Eur J Vasc Endovasc Surg **22**, 383–384 (2001)

Correspondence

Intraoperative Monitoring

Sir,
This interesting report dealing with intraoperative monitoring during carotid surgery[1] cited our paper, published in 1996. We would like to make the following points:

(1) The position of the probe was continuously adjusted in order to get optimal insonation of MCA, as small movements of the patient's head may cause loss of the signal from the MCA.
(2) During surgery, systemic arterial blood pressure was continuously monitored.
(3) Data recorded at clamping allowed us to define a critical velocity level at which the onset of neurological deficit occurred.
(4) More than 300 cases have been operated on from 1994 under general anaesthesia, and no false negative results occurred in our hands.

We are surprised that ischaemia occurred with an MCA velocity of 80 cm/s during carotid clamping. It is not easy to understand how the authors could explain such a high MCA velocity corresponding to clamping ischaemia as it exceeds the "normal" baseline velocity (62 ± 12, Aaslid, 1982; 63 ± 9, Lindegaard, 1985 and $65 \pm$ cm/s, Harders and Gilfbach, 1985).

We would be grateful for the authors' comments regarding this discrepancy.

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available online at http://www.idealibrary.com on IDEAL®

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Authors reply

Sir,
We thank Dr Giannoni for his comments. We would like to emphasise, as published in our paper, that a vascular technologist was present during all carotid endarterectomy procedures performed under local anaesthesia. This allowed the continual adjustment of the probe so that optimal insonation of the middle cerebral artery was possible. In addition, an anaesthetist was present and the systemic blood pressure monitored invasively and manipulated pharmacologically if required.

The conclusion from Dr Giannoni's study was that an m MCAV equal or less than 10 cm/s was a more sensitive and specific predictor of clamp ischaemia than other TCD criteria.[1] As stated by Dr Giannoni in his letter, more than 300 cases have been operated on under general anaesthesia (GA) with a false negative rate of zero using this criterion (unpublished data). We assume that this should mean local anaesthesia (LA), as awake patient monitoring is the only 'gold standard' monitoring technique and can only be performed under LA. If these procedures were performed under GA, how was the accuracy of TCD confirmed? From our data, if this criterion had been applied there would have been 10 false negatives, all of whom may have been at risk without the insertion of a shunt, and it is for this reason that we cannot recommend this criterion.

With reference to the procedure with a high m MCAV of 80 cm/s corresponding to clamping ischaemia exceeding the 'normal' baseline velocity we would like to make the following points:

(1) In our opinion the stated 'normal' baseline velocities cannot be directly extrapolated to procedures performed under local anaesthesia. To our knowledge all 'normal' baseline velocities have been either performed in non-operative situations or in patients undergoing procedures under general anaesthesia.
(2) It is important to note that most volatile anaesthetic agents cause cerebral vasodilation, which will lower blood velocity measurements.

(3) The physological responses to carotid endarterectomy (CEA) performed under LA are different to CEA under GA.[2] Cerebral perfusion is dependent on systemic arterial pressure and data from several studies suggest that the mean arterial pressure (MAP) is higher during LA procedures.[3,4]
(4) The patient in question had a normal pre-op m MCAV of 60 cm/s and MAP of 120 mmHg. The MAP increased to 160 mmHg throughout the procedure and further increased to 167 mmHg during carotid clamping. We suggest that the m MCAV was elevated and maintained because of the elevated MAP during the procedure.
(5) Following clamping, the patient immediately developed a global deficit (the patient was unable to talk or squeeze the ball), which reversed on shunt insertion. despite only a small fall in m MCAV, an important observation was that the TCD became non-pulsatile on clamping and recovered following shunt insertion.

We believe that the conclusion reached in our paper is valid and that TDC cannot be relied upon to dictate the requirement for shunting.

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VCS for Venoplasties

Sir,

We read the interesting article of Komori *et al.*[1] which agrees with our early and mid-term experimental results[2] which showed that the application of an endothelial non-penetrating titanium vascular closure staple (VCS)[3] is effective and acceptable for venous reconstruction.

Experimental experience with VCS for venoplasties remains limited in the literature.[4,5]

Our experiments in pigs[2] with reconstruction of jugular, renal veins and vena cava after transverse venotomies comparing the Vascular Clip System and conventional interrupted 8/0 polypropylene sutures showed some advantages for the VCS technique: (a) reduction of reconstruction time, (b) shortening of re-endothelialisation time, (c) keeping the endothelial surface intact, (d) unchanged intima to media height ratio and (e) no significant stenosis in the renal veins and vena cava postoperatively.

Although VCS offers advantages in vascular surgery, its use remains problematic in atheromatic vessels and long-term studies are still unavailable especially in the venous system.

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