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INVITED COMMENTARY

Did Percutaneous Compared with Cutdown Access for Endovascular Aneurysm Repair Really Make a Difference?

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With the introduction of endovascular aneurysm repair (EVAR), an effective step was made to minimise invasiveness. A further reduction in incision length was gained through the introduction of percutaneous EVAR (pEVAR) when compared with conventional open surgical access to the femoral arteries. However, pEVAR is not suitable for all patients, and as a consequence the exact advantages and liabilities as posed by Antoniou and Antoniou, are as yet unknown.[1] In their meta-analysis they concluded that pEVAR reduces both operating time and the number of seromas when compared with common femoral artery (CFA) surgical cutdown.

They identified four randomised controlled trials (RCT), published between 2003 and 2019, including 530 access sites. Eight of 267 (3%) surgical cutdowns developed a seroma, whereas this complication was absent in pEVAR cases. Surgical cutdown lasted on average 11½ minutes longer than pEVAR. Interestingly, the devices used, incision length, and incision direction differed in the percutaneous group. This was not taken into account, even though Nelson *et al.* showed a significant difference between Starclose and Proglide.[2] For the remaining variables, none were significantly different between the groups, including infection, bleeding, pseudo-aneurysms, arterial injury or occlusion, hospital length of stay, and mortality. Finally, a trial sequential analysis (TSA) showed that the level of evidence was "low" or "very low" for all outcomes.

What is the reader to conclude? The 2019 European Society for Vascular Surgery abdominal aorto-iliac artery aneurysm guidelines suggest surgical exposure (under general or local anaesthesia) or percutaneous access with ultrasound guidance.[3] Instead, the authors conclude that only pEVAR is suitable for local anaesthesia, because of the shorter duration of the procedure. This contradicts the guideline which considers surgical exposure under local anaesthesia. The downside of pEVAR is the risk of conversion, required in 5.7% because of malfunction or calcification.[4]

In contrast to the trend towards less invasive surgery, the NICE guidelines recommend an open first strategy for non-ruptured abdominal aortic aneurysm, mainly based on earlier RCTs and UK specific economic modelling.[5] To this observer, the findings of Antonious *et al.* should be interpreted in the context of this new approach towards patient safety and intervention costs. The question is raised of whether a further reduction of invasiveness weighs against the increasing costs of EVAR or pEVAR?

In their TSA, the authors mention concerns about the RCTs, and their body of evidence, despite the randomisation and multicentre design. At this point, this is the "highest" level of evidence that has been collected in this particular field of vascular surgery. This evidence does not show a large difference between percutaneous and surgical access to the CFA, probably because many factors are involved, such as calcification, scar tissue, obesity, and vessel and device diameter.

In conclusion, it seems that a well designed clinical trial is needed to answer the above questions. Whether to embrace a device reducing patient complaints,[6] seromas and duration of surgery, or to leave this path of further damage reduction in surgical procedures, in favour of healthy economics and durable surgery?

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