ANEURYSMAL SAC VOLUME AND DIAMETER EVOLUTION IN THE POST-OPERATIVE EVAR PATIENT

J. Sousa1,2, J. Rocha-Neves1,2, J. Pinto1-2, A. Mansilha1-2, J. Teixeira1
1. Department of Angiology and Vascular Surgery, Hospital de S. João, Porto, Portugal
2. Faculty of Medicine of Oporto University

INTRODUCTION

The measurement of aortic diameter after endovascular repair has been a key determinant of surveillance. Continued sac expansion after endovascular repair is a common indication for reintervention, and several predictors for sac expansion have been identified.

Studies indicate that aortic volume is more sensitive than aortic diameter for sac expansion surveillance after endovascular repair.

This ultimately leads us to a question: do “classic” predictors for aneurysmal sac expansion influence maximum transverse diameter and volume in the same way?

AIM

To compare risk factors and their impact in the evolution of aneurysmal sac volume (ASV) and maximum aneurysm transverse diameter (ATD) in patients submitted to EVAR.

METHODS

- 57 non-consecutive patients with isolated AAA treated by EVAR (2011-2014) were included (93% male; mean age of 72.6 years [56-85]). Mean follow-up period was 13 months.
- Maximum ATD and ASV were measured in the pre-op and latest post-op angio-CT (Osirix®).
- Growth of > 5mm in diameter or > 3% in volume in the post-operative CT were considered significant. Aneurysmal sac calcification, neck thrombus, neck angulation, endoleak and reintervention were evaluated.

RESULTS

- Linear regression analysis demonstrated positive correlation between ASV and ATD (p<0.001).
- Presence of endoleak is significantly associated with growth of the aneurysmal sac, both in maximum diameter (p<0.001) and volume (p=0.002).
- There was a trend suggesting that neck thrombus >2mm (p=0.077) and neck angulation >60º (p=0.066) were related with diameter increase but not volume (p=0.510 and p=0.453).
- No association was found between the presence of sac calcification and the post-operative behaviour of the aneurysmal sac.
- No association was found between sac growth (both in ATD ou ASV) and re-intervention rate (n=4).

CONCLUSION

This study suggests that certain anatomic factors may influence aneurysm transverse diameter more than they influence volume. Since both these parameters have a positive correlation, authors believe some ATD growths represent only remodelling phenomena of the sac and thrombus and not true aneurysm sac growth. Further studies are required.