

Neurological Outcomes and Mortality in Patients with Type A Aortic Dissection. Impact of Intra-operative Management

Pasquale Santé, Marianna Buonocore, Luigi Majello, Angelo Caiazzo, Giuseppe Petrone,
Gianantonio Nappi
Cardiothoracic Sciences - University of Naples II, Monaldi Hospital, Italy

Objective:

Recent advances in open and endovascular treatment have improved the outcomes of type A aortic dissection that still remain a life threatening disease. We reviewed our recent surgical series to evaluate the impact of different clinical settings on both mortality and morbidity.

Materials and Methods:

Between January 2007 and July 2012, 140 patients with type A aortic dissection were treated with open surgery. Mean age was 62.7 ± 11 years, 64.3% were males, 85.6% were type I De Bakey. Preoperative complications rate was 61.7%, according to Penn classification stratified in type a (69.3%), type b (13.6%), type c (20.7%), b+c (6.4%). Incidence of temporary (TND) and permanent neurologic damage (PND) were 7.9% and 13.6% respectively.

We observed four different patterns of neurological sequelae, sometimes present in the same patient: anoxic encephalopathy, stroke, watershed strokes and myelopathy. We further distinguished strokes according to Bamford classification in total anterior circulation infarct (TACI), partial anterior circulation infarct (PACI), lacunar infarct (LACI) or posterior circulation infarct (POCI).

Results:

Operative mortality was 18.8% and overall in-hospital mortality was 35.1%, both significantly increased by preoperative complications (30.6% and 44.3%, $p < 0.001$ and $p < 0.05$) and Penn class c (51.7% and 65.4%, $p < 0.001$). Neurological outcomes were not related to preoperative features but to surgical management: axillary artery cannulation (AAC) alone was associated with an higher incidence of LACI when compared to femoral artery cannulation (FAC), with a greater involvement of the left hemisphere (14.5% vs 3.1%, $p = 0.02$). Such difference is also evident when considering the technique of antegrade cerebral perfusion (left LACI 15.8% in axillary alone vs 2.9% in Kazui, $p = 0.04$). TND was more frequent in AAC when compared to FAC (54.4% vs 27.3%, $p = 0.03$).

Conclusions:

In type A aortic dissection mortality is related to pre-operative clinical status, strongly predicted by Penn classification, whereas neurological injury depends on surgical strategy.