

## LETTERS TO THE EDITOR

### EPIDURAL MORPHINE

SIR,

We would like to comment on a letter from Dr. J.M. Wishart, regarding epidural morphine at home.<sup>1</sup>

Dr. Wishart's letter leaves the impression that epidural morphine has been accepted as one of the routine methods of pain management amongst anaesthetists. We disagree with him. We feel that since the mechanism of pain relief by epidural morphine has not been clearly elucidated and because of the associated complications, epidural morphine should remain as a special technique for pain management in a closely supervised environment and should be administered by the nursing and medical staff rather than by the patient or his relatives at home, as suggested by Dr. Wishart.

We are certain that Dr. Wishart is fully aware of the complications of epidural morphine and that informed consent for such treatment has been obtained from his patients. We would like to reiterate that, aside from pruritis<sup>2</sup> and urinary retention,<sup>3</sup> the most dreaded complication is respiratory depression. Prolonged apnoea has occurred many hours after epidural narcotic injection.<sup>4,5</sup> One explanation for this delayed respiratory depression is that once the epidurally injected morphine, which is poorly lipid-soluble, reaches the C.S.F., it will linger in the C.S.F. to be carried wherever the C.S.F. may flow. Eventually a significant proportion of the original dose may be carried rostrally. Once within the fourth ventricle the narcotic is close to the respiratory and cardiovascular nuclei, which are rich in opiate receptors.<sup>6</sup> A lipid-insoluble drug such as morphine penetrates these vital centres slowly and so respiratory and cardiovascular depression may not occur until many hours after the drug has been administered.

Therefore, epidural morphine for pain relief is not as innocuous as Dr. Wishart suggests and we certainly would not use this modality of pain management without close supervision of the patient.

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### REFERENCES

1. WISHART, J.M. *Can. Anaesth. Soc. J.* 28: 492 (1981).
2. REIZ, S. & WESTBERG, M. Side-effects of Epidural Morphine *Lancet* 2: 203-4 (1980).
3. BROMAGE, P. The Price of Intraspinal Narcotic Analgesia: Basic Constraints. *Anes. Anal. (Clev.)* 60: 461-3 (1981).
4. BOAS, R.A. Hazards of Epidural Morphine. *Anaesth. Intensive Care* 8: 377-8 (1980).
5. CHRISTENSEN, V. Respiratory Depression After Extradural Morphine. *Br. J. Anaesth.* 52: 841 (1980).
6. PERT, C.B., KUCHAR, N.J. & SNYDER, S.H. Opiate Receptor: Auto Radiographic Localization in Rat Brain. *Proc. Natl. Acad. Sci.* 73: 3729-33 (1976).

### FAILURE OF 4-AMINOPYRIDINE POSITIVE INOTROPIC EFFECT

DEAR SIR,

We have recently published the results of our study of 4-aminopyridine (4-AP) on the cardiovascular functions of the dog, in which we found that it has a positive inotropic effect.<sup>1</sup> Stimulated by these findings we have employed this drug in several patients with failed end of extracorporeal circulation pump run (unpublished observations), and in only one out of five cases was the patients' own circulation restored and, at that, for only 45 minutes. The dose of 4-AP varied in these cases from 0.3 to 1.0 mg·kg<sup>-1</sup> intravenously.

These therapeutic failures have led us to believe that even though 4-AP has a positive inotropic effect on viable myocardium, the conditions of extreme tissue hypoxia in these cardiac surgery cases can surely induce major disturbances in the calcium regulatory mechanisms, such as raised cytosolic calcium, high calcium mitochondrial overload, and impaired mitochondrial function that lead to failure of ATP production. The scavenging of high amounts of calcium by the mitochondria results in damaged energy generation leading to failure of the calcium sequestration mechanisms, induction of contracture activation of degradative proteinase(s) and phospholipases ultimately leading to cell death, as has been proposed by Nayler.<sup>2</sup>

Reperfusion of the coronary arteries after myocardial ischaemia, during cardiac surgery

with extracorporeal circulation, in patients with already damaged myocardium, evokes an excessive influx of calcium through the altered sarcolemma and may irreversibly damage the myocardial cells, even in the presence of a calcium-mobilizing drug, 4-aminopyridine.

Calcium is an important regulator in biological cell processes, especially in muscle cells. But even though 4-AP is a positive inotropic drug, it may not act to modify the altered excitation-contraction coupling process.

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#### REFERENCES

1. MARTÍNEZ-AGUIRRE, E., *et al.* Effects of 4-aminopyridine on the cardiovascular functions in the dog. *Canad. Anaesth. Soc. J.* 28: 114-120 (1981).
2. NAYLER, W.G. The protective effect of lidoflazine on ischemia and reperfused heart muscle. *R.S.M. Int. Congress & Symposium Series* 29: 79-87 (1980).

#### PREMEDICATION FOR PAEDIATRIC DAY-CARE SURGERY

DEAR SIR,

The excellent paper by Desjardins, Ansara and Charest on premedication for paediatric day-care surgery<sup>1</sup> confirms the practice and opinion of many paediatric anaesthetists. The use of premedication will usually confer little benefit on the child and will occasionally produce unwanted results, delaying the return of normal sensations and behaviour. Yet premedication remains a "routine" in many practices, often given by injection, thereby causing unnecessary pain and distress.

The statement that the presence of a parent during induction of anaesthesia, "is difficult and of no great value" must not go unchallenged, however. Using Vernon's method of assessment<sup>2</sup> we demonstrated a highly significant improvement in both global mood during induction and post-hospitalization behaviour when the mother was present during induction of anaesthesia in children undergoing outpatient surgery.<sup>3</sup> We also demonstrated a close correlation between the degree of disturbed behaviour at induction and behaviour after return home,

which Desjardins, Ansara and Charest were unable to detect. Children who became disturbed during induction of anaesthesia showed signs of psychological disturbance afterwards; the greater the upset, the greater the effect. We consequently routinely invited and advised the mother's presence at induction in all our subsequent practice, which has so far not produced any difficulties.

The omission of premedication may not be the final word in preoperative preparation. We believe that the psychological preparation of both mother and child at a short interview when surgery is first advised is beneficial, as is the provision of an anaesthetic room, especially one equipped for the entertainment of an alert active child.<sup>4</sup> But the single most effective improvement in acceptance of induction came with the adoption of concealed painless intravenous induction, using an intradermal spray of local anaesthetic or five second spray of ethyl chloride before a concealed injection.<sup>5</sup>

Finally, many intravenous injection agents are unsuitable for children because of pain on injection. We render methohexitone painless by adding a drop of lignocaine before injection.<sup>4</sup>

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#### REFERENCES

1. DESJARDINS, R., ANSARA, S. & CHAREST, J. Pre-anaesthetic medication in paediatric day-case surgery. *Can. Anaesth. Soc. J.* 28: 141-7 (1981).
2. VERNON, D.T.A., SCHULMAN, J.L. & FOLEY, J.M. Changes in children's behaviour after hospitalization. *Amer. J. Dis. Child.* 3: 581-9 (1966).
3. KAY, B. "Paediatric Anaesthesia without tears", Presented at Annual Meeting, Association of Anaesthetists of G.B. & I., London, England (1966).
4. KAY, B. "Brietal Sodium in Children's Surgery" in "Das Ultrakurz-narkotikum Methohexital" ed. Ehmann C, Springer-Verlag Berlin. 149-158 (1972).
5. KAY, B. Recent Advances in Pediatric Anaesthesia, *Surg. Clin. of N. Amer.* 44, 1595-1610 (1964).

#### DEFECTIVE TRACHEAL TUBE CONNECTOR

DEAR SIR,

I would like to draw to the attention of your readers the potential dangers of a recent problem encountered in the use of a DUPACO aluminum tracheal tube connector.