EVAR is a “favourable” option for mycotic aortic aneurysm

A retrospective analysis from the UK, reported at CirSE 2014, finds that although there are no randomised controlled trials comparing open and endovascular repair of mycotic aortic aneurysms in the thorax and abdomen, EVAR in these patients is favourable.

“This is the largest reported case series of mycotic aortic aneurysms treated with endovascular aneurysm repair and demonstrates a favourable outcome. This lends credence to the increasing trend to utilise this technique in anatomically suitable cases,” Carl Sullivan, Interventional Radiology, University Hospital of Wales, Cardiff, UK, told Vascular News.

B A Conrad, Medical School, Cardiff University, Wales, United Kingdom, reported the results of the study at CirSE 2014. She said that there was a growing body of evidence to support EVAR as a viable treatment option for mycotic aneurysms.

Conrad stated that despite mycotic inflammatory aneurysms with mycotic and abdominal aorta having been treated by endovascular repair (EVAR) at their centre for the last 17 years, little evidence of its effectiveness exists in the literature. “This retrospective analysis aims to evaluate our experience and assess whether EVAR should be a standard approach for such patients,” she noted.

The study included all the patients who underwent EVAR at the University Hospital of Wales between 2007 and 2013 for mycotic aneurysms (n=20). The researchers assessed radiological and clinical data for information such as demographics, anatomy, biochemical markers, procedural information and follow-up (including re-intervention, morbidity and mortality).

Conrad reported that there were 18 male and two female patients with a mean age of 73 (range 54–84), with six thoracic mycotic aortic aneurysms and 14 abdominal ones. Primary technical success was 100% with no immediate complications. The mean follow-up was 26 months (range 0–69 months). “There were two cases (10%) of 30-day mortality. These were both abdominal EVAR cases and we believe they were a result of the underlying disease processes, rather than the procedure,” Conrad said.

She also reported that re-intervention was required in one (5%) patient who had a mycotic abdominal aneurysm. This case required surgical bypass of an occluded AUI stent graft. No cases required explantation of the stent-graft.

“Patients with mycotic aneurysms are often critically ill, and open surgical repair has significant associated morbidity and mortality in these patients. Our centre will continue performing EVAR as the first line in patients with anatomically suitable abdominal/thoracic mycotic aortic aneurysms,” Conrad concluded.

The Anaconda™ stent graft for Abdominal Aneurysm repair. Ongoing developments to treat complex situations.

Initial experience
The Anaconda™ is a bifurcated stent graft of woven polyester with nitinol ring stents. The name was chosen because of the similarity between the shape of the proximal ring stents and a snake’s mouth. It was the first true repositionable stent graft and it features a magnet wire contralateral limb of the Fenestrated Anaconda™ stent graft. The iliac legs include the ability to reposition the body, which appears to expand the use of these type I endoleaks resolved before discharge, probably due to adaptability of the saddle-shaped proximal stent rings. The next generation of the Anaconda™ stent graft seems relevant as accurate placement with alignment between the fenestration and the target vessel origin is important for success. However, a limitation of the repositionability of the stent graft is the risk of thromboembolic events, and should therefore only be used when necessary. Axillary access was required in 16% of the patients due to steep downward angulated target vessels.

Ruptured infrarenal AAA
The single centre prospective non-randomised Ruptured Aneurysm Study with the Anaconda™ (RASA) showed that treating AAA with a severe angulated neck (>60 degrees) is feasible with acceptable mid-term results. Primary technical success was 100% and there were four type I endoleaks at the end of implantation. Three of these type I endoleaks resolved before discharge, probably due to adaptability of the saddle-shaped proximal stent rings. The shape of these stent rings and the unsupported fabric contribute to a more flexible main body which appears to expand the use for EVAR in angulated necks.

Fenestrated stent graft for juxtarenal AAA
Fenestrated stent grafts have been developed for treatment in more complex anatomy lacking adequate sealing zone in the infrarenal aorta. Potential advantages of the Fenestrated Anaconda™ stent graft include the ability to reposition the body, the ability to position the superior mesenteric or celiac artery in an anterior augmented scallop, the ability to cannulate target vessels using axillary access and the lack of stent material compromising the position of the fenestrations. Recent studies show that the Fenestrated Anaconda™ stent graft can be used safely and effectively in the treatment of short-necked infrarenal and juxtarenal AAAs. In 64% of the patients the stent graft was repositioned and this feature of the Anaconda™ stent graft seems relevant as accurate placement with alignment between the fenestration and the target vessel origin is important for success. However, a limitation of the repositionability of the stent graft is the risk of thromboembolic events, and should therefore only be used when necessary. Axillary access was required in 16% of the patients due to steep downward angulated target vessels.

Future developments
The next generation of the Anaconda™ stent graft will be developed on a lower profile platform to expand the patient population that can be treated with this device.

References:

Figure 1. A 72-year-old male patient with an infrarenal AAA. Infrarenal neck length is over 15mm without any severe angulation. The proximal ring stent is anchored in an infrarenal position by hooks to prevent migration. The body is unstented, resulting in zero column strength, comparable to traditional bifurcated prosthesis design. The iliac legs are supported by independent nitinol ring stents, which provide flexibility.

Figure 2. An 80-year-old male patient with an infrarenal AAA. The infrarenal neck has an infrarenal angulation above 60 degrees and a suprarenal angulation above 70 degrees. The main body in this case is rotated 90 degrees to prevent kinking of the iliac legs. The proximal markers of the iliac legs are positioned just below the saddle-ring stents to prevent collapse of the body. Extra oversizing of the stent graft compared to straight forward cases is important as the stent graft does not seem to position itself perpendicularly to the aortic vessel wall.