



## Invited Commentary

## Commentary on 'General Anaesthesia is Associated with Adverse Cardiac Outcome after Endovascular Aneurysm Repair'

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Much is being discussed regarding surgical/hospital volume-related outcomes following AAA surgery. The other side of the coin, namely how anaesthesia affects EVAR outcomes (though hinted at in EUROSTAR), seems to be largely ignored. The point is, post-EVAR cardiac complications, albeit low, could be even lower with regional anaesthesia (RA), and that RA for EVAR is not new.

Despite undertaking other procedures under RA, there are anaesthetists who will simply put a patient asleep out of sheer convenience/habit, and a matching body of vascular surgeons who do not question that decision. The anecdotal practice of epidural insertion followed by intubation is laughable; the same applies to GA for percutaneous EVAR. Conversions to OR are rare, so a 'what if' argument does not apply.

Our default approach is RA, namely an epidural (applicable even for procedural extension e.g. IBD deployment), avoiding even transient/unnecessary blood pressure shifts from a spinal, unless RA is clearly contraindicated. This has several advantages, such as patient co-operation with breathing whilst imaging, reducing need for HDU care (patients can have a cup of tea in recovery and go straight to the ward), reduced pulmonary complications (clearly demonstrated in this paper) and early discharge,<sup>1</sup> exemplified by our case of a man in his mid-60s, on home oxygenation and under consideration for a heart-lung transplant, who underwent successful EVAR under RA and was discharged in 48 h. GA would not have been an option.

There are other non-quantifiable positives from having patients awake and involved with the procedure, which may also be linked to stress response attenuation.

The paper by Bakker et al. clearly indicates that even after excluding grey outcomes such as asymptomatic troponin rise (despite increasing recognition of such "chemical MIs") RA would seem to be another step in further improving EVAR mortality; it also perhaps paves the way for more questions, such as who should be anaesthetising for OR/EVAR? There is a move from the Vascular Anaesthesia Society of Great Britain & Ireland (VASGBI) in this

direction, and the UK National Vascular Database (NVD) may provide useful information in this context.

However, the paper omits examining pulmonary parameters, given that hypoxia may have had a bearing on adverse cardiac outcomes e.g. MIs/arrhythmias. This is particularly given that 'frail' patients are not so just because of cardiac disease.<sup>2</sup> Multivariate analysis could have looked at links between obesity and cardio-pulmonary morbidity. Furthermore, as a retrospective study, with its inherent flaws, there are opportunities missed in correlating outcomes with outcome-predicting tools (notwithstanding *their* weaknesses) such as V/AAA-POSSUM or CPET pre-operatively. Furthermore, this results in missed opportunities with intra-operative non-invasive cardiac output monitoring using the LiDCO, for instance; reliable peri-operative anaesthetic data on oxygenation could not be obtained, which could have been analysed in conjunction with the recent American paper<sup>1</sup> - prospective studies need to examine these issues.

If we are to focus on outcomes after EVAR, *both* surgical and anaesthetic aspects need to be looked at. On the other hand, do we need a GALA-style trial? Perhaps not. Still, in this era of cash-strapped (health) economies, there is another lesson in reducing the costs of EVAR, especially as this gets centralised, and GALA has suggested that RA is cheaper.<sup>3</sup> However, the real message from the paper is that (a) both vascular anaesthetists and surgeons need to keep their options open, and from the results of the paper, look harder at undertaking EVAR under RA, as these results cannot be ignored, and (b) most importantly, tailor the anaesthetic option to suit the patient *and* provide the best outcome, and I congratulate the authors in trying to get that very message out.

### References

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