Correspondence

AV Fistulae

Sir,

We read with interest the prospective randomised trial by Mr Hamsho and colleagues comparing patency following femoro-infrapopliteal cuffed PTFE grafts with and without the addition of an adjuvant distal AV (arteriovenous) fistula.1

The authors concluded that AV fistulae confer no additional significant clinical advantage; however, they mentioned that “harmful effects attributable to AV fistulae are rare and there is always the possibility that individual patients may benefit from their application under exceptional circumstances”. In our view this latter claim cannot be justified.

Creation of an adjuvant AV fistula is believed to increase flow through the graft and therefore increase graft patency. However, the increased flow through the graft is shunted into the venous system when it can cause reversal of flow (“steal”) and hypotension in the distal artery. The latter should theoretically lead to a decreased distal perfusion and worse limb salvage rate despite a patent graft.

Those vascular surgeons involved in “access” surgery are well aware of the potential detrimental effects of AV fistulae due to arterial “steal”. It is a paradox that in “access” surgery surgeons creating AV fistulae are forced to invent techniques to eliminate the consequent decreased distal perfusion, while surgeons dealing with ischaemic limbs are creating bypasses with adjuvant AV fistulae to increase distal perfusion! The haemodynamics of the anastomotic adjuvant AV fistulae have been studied in a canine model since 1985 and the results suggested that their clinical use should be contraindicated as they rapidly lead to a reversal of flow in the distal artery, distal arterial hypotension and venous hypertension.2 Despite these facts, AV fistulae have been employed empirically as an adjunct to femorodistal surgery in many reports, although in many clinical series their use was not beneficial.3,5 The first of these articles was wrongly included by the authors as favouring AV fistulae and they cited eight additional articles as favouring the use of AV fistulae. However, all these articles but one were case series with no controls. In the only comparative study by Jacobs et al., improved patency was achieved in the AV fistulae group; however, in all patients the proximal vein was ligated and therefore no functional fistula was present and the larger anastomosis was the probable reason for benefit.6 It seems that all previous authors have failed to present even type III evidence in favour of adjunct AV fistulae.

In the article one patient in the AV fistulae group required amputation despite a patent graft. In a previous non-randomised study by the same authors, three patients (out of 43 in the AV fistulae group) also underwent amputation with patent grafts.7 This finding was also noticed in almost all the previously mentioned series. Additionally, in a recent article comparing femorodistal cuffed grafts with and without AV fistulae, there was no significant difference in patency. In this article a significant increase in limb salvage was favoured by the absence of an AV fistulae.8 Interestingly, either the inferior limb salvage rate or the unexpected amputations in the presence of patent grafts were attributed by all previous authors to reasons other than probable distal hypoperfusion. The two patients with clinically significant venous hypertension in Hamsho et al.’s study indicate that the creation of an AV fistula is a source of additional morbidity. In our view, the conclusion of this interesting trial should be that there is no role for adjunct AV fistulae in femorodistal grafts, as without adding a clinical advantage in terms of patency they have a definite risk of detrimental effects due to decreased limb salvage and venous hypertension. Its use in individual patients is not evidence-based.

M. K. Lazarides, E. Tzortzis and A. Papanagnou
Athens, Greece

References

1 Hamsho A, Nott D, Harris PL. Prospective randomized trial of distal arteriovenous fistula as an adjunct to femoro-infrapopliteal PTFE by-pass. Eur J Vasc Endovasc Surg 1999; 17: 197–201.
After cutting the ring of the attachment system, the individual stent-struts with hooks can be removed from inside of the aorta without damaging the infrarenal neck. After removal of the attachment frame and graft the aortic balloon is deflated and removed and at the same time an aortic clamp is placed below the renal arteries. This allows a conventional infrarenal anastomosis.

D. Blankensteijn, Utrecht, The Netherlands

References


No reply received