Mazloomdoost M. Effect of nalbuphine hydrochloride on fentanyl-induced respiratory depression and analgesia. Anesthesiology 1984; 61: A475.

3 *Tran L, Durrani Z, Barabas E, Wang XY, Zsigmond EK.* Hemodynamic and endocrine effects of reversal of fentanyl-induced respiratory depression by nalbuphine. Anesthesiology 1984; 61: A476.

4 *Moldenhawer CC, Roach CW, Finlayson DC et al.* Nalbuphine antagonism of ventilatory depression following high-dose fentanyl anesthesia. Anesthesiology 1985; 62: 647–50.

5 *Martin DE, Rosenberg H, Aukburg SJ et al.* Low-dose fentanyl blunts circulatory responses to tracheal intubation. Anesth Analg 1982; 8: 680–84.

6 *Atweh SF, Kuhar MJ.* Autoradiographic localization of opiate receptors in rat brain. 1. Spinal cord and lower medulla. Brain Res 1977; 124: 53–67.

7 *Penning J, Samson B, Baxter A.* Nalbuphine reverses epidural morphine induced respiratory depression. Anesth Analg 1986; 65: S119.

8 *Wakefield RD, Mesaros M.* Reversal of pruritus, secondary to epidural morphine, with the narcotic agonist/antagonist nalbuphine. Anesthesiology 1985; 63: A255.

REPLY

Drs. Samson, Baxter and Penning present an interesting hypothesis which we did not consider during our study. We did not elaborate in our "Methods" section on further questioning we did of our patients who responded negatively to the question "Are you comfortable?" If patients indicated that they were not comfortable then they were indeed asked if they were having pain. The scale in the "Methods" section and Table IV use the word "pain." Those patients experiencing severe discomfort pointed emphatically to their surgical wound. This does not rule out the possibility of laryngeal discomfort, but we were convinced that patients 13, 18 and 20 had incisional pain.

The authors speculate whether the three patients who required morphine would have "settled down" had they been extubated immediately after their small dose of nalbuphine. Clinical judgment suggested, and our experimental protocol dictated the more conservative approach, however. Seven of the ten patients who received nalbuphine tolerated their endotracheal tubes for some time after the nalbuphine was administered. The tubes were left in place so that a ventilatory response to CO_2 could be performed. The nature of this latter procedure (progressive hyperventilation) is such that if the endotracheal tubes were the major source of discomfort, our patients should have become acutely distressed. Such was not the case.

We agree that the hypothesis of these authors warrants further investigation. From the above it should be clear that we are not as enthusiastic about how our results support the hypothesis, and remain convinced that nalbuphine reversed analgesia in several of our patients.

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Anaphylactic reaction to fentanyl or preservative

To the Editor:

We read with interest the recent paper by Bennett *et al.*[1] which represents, for the first time, a case report of vascular collapse, generalized erythema and urticaria following the administration of fentanyl. In their patient fentanyl allergy was later confirmed by intradermal test. Recently we encountered a case of anaphylactoid reaction following the administration of fentanyl during anaesthesia.

Our patient was a 45-year-old female who underwent three operations for dissecting aneurysm and pituitary tumour during a nine month period. During each of the three anaesthetics she developed anaphylactoid reactions including an urticaria-like skin rash and arterial hypotension (<60 mmHg systolic) following the administration of different anaesthetic agents. Based upon the time course of these events, 0.5 per cent lidocaine used for skin analgesia was suspected as a causative factor in the first event; 4.0 per cent lidocaine spray, which was administrated into the larynx and trachea, was suspected as a causative factor in the second; and in the third event, fentanyl was primarily suspected to have caused the anaphylactoid reaction.

It was later discovered that each of the preparations of the three drugs contain methylparaben as a preservative. Although methylparaben allergy has not been previously proven by several tests, including the intradermal test and the Prausnitz-Küstner test, this preservative was strongly suspected as a causative agent in our patient.

Stoelting[2] and Moudgil[3] suspect that anaphylaxis to local anaesthetics and muscle relaxants is mainly due to reaction to methylparaben. Swanson[4] proposed using small test doses (0.1 ml) of pure