Predisposing factors of mid-term mortality following surgery with antegrade cerebral perfusion in acute type A aortic dissection

Knut Nesheim, Vegard S. Ellensen, Rune Haaverstad
Bergen, Norway

Background: Acute type An aortic dissections are associated with significant morbidity and mortality. Cerebral insults can occur secondary of the disease or the operative technique. This study aimed to identify whether verified cerebral infarctions are a predisposing factor of mid-term mortality in a single centre cohort of Norwegian patients.

Material and methods: In the period 2007-2014, 107 patients with acute type A dissection underwent surgery. Of these, 83 operations were performed with deep hypothermic circulatory arrest and antegrade cerebral perfusion (ACP). All but eight patients were perfused bilaterally through both carotid arteries during the systemic circulatory arrest. By applying uni- and multivariate statistics the cohort was retrospectively investigated. Survival was assessed by Kaplan-Meyer analysis.

Results: Mean age was 61.8 (±12.8) years and 23 (27.7 %) were female. Mean operating time was 397 min, mean CPB time 257 min and mean ACP time 54 min. Arch surgery was performed in 27 (32.5 %), while only the ascending aorta was replaced in the remaining patients. Computer tomography (CT) was used to confirm recent peri- or postoperative cerebral infarctions in 27 (32.5 %). Thirty-day mortality was 16.9 %. Overall mortality was 24.1 % during follow-up of 2.8 (±2.4) years. Age and postoperative CT detection of recent cerebral events influenced on mortality (p= .025 and .009). Duration of extracorporeal circulation had a trend of predicting worse outcome, but this was non-significant.

Conclusion: This series of acute type A aortic dissection showed an acceptable overall mortality, with relatively frequent recent cerebral infarctions as diagnosed by CT. Age above 65 years and the presence of peri- and postoperative cerebral insults increased mortality, but no predisposing factors of the cerebral events per se were identified.