Single-Center Contemporary Results of Open Surgical Thoracoabdominal Aortic Aneurysm Repair  
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Background: 
Open surgical repair of thoracoabdominal aortic aneurysms (TAAA) remains the gold standard but continues to be challenging. We evaluated our results after open repair of thoracoabdominal aortic aneurysms in a contemporary cohort of patients. 

Materials and methods: 
A total of 38 patients who underwent open surgical repair for thoracoabdominal aortic aneurysm between 8/2007 to 4/2017 were included. All aneurysms were categorized according to Crawford’s classification. The etiology of the aortic disease was diverse (degenerative, connective-tissue disorder, inflammatory disease, infection). The majority of patients suffered from connective-tissue disorders and had already undergone multiple previous aortic interventions. Primary endpoints were early mortality and paraplegia. Secondary endpoints included postoperative complications (stroke, sepsis, dialysis, bleeding). 

Results: 
The mean age was 54.4 ± 13.4 years (range: 29 to 72.5 years), and 57.9% (n=22) were female. Extent II aneurysms were most common (57.9%). The mean aortic diameter was 7 ± 1.2 cm. In 25 patients, the procedure was a redo operation. Twenty-four patients suffered from chronic dissection (A and B). The mean cardiopulmonary bypass time was 159 ± 65 minutes with a mean cross-clamp time of 60 ± 65 minutes. In six cases, deep hypothermic circulatory arrest for 5.0 ± 13.7 minutes was necessary. The 30-day mortality was 7.9% (n=3). Both paraplegia rate and the incidence of stroke were also 7.9% (n=3). In four cases (10.5%), re-exploration for bleeding was necessary. Temporary hemodialysis occurred in four (10.5%) patients. Four patients developed pneumonia and 7.9% (n=3) of patients required re-intubation or tracheotomy. Emergency and urgent procedures did not increase the incidence of spinal cord ischemia (p=0.369), stroke (p=0.748), or the 30-day mortality rates (p=0.369). Likewise, chronic dissection (A and B) did not affect 30-day mortality, occurrence of stroke and spinal cord ischemia. Preoperative chronic kidney disease and postoperative prolonged Noradrenalin support were identified as predictors of mortality. The patients were discharged from hospital after a median length of stay of 21.5 days. At one, three, and five years after operation, the survival rates were 83%, 77%, and 62%, respectively. 

Conclusion: 
Despite the invasiveness of open thoracoabdominal aortic repair and the risk of major complications, surgical repair remains the gold standard of treatment in young patients with connective-tissue disorders as well as in urgent or complicated cases. This present study demonstrates a contemporary experience in a small number of patients undergoing TAAA repair with low rates of postoperative complications and acceptable survival rates, which are comparable with high-volume centers for aortic surgery.
Impact of deep hypothermic circulatory arrest on renal function in patients undergoing surgical replacement of ascending aorta due to aneurysm or calcification

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Background:
The correlation between deep hypothermic circulatory arrest and its effect on renal function is still not clear enough. Renal failure after surgical replacement of ascending aorta in deep hypothermic circulatory arrest (DHCA) in patients due to aneurysm or calcification represents nowadays a major concern. This major study focused on the impact of DHCA on renal function in those patients.

Materials and methods:
A retrospective analytical study included 905 consecutive patients between 2001 and 2015 (male 66.7% vs. female 33.3%) undergoing replacement of ascending aorta using DHCA due to aneurysm or calcification. Patients with type A-dissection are excluded from the study.

Pre- and postoperative renal function are observed and documented. Acute kidney injury (AKI) was classified according to the current ‘Kidney Disease: Improving Global Outcomes’ (KDIGO) Guidelines. The potential correlation of the length of DHCA and worsening renal function was evaluated using Spearman’s rank correlation.

Results:
The study showed no significant correlation between the length of DHCA and the postoperative creatinine levels after surgery until postoperative day 8, (Spearman’s correlation coefficient<0.001). The multivariate logistic regression analysis suggests that age (OR 2.799; p<0.019) was an independent risk factor for mortality as well as cross clamping time (OR 0.985; p<0.033) and bypass time (OR 1.022; p<0.001)

Conclusion:
In our analysis, there is no correlation determined between the length of deep hypothermic circulatory arrest and postoperative renal function in patients undergoing surgical replacement of ascending aorta due to aneurysm or calcification.
Influence of gender on outcome in patients undergoing surgery for acute type A aortic dissection using deep hypothermic circulatory arrest

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Background:

Gender are considered as a risk factor for coronary artery surgery as well as valve replacement surgery, however its impact on patients undergoing surgical replacement of ascending aorta following acute type A aortic dissection (AADA) is not well researched yet. The aim of this large analysis is to clarify the role of gender in those patients suffering from AADA.

Materials and methods:

A retrospective study included 371 consecutive patients between 2001 and 2016 (male 65.8% vs. female 34.2%) undergoing replacement of ascending aorta using deep hypothermic circulatory arrest (DHCA) following AADA.

Results:

In preoperatively history, women were significantly older than men (67.3±12.1 vs. 60.5±12.0 years; p=<0.001) with significantly higher Euro-score II [6.5% (4.1;13.4) vs. 4.75% (2.75;11.70); p=0.006]). Women have significantly higher preoperative aortic aneurysm than men (39.7% vs. 26.2%; p=0.008). Intraoperatively, cardiopulmonary bypass time [170min (139;220) vs. 149 min (123;196); p= 0.001] and time of cross-clamping [93min (71;134) vs. 85min (64;115); p=0.033] were longer in males. The DHCA time was similar between both groups. Postoperatively, a significantly high incidence of delirium was noted in men (23.8% vs. 9.4%; p=0.001) as well as pneumonia (15.8% vs. 7.9% p=0.033). Otherwise, no significant differences in complications and major morbidity were observed between the groups. The 30-day mortality (women 18.9% vs. men 16 %; p=0.478) was without statistical significance between the groups. The multivariate logistic regression analysis suggests that age (OR 3.194; p=0.028) and cardiopulmonary bypass time (OR 1.01; p=0.001) were risk factors for mortality. However, gender was not an independent risk factor for mortality in those patients.

Conclusion:

In our analysis, gender has no influence on outcome in patients undergoing replacement of ascending aorta using DHCA following AADA. However, age and cardiopulmonary bypass time were risk factors for mortality.