had respiratory function tests before thoracotomy for carcinoma or pneumothorax. Patients were premedicated with temazepam by mouth and a cannula was inserted to the radial artery. Patients lay supine and had blood withdrawn for blood-gas analysis before taking four deep breaths of oxygen from a circle absorber receiving oxygen at 8 litre min⁻¹. Patients were exhorted to take as deep a breath as possible, and blood was sampled at the end of the fourth expiration. After a rest period blood-gas tensions were measured before and after 5 min quiet breathing with oxygen, after which patients were anaesthetized. As the efficacy of four deep breaths was unknown, the oxygenation methods were not randomized. Results are shown in table 1. Patients 2, 4 and 7 were better off breathing oxygen for 5 min. All others achieved adequate arterial oxygen tensions for clinical purposes following four deep breaths of oxygen.

Arterial carbon dioxide tensions increased after 5 min quiet oxygen breathing ($P < 0.005$) and decreased after four deep breaths ($P < 0.05$) (paired t test).

Patients had not practised deep breathing before the study; some coughed during deep breathing. Deep inspiration is known to induce cough in patients with irritable airways (Gayrard et al., 1975). Patients with a hiatus hernia open the hiatus during a deep breath as observed on awake endoscopy (Skinner et al., 1972) and we wonder whether four-deep-breath oxygenation in pregnant patients, who have a high incidence of hiatus hernia, would predispose to reflux.

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**REFERENCES**


**OPIOID RECEPTOR BINDING AND ITS SIGNIFICANCE**

**Sir,**—In your February 1985 issue there is a most interesting Editorial by Dr C. J. Hull concerning the opioid “receptor binding and its significance”.

Speaking about “anesthésie analgésique séquentielle” the author mentions deCastro as initiator of this technique (1968) and Rifat (1972) as the introducer of a “more conservative technique using smaller doses…” (of fentanyl and pentazocine).

I want to correct this last statement in supplying some information about our work with this method. Our first study on 165 patients using fentanyl 10-15 $\mu$g kg⁻¹ and pentazocine 0.5 mg kg⁻¹ was undertaken in September, 1969 and published in *Der Anaesthetist* (1970: 19, 245). Rifat reported initially in October 1969 on the use, in 20 patients, of sequential anaesthesia with fentanyl 2-3 mg (with supplements of 0.25-0.50 mg) followed by pentazocine 60 mg at the end of anaesthesia, and then continued with an infusion containing an additional pentazocine 60 mg. This report was published in *Pain* by J. P. Paine and R. A. P. Burt in 1972. As can be seen, our paper reported on moderate doses of fentanyl and pentazocine while the dosage used by Rifat was far from conservative—approaching the figures proposed by deCastro.

At the European Congress in Prague 1970 we, as well as Rifat, reported on our additional experiences with our respective methods. In 1982 at the European Congress in London, we reported on 2417 patients in whom we had used pentazocine 0.5-1 mg to counteract fentanyl in lower (2-8 $\mu$g kg⁻¹) and higher dosage (15-20 $\mu$g kg⁻¹) for inhalation and i.v. anaesthetics, respectively. From 1969 to 1985 a large number of anaesthetics were performed using pentazocine as a fentanyl antagonist. The results obtained were fairly constant so that, for 15 years, “sequentialization” has been in use in our country. This seems to be an interesting aspect supporting the more recent views concerning morphine receptors and ligands.

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**CUTANEOUS REACTION TO PANCURONIUM**

**Sir,**—Many anaesthetists have commented on the incidence of cutaneous reactions following i.v. administration of suxamethonium, tubocurarine (Stoelting, 1983) and atracurium (Rowlands, 1983). Not so many have reported cutaneous reactions following the administration of pancuronium.

A 19-year-old man was admitted for an arthroscopy of his left knee. He received pethidine 75 mg i.m. as a preanaesthetic medication 1 h before arrival at the operating room. He received pancuronium 0.75 mg i.v. before tracheal intubation facilitated by suxamethonium. Immediately after the injection of pancuronium, a localized erythematous reaction was noticed at the dorsum of the hand in which the i.v. cannula was placed. He also complained of itching. Haemodynamic values were normal. The reaction lasted for 15 min, and the patient was thereafter given halothane without complication.

Pancuronium causes very little histamine release, although allergic responses have been described (Heath, 1973).

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**REFERENCES**

