Reviewer’s report

Title: Severe Systemic Inflammatory Response Syndrome in Patients Following Total Aortic Arch Replacement with Deep Hypothermic Circulatory Arrest

Version: 0 Date: 07 Jul 2019

Reviewer: Deborah Harrington

Reviewer's report:

Firstly the authors are to be congratulated on such a large series of total arch replacements with excellent overall outcomes. The study is a retrospective one looking at the incidence of and the risk factors for SIRS in patients undergoing total aortic arch replacement in a single institution over a 3 year period. The incidence of SIRS was 31.4% and risk factors for it were, age under 60, higher baseline creatinine, concomitant coronary artery disease and prolonged CPB time. Administration of ulinastatin or dexmedetomidine were associated with reduced incidence. Patients with SIRS had a higher risk of adverse outcomes.

1. The content of the introduction summarises the problems caused by SIRS and the study hypothesis but this could be worded better.

2. The methods section is entirely satisfactory.

3. Regarding the results, most patients had suffered a dissection. Did the authors look at how many of these were type A & how many type B? Also how many were acute and how many either chronic or a delayed presentation or subacute. I possibly would expect a greater inflammatory response in patients with an acute pathology. Also how many patients had evidence of malperfusion pre-operatively?

4. The overall cohort is a young one with few patients over the age of 60. Could the authors add the total range of ages please?

5. In the discussion I would remove the reference to influenza vaccine as I am unsure of the relevance of this.

6. I would suggest a further paragraph on ulinastatin, as we are unfamiliar with this drug in the west.

7. I concur with the remainder of the discussion and conclusions, although again some rewording and correction of grammar is required.
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