Pre- and postoperative factors associated with the persistence of Endoleak Type II after EVAR in the first year of follow up
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ABSTRACT

Objective: Natural history of Endoleak type II (ET II) after endovascular abdominal aortic aneurysm repair (EVAR) is still debatable. The aim of this study is to examine the prevalence of pre- and post-operative factors associated with the persistence of ET II during the initial 12-month follow up period.

Methods: The data of patients undergoing EVAR from 2006-2017 were recorded into a prospective database. Patients with ET II at 1st month computed tomography angiography (CTA) were categorized in two groups: group 1: resolution; group 2: persistence of ET II at the 12-month CTA. Pre-operative demographics, co-morbidities, aneurysm anatomical details and pelvic artery index were assessed. Intra-operative details were also recorded.

Results: 140 (out of 825; 17%) patients (mean age: 71.7±8.5 years; 93.5% males) presented ET II at 1st month CTA. Group 1 included 58 patients (41%) and Group 2, 82 patients (59%). The anatomical characteristics of IMA and lumbar arteries and the pelvic artery indices were not associated with ET II persistence. All patients of group 1 had computed intraluminal thrombus in pre-operative CTA (Group 1, 100% vs. Group 2, 67%; P=0.001), while circulatory thrombus was more common in Group 1 (1.44% vs. Group 2, 24%; P=0.01). At 12-month CTA, the mean sac regression was higher in Group 1 (1.38±0.5 mm, 2.59±0.3 mm, P=0.000). After multivariate analysis, the persistence of ET II was associated positively only with intra-operative surgical occlusion (OR 2.23; 95% CI: 0.06-0.96, P=0.03), and negatively with stenosis (OR 2.6; 95% CI: 1.01-8.8, P=0.047) and sac regression (OR 1.24; 95% CI: 1.11-1.39, P=0.001).

Conclusion: IIA occlusion during EVAR was the only factor that was identified to amplify the persistence of ET II. The presence and form of intraluminal thrombus may play a role on ET II persistence, while the diameter and number of infra-renal aortic branches, and pelvic artery indices were not associated with it. The use of stents may have a positive effect on ET II resolution during the first post-operative year. Sac diameter is more likely to regress in patients with ET II resolution.

RESULTS

Examine the prevalence of pre- and post-operative factors associated with the persistence of ET II during the initial 12-month follow up period.

METHODS

Retrospective analysis of prospectively collected data

2 University Centers

Between 2006 and 2017

881 patients treated with electively EVAR

BACKGROUND

The natural history of ETH and its correlation to aneurysm rupture is still debatable. Thus, the identification of ET II predictive risk factors is important to improve decision making in terms of endograft selection, follow up intensity and probability for reintervention.

RESULTS

Pre-operative CTA Group 1 (n=88) Group 2 (n=82) Total P value

Anatomical characteristics of IMA

Presence of IMA 55 (61.4%) 12 (14.6%) 67 (78%) .001

Diameter of IMA 3.30 ± 0.41 3.50 ± 0.41 3.40 ± 0.41 .78

Cross-sectional area of the aortic lumen at the IMA

Thrombus interventional 0.5 (6.7%) 0.2 (2.4%) 0.3 (3.6%) .1

Distance of IMA from lower endarterectomy 65.3 (2) 68.7 (2) 69.2 (2) .09

Distance of IMA from iliac bifurcation 55.0 (2) 45.2 (2) 45.7 (2) .78

Number of lumbar arteries 3.1 (3.3) 3.1 (3.3) 3.1 (3.3) .83

Pelvic artery index right 0.74 ± 0.1 0.74 ± 0.1 0.74 ± 0.1 .9

Pelvic artery index left 0.74 ± 0.1 0.74 ± 0.1 0.74 ± 0.1 .83

Pelvic artery index both 0.74 ± 0.1 0.74 ± 0.1 0.74 ± 0.1 .88

BACKGROUND

The nature of ETH and its correlation to aneurysm rupture is still debatable. Thus, the identification of ET II predictive risk factors is important to improve decision making in terms of endograft selection, follow up intensity and probability for reintervention.

CONCLUSION

The form of intraluminal thrombus may play a role on ET II persistence. The presence and size of thrombus in infrarenal aortic branches and pelvic artery occlusion index were associated with it. The use of stents may have a positive effect in ET II resolution during the first post-operative year. Sac diameter is more likely to regress in patients with ET II resolution.

DISCLOSURES

NONE