

Outcomes in partial sternotomy for aortic root surgery: the new routine procedure?

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Running Head: Partial sternotomy for aortic root repair

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Dear Editor,

We read with great interest the article by Elghannam *et al.*[1] in which they concluded that partial upper sternotomy (PUS) for aortic root surgery could be a safe alternative to full median sternotomy (FMS), albeit requiring longer operative times and greater operative skills.

Whilst we agree with some of the conclusions, there are aspects of this study that would benefit from further clarification. In our recent meta-analysis, we evaluated eight comparative studies for aortic root replacement with a total of 2,765 patients (n=1974 for PUS and n=1,791 for FMS) [2]. PUS was associated with shorter cardiopulmonary bypass times, lower operative mortality, and shorter stays at intensive care and at hospital (p<0.05). However, no differences in aortic cross-clamp or total operation times were observed (76.1±24.7 versus 109.6±52.9 minutes, WMD -4.17, 95% CI [-11.70, 3.37], p=0.28 and 252.8±56.3 versus 249.7±54.1 minutes, p=0.31 respectively). Similarly, no differences in re-exploration rates for bleeding were observed

between PUS and FMS (OR 0.81, 95% CI [0.55, 1.19], $p=0.28$). It is also important to note that dialysis was more frequently required following FMS procedures ($n=2,217$ patients, 2.78% versus 3.36%, $p=0.001$).

Thus, it would have been robust for the authors to include a patient-matched FMS group in order to facilitate direct comparison between the techniques. Moreover, the authors reported much higher mean cardiopulmonary bypass and cross-clamp times for PUS in comparison to results from our meta-analysis (101 ± 33.5 versus 174 ± 54.8 minutes and 76.1 ± 24.7 versus 133 ± 33.1 minutes, respectively) [2]. Prolonged operative parameters are established risk factors for adverse perioperative outcomes [3]. Furthermore, it would be of interest to know if any patients required dialysis due to post-operative renal failure. This is important factor for quality of life and thus patient contentment, and useful for predicting long-term mortality.

Taken together, it would be pertinent to directly compare these results with an FMS control group to conclude whether PUS is indeed superior to FMS for aortic root surgery, an area which lacks robust evidence.

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