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Fentanyl and emesis

To the Editor:

We read with interest the recent two part review by Palazzo and Strunin on "Anaesthesia and Emesis".^{1,2} We were surprised by the statement that fentanyl had not been tested to evaluate its influence on vomiting.

Hackett *et al.*³ compared a fentanyl, nitrous oxide and oxygen technique with an enflurane, nitrous oxide, oxygen technique for outpatient termination of pregnancy. They found a 29 per cent incidence of nausea and vomiting in the former group compared to a 8 per cent incidence in the latter.

Similarly, Melnick *et al.*⁴ compared enflurane, isoflurane, and fentanyl for outpatient anaesthesia. All patients received droperidol, nitrous oxide and oxygen. The incidence of nausea and vomiting was 24 per cent in the fentanyl group but only 4 per cent in both the enflurane and isoflurane groups.

Interestingly, in both of the above studies there was no greater need for post operative analgesics in patients not receiving fentanyl compared to those who did receive fentanyl. We therefore try to avoid fentanyl for outpatients. We disagree with the statement by Palazzo and Strunin that "it is difficult to suggest that opiates used for the maintenance of anaesthesia should be omitted on the strength of their emetic potential, for this in our view is overwhelmingly offset by their other useful properties".

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REPLY

Dr. Sosis raises a number of points and we thank the Journal for giving us the opportunity to reply to them. Dr. Sosis correctly draws our attention to two studies^{1,2} that record postoperative emesis among patients who had received fentanyl as part of their anaesthetic management. Unfortunately the study by Melnick and his colleagues³ was unavailable at the time of preparation of our article.

*However, in our article we did not say that fentanyl had not been evaluated with regard to postoperative emesis, but that any data that was available came from trials that were primarily designed to investigate the haemodynamic or respiratory effects of fentanyl and that, for this reason, it is difficult to make comparisons with earlier work. In our view, a study designed for the investigation of emetic problems must include information and standardisation of at least some of the following factors: history of vomiting or motion sickness (including morning sickness), pre-medication, patient sex, number of anaesthetics and anaesthetic technique (in particular oropharyngeal stimulation and ventilatory assistance by mask). Furthermore, postoperative observation should be by a single person over a period of several hours paying particular attention to motion stimuli, pain, and administered analgesics. The multifactorial aspects of emesis makes these studies particularly difficult to control and this is amply demonstrated by the literature. Although the studies of Hackett *et al.*² and Melnick *et al.*¹ offer useful information, they were designed primarily for evaluation of techniques for short operations. Melnick's³ study suggests that fentanyl is superfluous and/or a menace when used for some day surgery. For relatively painless procedures we would accept this view, on the grounds that fentanyl may increase emesis and delay discharge.*

Dr. Sosis also questions whether the useful properties of fentanyl such as analgesia and haemodynamic stability ever outweigh its disadvantage to cause emesis. Our experience suggests that patients who undergo major surgery, such as abdominal or thoracic procedures, without any analgesic agent invariably wake up in

considerable pain. This subsequently requires management possibly resulting in greater overall opiate dose. Similarly, opiates play a useful role in maintaining haemodynamic stability during induction of anaesthesia.^{3,4} Under these circumstances we consider it more appropriate to use opiates to reduce the high incidence of postoperative pain or haemodynamic lability and then take all available measures to help reduce the thirty per cent possibility of vomiting.

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Nitrous oxide and its opioid emetic properties

To the Editor:

In their interesting review on emesis and anaesthesia, Palazzo and Strunin, state that nitrous oxide (N₂O) is well known as an emetic agent.¹ Although these authors mention that N₂O causes vomiting by both peripheral and central effects, their discussion of peripheral effects is quite detailed, whilst that of the central effects of N₂O is limited. In this respect, they only cite one author who claims that N₂O does not stimulate the vomiting centre, but give no further details.

Nitrous oxide has been shown in many studies both at the receptor level² and in vivo both in animals and man³ (for further references see ref. 3),

to interact with the endogenous opioid system and it is thus not surprising that it shares with other opiate and opioid substances substantial emetic properties. It is therefore possible to suggest that whilst the peripheral effects of N₂O may be of importance in producing emesis that its central effects are no less so.

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Muscarinic cardiac effects of pyridostigmine

To the Editor:

I should like to thank Drs. Donati, Bevan and Bevan for their interesting review of neuromuscular blocking drugs.¹ I was, however, disappointed to read that the slower action of pyridostigmine makes the drug unsuitable for antagonism of neuromuscular blockade, since it happens to be my favourite drug for this purpose.

Much has been made of Fogdall and Miller's report on pyridostigmine,² in which its muscarinic cardiac effects were stated to be no different from those of neostigmine. However, I submit that their data support an alternative conclusion. Although the degree of bradycardia induced by the two drugs appeared similar, in the presence of pancuronium or d-tubocurarine blockade, its onset was much more rapid with neostigmine. This difference was most striking in the subjects receiving the smallest dose of atropine, 0.3 mg, in whom maximum mean