Impact of previous cardiac operations in patients undergoing surgery for type A acute aortic dissection. Twenty-year follow up in 1400 patients.

Background: Aim of this study was to evaluate the impact of reoperative cardiac surgery for type A acute aortic dissection (TAAD) on early, long and very long-term outcomes.

Methods. We retrospectively analyzed data from a large multicenter database that includes 1472 patients who underwent surgery for TAAD in six high-volume centers. Patients with a history of previous cardiac surgery were included in group R while those undergoing first operation where included in group F. Kaplan-Meier analysis was used to evaluate long term survival in the two groups and Cox-regression multivariable analysis was used to identify independent predictors of mortality at follow-up.

Results. A total of 1472 patients were included in the analysis. Of these, 85 (5.8%) and 1387 (94.2%) were included in group R and F, respectively. At baseline, groups were similar in terms of age, sex, malperfusion, aortic insufficiency and other major comorbidities. Intraoperatively, rate of hemiarch and arch replacement as well as aortic valve replacement, Bentall and valve sparing procedures were similar between groups. Cardiopulmonary bypass time was longer in the R group (median 266 min, IQR: 192-322min vs. 214 min, IQR: 175-264; p<0.001) but aortic cross clamp time and circulatory arrest time were similar. Thirty-day mortality was 24% (20 patients) and 18% (249 patients) in groups R and F, respectively (p=0.8). Major postoperative early adverse events (prolonged intubation, any neurologic injury, myocardial infarction, acute kidney injury) were similar between groups except for a higher rate of surgical revision for bleeding in group R (33% vs. 16%; p=0.004). Kaplan-Meier survival at 10 and at 20- year (Figure 1) was 51.5% (95%CI: 47.9%-55.3%) and 30.2% (95%CI: 24.9%-36.8%) in group F and 48% (95%CI: 36.7%-62.7%) and 32% (95%CI: 13.8%-45.3%) in group R (p=0.368). Multivariable analysis identified as independent predictors of mortality the following variables: age (HR 1.04, p<0.001), preoperative neurologic injury (HR: 2.2;p<0.001), preoperative acute kidney injury (HR: 2.2, p=0.012) and left ventricular ejection fraction (HR: 0.96; p<0.001).

Conclusions: In conclusion, patients with a history of previous cardiac operations who develop TAAD can undergo surgery with similar early, long and very long-term outcomes if compared to those at their first operation. According to these data postoperative survival seems related to patients' clinical characteristics and not to the reoperation.