

INVITED COMMENTARY

Starting to Remove Radiation and Iodinated Contrast from the Vascular “Equation”

Triantafillos G. Giannakopoulos *

Department of Vascular and Endovascular Surgery, Athens Medical Centre, Athens, Greece

In a well performed study, Wu *et al.*¹ compared imaging modalities for the follow-up of isolated mesenteric artery dissection (IMAD). More specifically, they demonstrated that the use of colour duplex ultrasound (CDU) in combination with contrast enhanced ultrasound (CEUS) was as efficient as computed tomography angiography (CTA) for the follow-up of IMAD without exposure to ionising radiation or iodine contrast use. Both methods were equally successful in monitoring vessel diameter and detecting the thrombosed lumen, entry points, and foci of minimum lumen diameter. Even though the European Society for Vascular Surgery (ESVS) mesenteric artery disease practice guidelines² do not recommend CDU alone as a routine method of IMAD follow-up, the authors demonstrated that the addition of bubble contrast to ultrasound imaging can make CDU plus CEUS compare favourably to CTA.

The message is very important as radiation exposure and contrast use mitigation are imperative both for the healthcare provider and for the patient. The recent ESVS abdominal aortic aneurysm (AAA) management guidelines³ emphasize that endovascular aneurysm repair (EVAR) related extensive research activity has provided insight into the importance of reducing radiation exposure and minimising iodine contrast use. In line with the above, Markar *et al.*⁴ recently suggested an increased risk of abdominal cancer after EVAR compared with open AAA repair in a cohort of almost 39000 patients, while a novel automated system for carbon dioxide standardized angiography seems to demonstrate promising results in safely reducing contrast use during EVAR.⁵

It might be the case that CEUS is a highly sensitive modality both for EVAR⁶ and for IMAD follow-up, as shown in the

present study. However, it is technically demanding, more time consuming, needs an experienced operator/interpreter and therefore has not gained wide adoption in clinical practice. Nevertheless, it is obvious that the way forward goes through removing radiation and iodinated contrast medium from the vascular “equation” and further research in this direction should be encouraged.

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* Corresponding author. Department of Vascular and Endovascular Surgery, Athens Medical Centre, 5–7 Distomou Street, 15125, Athens, Greece.

E-mail address: t.giannakopoulos@gmail.com (Triantafillos G. Giannakopoulos).

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