

Ci: concentration du produit dans le compartiment concentré ($\text{mg} \cdot \text{kg}^{-1} \cdot \text{ml}^{-1}$)

v: volume du compartiment concentré (ml).

Des dosages de M ont été effectués au niveau de l'extrémité de la perfusion par spectrophotométrie U-V pour valider le modèle théorique décrit par l'équation 1 (Figure 2). L'erreur relative moyenne (C calculée - C mesurée) a été de $0,01 \pm 0,04$.

Ainsi, ce procédé d'administration offre l'avantage d'être fiable, de réalisation rapide, et peut créer une alternative à l'emploi du propofol en perfusion continue.

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Vertigo after epidural morphine

To the Editor:

The report by Goundrey J.¹ nicely documents the appearance of disabling vertigo following epidural morphine. However, the author is misinformed about the lack of previous reports of incapacitating vertigo associated with epidural morphine. We recently reported a case² sharing many similarities with relation to sex, pregnancy, type of surgical procedure, drugs administered and clinical features (nausea and vomiting, pruritus and rotatory vertigo in particular). The associated unilateral loss of hearing and tinnitus lead us to the diagnosis of Meniere-like syndrome. In the case reported by Goundrey no mention was made of the latter symptoms. It would be interesting to know if evidence of a Meniere-like syndrome was also present as, in our experience, the symptoms were rapidly improved by continuous low-dose

administration of naloxone. In these two cases, since no other aetiological factors were found, vestibular dysfunction, although rare, may be added to the side-effects associated with epidural morphine. Moreover, vestibular dysfunction seems to be rapidly reversed by low-dose naloxone administration without affecting the quality of analgesia.

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REPLY

Linder, Borgeat and Biollaz are certainly correct that I missed their case report in *Anesthesiology*.¹ I believe the fact that my literature search also failed to reveal their report is due to the difference in presentation of our respective patients. While their patient demonstrated the classic triad of symptoms associated in Meniere's syndrome (deafness, tinnitus and vertigo), mine complained of vertigo alone.

It is interesting to speculate whether this is mere pedantry or that it represents a true difference in pathophysiology, assuming that both complications were indeed due to the injection of morphine into the epidural space. The aetiology of Meniere's Syndrome is by definition a labyrinthine disturbance, whereas vertigo may be due to labyrinthine problems or to central (cerebellar or brainstem) dysfunction. I have recently confirmed with my patient that vertigo was her only symptom.

I note with interest one similarity between our patients that Linder, Borgeat and Biollaz have not touched upon. Their patient experienced complications only with her second dose of epidural morphine, injected on the morning after surgery. My patient, although reacting to the only dose given, had also received epidural morphine without incident during her first Caesarean section some two years previously. Could this be an immunologically mediated response in a "sensitized" subject? Is the 10% incidence of "dizziness" noted for the first time by Fuller, McMorland, Douglas, Palmer and Constantine² reflective of the increasing number of women presenting for repeat Caesarean sections who have previously been exposed to epidural morphine?

Whatever the underlying mechanism or mechanisms, it seems clear that at least one new side-effect of epidural morphine has been revealed.

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