

thetist who has not seen apparently purposeful movements of the upper limbs immediately following the administration of suxamethonium, or even during subsequent tracheal intubation? This movement is I believe, a protest against the agonising twitches of depolarisation, or the discomforts of tracheal intubation, even though paralysis is supposed to be complete once fasciculation ends. Can those who disagree with this interpretation prove otherwise?

The proper dose of thiopentone, in other words the dose sufficient to abolish the motor response to pain, whatever significance this response has, (the 'induction' dose?), may be at least 50% more than the 'eyelid'

dose, and much more than the 'eyelash' dose.¹ It is time we agreed on how to assess the correct induction dose of thiopentone.

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Reference

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Anaesthesia for carcinoid syndrome

Carcinoid syndrome is a rare condition, encountered perhaps only two or three times in the professional lifetime of most anaesthetists. A comprehensive review by Mason and Steane¹ discussed the anaesthetic management of patients with carcinoid, emphasising the potential problems that may arise; they ended their review with a plea for further case reports. Subsequently, Miller *et al.*² described a series of nine cases of carcinoid syndrome requiring anaesthesia, and suggested that complications arising during operation were less frequent than previous papers had implied. They noted that a technique based on thiopentone, nitrous oxide and pancuronium seemed suitable.

We felt it might be of interest to report how we anaesthetised a patient with metastatic carcinoid tumours in the liver.

The patient was a 64-year-old white man weighing 100 kg, who presented with a progressive two year history of facial oedema and flushing, diarrhoea, episodic sweating and chills, and palpitations. The diagnosis was confirmed by grossly elevated levels of 5-hydroxy indole acetic acid in his urine, and a radioisotope scan and biopsy of the liver revealed the presence of extensive metastatic carcinoid tissue.

The treatment proposed included placing a catheter in the hepatic artery in order to infuse chemotherapeutic agents into the liver from an infusion pump placed subcutaneously.

Pre-operative examination revealed an obese man with a flushed face, and suffering from mild hypertension, but was otherwise unremarkable. Apart from moderately disordered liver function, his laboratory investigations were either within normal limits or showed no significant abnormality. Treatment at this time included prednisone, cimetidine, atenolol, phenolamine and cyproheptadine, (the latter is a serotonin and histamine antagonist).

The patient was premedicated with oral diazepam, intramuscular hydrocortisone and his usual morning doses of cyproheptadine, cimetidine and phenolamine. Additional hydrocortisone, cyproheptadine, metho-

trimeprazine, and infusions of sodium nitroprusside and phenylephrine were to hand, although aprotinin was not available.

After pre-oxygenation, the patient was induced with fentanyl and thiamylal, and then intubated following paralysis with pancuronium. Anaesthesia was maintained with nitrous oxide and oxygen, with low concentrations of enflurane being used as required to control variations in blood pressure, with excellent effect. Monitoring facilities included ECG, radial arterial line, central venous pressure, temperature, and urine output.

Throughout the operation, cardiovascular stability was maintained without difficulty, none of the 'emergency' drugs being required. Additional fentanyl and pancuronium were given as judged clinically appropriate. At the end, neuromuscular blockade was reversed easily, the patient awoke within minutes, and was transferred to the recovery ward in a stable condition. Postoperatively, his course was uneventful, and he was subsequently discharged to outpatient care.

Our experience, although 'anecdotal', supports Miller and Patel's view, that anaesthesia of a patient with carcinoid syndrome is not necessarily complex or difficult.

Nonetheless, we consider that it would be most unwise to anaesthetise such a patient without first reviewing the current recommendations for management of this rare condition.

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2. MILLER R, PATEL AU, WARNER RRP, PARNES IH. Anaesthesia for the carcinoid syndrome: a report of nine cases. *Canadian Anaesthesia Society Journal* 1978; 25: 240-244.