Jean-Marc Malinovsky MD PhD
 Antoine Cozian MD
 Olivier Rivault MD
 Nantes, France

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Evaluation of epidural catheter tip position

To the Editor:

We were very interested by the evaluation of the Arrow Flex Tip Plus™ (Arrow International Inc., Reading MI, USA) epidural catheter tip position by Hoshi *et al.*¹ We recently evaluated 11 Arrow Flex Tip Plus™ epidural catheters in regard to a possible cephalad progression using the Tsui method for confirmation of epidural catheter placement.² With patients' (age = 58 ± 11) informed consent and with Institutional approval, we attempted to thread the catheters cephalad. The catheters were inserted between T9–10 and L2–3 by a median approach (confirmed by *x-rays*). We were unable to thread the catheters cephalad more than one vertebra in all cases. All the catheters were left 5 cm into the epidural space and all were functional. The *x-rays* showed a cephalad tip in regard to the selected interspace in seven cases, but a caudad tip in three cases and in one case the tip was at the level of the selected interspace. Of the seven catheters, 11 presented loops into the epidural space (Figure), three of them taking the catheter tip below the selected interspace.

Thus we agree with the conclusion of Hoshi *et al.* that the Flex Tip Plus™ catheters tend to stay at the level of insertion, but we suggest that they frequently loop into the epidural space when threaded 5 cm. However, are conventional catheters different?

We looked at the tip position of seven more rigid tip Portex™ (Smiths Medical, Keene, NH, USA) catheters (after dye injection) which were also threaded 5 cm cephalad and introduced at a low thoracic interspace by a median approach. Only three catheters had their tip less than one vertebra cephalad in regard to the selected interspace. Three had their tip at the

FIGURE *X-ray* showing a loop frequently observed with the Arrow Flex Tip Plus™ epidural catheter (antero-posterior view).

selected interspace and one had its tip lower than the selected interspace. Epidural loops were also observed in two cases.

Consequently, we suggest that all types of epidural catheters should not be threaded more than 5 cm into the epidural space and should be introduced at an interspace near the target point related to the type of surgery.

René Martin MD FRCPC
 Martine Pirlet MD CSPQ
 Michel Parent MD FRCPC
 France Gingras MD
 Sherbrooke, Québec

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REPLY:

We would like to thank Dr. Martin *et al.* for their comments on our study of Arrow Flex Tip Plus™ (Arrow International Inc., Reading, MI, USA) catheter tip positions.¹ Martin *et al.* point out this catheter tends to stay at the level of insertion, as we did before. We agree with their suggestion; epidural catheters should be introduced at an interspace near the target point related to

the type of surgery. However in young patients in our study,¹ the catheter tip sometimes goes straightly cephalad and this might make the epidural block inadequate. When it is necessary to locate the catheter tip at a specific level, we suggest using x-rays to confirm catheter tip position even if the Arrow Flex Tip Plus™ catheter is used.

Takuo Hoshi MD
Masayuki Miyabe MD
Shinji Takahashi MD
Hidenori Toyooka MD
Tsukuba, Japan

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General anesthesia and simulator driving skills

To the Editor:

I would like to commend Sinclair *et al.*¹ on their recent article but take issue with certain points.

In their introduction they quote Kortilla's² work from 1977 and state no one has addressed fitness to drive following newer anesthetics. In 2000, we published two papers in the British Journal of Anesthesia. The first addressed the issue of using alcohol as a comparator for recovery from anesthesia³ and the second examined recovery after propofol.⁴

In Sinclair's study mean $\pm$ 2 SD alcohol concentration ranges widely from 0.061 to 0.097% blood alcohol concentration (BAC). We also found a wide range of BAC using the oral dose and suggested an *iv* infusion to reduce this. At lower alcohol concentrations we found a similar impairment to Sinclair.

The use of a driving simulator is to be applauded but a lack of real life applicability can be seen when before alcohol the subjects had a mean of two crashes in a short 20 min run. This does not appear to be a real-life simulation.

Previous investigators demonstrated impairment in psychomotor performance for four postoperative days.⁵ Should driving be banned until psychomotor performance on all tests returns to normal? It could be argued that a small degree of impairment, similar to that seen with a BAC of 0.02% (or propofol 0.2 $\mu\text{g}\cdot\text{mL}^{-1}$) would be acceptable to drivers. The impair-

ment seen at this level must be compared with that measured in patients receiving antidepressants or antihistamines. This is an issue that needs full and widespread debate.

Stuart A. Grant MB CHB FRCA
Durham, North Carolina

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Propofol 2% in two different oil-in-water emulsions: a randomized, double-blind study

To the Editor:

We evaluated two different propofol 2% formulations, a mixture of medium-chain and long-chain triglycerides (LCT/MCT propofol) and LCT propofol 2% in terms of hypnotic efficacy,¹ pain on injection anesthesia^{2–4} and development of hypertriglyceridemia.⁵

Fifty-nine patients were scheduled for thoracic surgery and prospectively randomized to receive one of the propofol formulations in a double-blinded protocol. Primary study variables were average propofol necessary to maintain a bispectral index (BIS) value of ≤ 45 , hemodynamic effects, evaluation of pain on injection and serum triglycerides concentration.

After premedication with 7.5 mg of oral midazolam, an *iv* cannula (16-gauge) was placed in the dorsum of the hand, anesthesia induced with 3 $\mu\text{g}\cdot\text{kg}^{-1}$ fentanyl and 2 $\text{mg}\cdot\text{kg}^{-1}$ of propofol. Following a very slow injection by hand the application was stopped after 60 mg and assessment of pain (five-point scale)