INVITED COMMENTARY

Is In Hospital Mortality Following EVAR Still a Valid Outcome Measure?

Jonathan R. Boyle

Cambridge Vascular Unit, Cambridge University Hospitals NHS Trust, Hills Road, Cambridge, CB2 0QQ, UK

This registry based study from Australia investigated the impact of hospital and surgeon volume on the outcome of abdominal aortic aneurysm repair over a seven year period.[1] In keeping with contemporary data the authors were unable to identify any volume effect for endovascular aneurysm repair (EVAR),[2] and somewhat more surprisingly no volume effect for open repair at surgeon or hospital level. The EVAR group included both complex EVAR cases and thoracic endovascular aneurysm repairs (TEVARs), both of which had expected higher mortalities, of 2.6% and 5.6%, respectively.

The authors reported a hospital volume effect on TEVAR outcomes with the lower volume hospitals demonstrating higher mortality. The authors have suggested, based on this finding, that Australian Hospitals should perform 22 or more endovascular aneurysm procedures a year to maintain acceptable TEVAR outcomes. These findings, however, should be treated with some caution, as there were only 214 TEVAR records within the endovascular group, 2.8% of the total.

The authors have acknowledged the potential selection bias in this study related to a case ascertainment rate, which was validated for the first two years of this study at 63%. This rate is low for a mandatory audit; however, the participating units have changed little over time and this may have mitigated any bias.

The reported mortality following elective EVAR in this study was 0.5%, and the authors were unable to demonstrate a volume effect by hospital or surgeon when this group was subdivided into quintiles. However, there were only 178 deaths in this group or approximately 35 deaths per quintile, increasing the likelihood of a type 2 statistical error.

In hospital and 30 day mortality rates after elective EVAR are falling, in part because of lower profile devices, percutaneous and local anaesthetic techniques. In 2004 the EVAR 1 trial reported 30 day mortality rates for EVAR in the UK of 1.7%.[3] The mortality rate for elective EVAR in the UK was reported at 0.4% in 2017[4] in keeping with these results from Australia. This raises the question as to whether mortality remains a good or valid outcome measure for elective EVAR, particularly at a time when the durability of EVAR is under scrutiny.[5]

Reporting rates of re-intervention following EVAR would provide a much better indicator of the quality of the aortic intervention. Evidence suggests that almost a quarter of patients require re-intervention following EVAR. One of the problems with vascular registries is that little or no long-term outcome data are collected and this can often only be achieved by suboptimal comparison with administrative data.

We must focus on recording longer term outcome data as vascular registries develop further. We can learn a lot from our orthopaedic colleagues who have been able to successfully identify both outlying surgeons and units after joint replacement using joint revision as their primary endpoint.[6] These registries have also been able to identify poorly performing prostheses.[7] If we are to develop registries that report longer term outcomes after EVAR, then this must go hand in hand with accurate recording of implantable device information at the outset, so that we can identify poorly performing devices as early as possible, as well as those that are performing well.

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E-mail address: jonathan.boyle@addenbrookes.nhs.uk (Jonathan R. Boyle).

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