The fluid and sodium load administered each day following aortic aneurysm repair is likely to have an important influence on cardiorespiratory complications as well as on the return of bowel function. Given the lack of data regarding fluid management, Goueffic et al's conclusion that early nasogastric tube removal reduces complications must be treated with considerable caution. Further data are needed before any conclusions are drawn with respect to the place of the nasogastric tube in aortic surgery.

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Reply

We have read with interest the commentaries from Drs Walsh and Tang. Although recent studies are consistent with our findings, we agree that the lack of statistical power is an important drawback of this study. Definitely, a well-designed, multicenter and adequately powered clinical study should be performed.

Drs Walsh and Tang noticed that the present study does not report data regarding fluid management, which is known to influence postoperative complications. However, this monocentric study is a randomized trial and consequently ensures balance between patient groups in postoperative fluid management. Of course, the design of a future large study should take account of the fluid management during the postoperative period to avoid this drawback.

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Regarding "Improvement in the visualization of superficial arm veins being evaluated for access and bypass"

In their recent report, van Bemmelen et al (J Vasc Surg 2005;42:957-62) address the lack of standardized evaluation of upper-extremity superficial veins before dialysis access arteriovenous fistula (AVF) creation. The authors compared six different methods to determine maximum venous diameter and conclude that forearm superficial veins distend maximally in a sitting position without the use of a tourniquet with the arm dangling down after the use of warm water immersion.

Although we agree with the authors on the importance of standardizing the preoperative vein mapping protocol, we believe that the study has several limitations that were not addressed in the article:

First, no data are given on the reproducibility of the six methods. A paper in press from our group reports on the reproducibility of superficial venous diameter measurement by comparing an inflatable cuff with a manually adjusted tourniquet. We found superficial forearm venous diameter to vary as much as 28% when using identical assessment protocols on different days.[1] In the absence of reproducibility data on *each of the six* congestion methods, it is difficult to assess the influence of each method on measured venous diameter.

Second, we believe that differences in arm length and distribution of venous valves may be important confounding factors when venous diameters are measured in the sitting position.[2] This is corroborated by the fact that subject position was found to have a significant effect on superficial venous diameter (Figs 3 to 5).

Third, we wonder whether "maximum" venous diameter is a clinically relevant end point. This is because the intravascular pressure needed to achieve "maximum" venous distension is not necessarily representative of postoperative intravenous pressure.[3]

Fourth, the authors do not share our concerns about the ellipsoid shape of the superficial venous cross-sectional area (CSA) after maximum venous distension. After AVF creation, postanastomotic intravenous pressures will decline to pressures that do not result in a circular CSA.[3] This ellipsoid CSA shape will result in a higher resistance compared with a circular CSA shape with a comparable absolute cross-sectional area.[4] In contrast to van Bemmelen et al, we therefore think that the CSA shape is indeed an important characteristic of superficial veins and should therefore also be included as part of the preoperative vein mapping protocol.

In summary, we agree with van Bemmelen et al on the need for a standardized protocol for preoperative superficial venous assessment. Ideally, a standardized protocol should enable accurate and reproducible venous assessment, ultimately facilitating a better understanding and prediction of AVF maturation and function. In addition, standardized protocols will enable better comparison between different studies. Further research is needed to determine which patient position and venous distension maneuvers enable the most reproducible superficial venous diameter assessment.

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Reply

We read the above letter with interest, and we recognize the many contributions made by Tordoir et al to improve the planning of arteriovenous access procedures.

First, regarding the lack of data on reproducibility of the "congestion methods," the method-reproducibility of inflating a standard-size cuff to a standardized pressure is likely to be high compared with that of a manually adjusted tourniquet. The variation they found in measured vein diameters on different days is not necessarily a reflection of variability of the congestion method, but is more likely the result of fluctuations in baseline venous-wall muscle tone. This is affected by such things as temperature, activity, time of day, hydration, and mental stress, among others.

Second, regarding the influence of arm length and valve distribution, we did not gather data on either so we cannot comment on this. We look forward to seeing the author's data on this.

Third, regarding the clinical relevance of "maximum" venous diameter, the method we recommend (measurement sitting, after immersion in warm water) does not require any tourniquet application at all and, therefore, the intravenous pressure will be in the physiologic venous range. Aside from intraluminal pressure, an important mechanism for dilation of the vein, both after arterialization and after warm water immersion, is the increase in flow-related shear stress at the endothelial surface, resulting in nitric oxide release and vein-wall smooth muscle relaxation.

Fourth, regarding the elliptical cross section of superficial veins, we agree that superficial arm veins often do not have a circular cross-sectional area. A comprehensive description would indeed require reporting of both the longest and shortest axis of the ellipse. This would be better than using the largest axis only, as has been practiced in the past. We submit that averaging of the longest and shortest axis results in a single number, which can be practical, because the difference between the two after dilation is not more than 15%.

Finally, we re-emphasize that although size matters for arm veins, it forms only a small piece of the puzzle with regard to predicting arteriovenous fistula function compared with other vein characteristics such as wall fibrosis, calcification, superficial phlebitis, and central stenosis.

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