

INVITED COMMENTARY

No Survival Benefit for Patients Compliant with EVAR Follow Up: Bias or The End of Follow up as We Know It?

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We have read the paper by Geraedts *et al.* with interest.¹ The (lack of) efficacy of image follow up after endovascular aneurysm repair (EVAR) remains an unresolved problem and this study from a large collaboration in The Netherlands (ODYSSEUS study) aimed to determine the result of non-compliance with existing protocols. All clinicians involved in the care of EVAR patients are aware of the burden of surveillance, and probably unsure of the efficacy of current strategies and consequences of non-adherence. As such, this is a relevant publication with potential repercussions.

The first interesting observation is that the 16 tertiary teaching institutions involved in the study adopted 15 different surveillance protocols, most deviating to some degree from the recommendations issued during the study inclusion period. This is a clear indicator that the issue requires further investigation.

A common criticism of this type of research is that it reflects a past experience, and things may have changed since. In fact, the inclusion period of this study ended in 2012, nearly a decade ago. The rationale is that all patients have sufficient follow up to evaluate; the downside is that there is an obvious time lag.

Also worth noting is the debatable definition of “non-compliant” used in the ODYSSEUS study. A patient was classified as non-compliant if there was at least one 16 month period in which no imaging surveillance was performed. This has two important limitations. Firstly, it is not clear if the decision to stop imaging was made by the physician, or if the patient decided not to comply, despite being clinically recommended to do so. This is of major importance since “non-compliance” following a physician’s decision will probably be due to an expectation of no complications (as per European Society for Vascular Surgery abdominal aortic aneurysm [AAA] guideline recommendations)² or related to health conditions precluding any secondary interventions, such as dementia or severe systemic illness, two completely distinct scenarios. Secondly, for minor protocol deviations (common in real life for various reasons) to be classified as non-compliant when they are not, may consequently “contaminate” the results.

Perhaps one of the most important weaknesses of the study is the lack of detail on cause of death. The authors report a large proportion of deaths with unknown reasons, which is common in

most studies dealing with death after EVAR but remains critical to determine the influence of AAA related complications on death. On the other hand, the mortality rate seems higher in the compliant group possibly because these are patients with identified risk (e.g., continued sac expansion or unfavourable sealing zones) were followed more closely. This inherent risk of bias has also been identified in other large studies evaluating the influence of compliance with post-EVAR imaging on overall mortality. A recent meta-analysis corroborates the counterintuitive findings of this study, suggesting no survival advantage for compliant patients.³ On the other hand, the somewhat disappointing late results of the EVAR 1 trial were attributed to absence of adequate follow up.⁴

While collaborations such as the ODYSSEUS study are valuable, they mainly confirm that current strategies for post EVAR surveillance are sub-optimal and appear to result in little, if any, benefit for patients. The way forward must include the identification of better surveillance techniques and protocols that EVAR patients comply with. Efforts must also be made to determine whether the lack of survival benefit for patients who are compliant with imaging follow up is real (in which case the entire concept of follow up is questioned) or rather the result of selection bias.

CONFLICT OF INTEREST STATEMENT AND FUNDING

None

REFERENCES

- 1 Geraedts AC, Mulay S, Vahl A, Verhagen HJM, Wisselink W, de Mik SML, et al. Postoperative surveillance and long-term outcome after endovascular aortic aneurysm repair in patients with an initial postoperative computed tomography angiography without abnormalities: the multicentre retrospective ODYSSEUS study. *Eur J Vasc Endovasc Surg* 2022;63:390–9.
- 2 Wanhainen A, Verzini F, van Herzele I, Allaire E, Bown M, Cohnert T, et al. European Society for Vascular Surgery (ESVS) 2019 clinical practice guidelines on the management of abdominal aorto-iliac artery aneurysms. *Eur J Vasc Endovasc Surg* 2019;57:8–93.
- 3 Grima MJ, Boufi M, Law M, Jackson D, Stenson K, Patterson B, et al. Editor’s Choice – The implications of non-compliance to endovascular aneurysm repair surveillance: a systematic review and meta-analysis. *Eur J Vasc Endovasc Surg* 2018;55:492–502.
- 4 Patel R, Sweeting MJ, Powell JT, Greenhalgh RM, investigators Et. Endovascular versus open repair of abdominal aortic aneurysm in 15-years’ follow-up of the UK endovascular aneurysm repair trial 1 (EVAR trial 1): a randomised controlled trial. *Lancet* 2016;388:2366–74.

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