance reached the acceptable level at each purple line. In Isolated group, Operation and CPB time were reached the acceptable level at the 70th and 81th case. In Concomitant group, CPB and Clamp time were reached the acceptable level at the 31th case.

CONCLUSION

The clinical outcomes of RMVR was satisfactory in the initial 150 cases even though concomitant cases required significantly longer operation, CPB and Clamping time.
However, concomitant group was not associated with a risk-adjusted increase in complications.