80-85% develop cardiovascular lesions and in 5-10% the central nervous system is involved. It has been suggested that syphilis predisposes to atheroma and that the lesions often involve the thoracic portion of the aorta. This association was also observed in our patient.

Syphilitic arteritis and aortitis have previously been reported. The most common sites of arterial involvement are the ascending aorta, the aortic arch and the pulmonary artery. Syphilitic aortitis is characterized by peri-aortic and meso-aortic inflammation with perivascular cuffing of lymphocytes around the vasa vasorum, as seen in our case. In the early stages of the disease Treponema pallidum may occasionally be demonstrated in the vessel wall by means of Levaditi’s silver impregnation staining method. Obstruction of the vasa vasorum follows, resulting in nutritional impairment of the medial coat together with degeneration of the muscle fibres. Aneurysmal dilatation eventually ensues as a result of weakening of the medial layer. Syphilitic aneurysms are either fusiform or saccular and may attain great size and compress contiguous structures. Rupture into the thoracic cavity, pericardial sac, oesophagus or vena cava are known complications.

Resection and grafting of aneurysms with Dacron prostheses now offer a much better prognosis than previously.

We thank Mrs M. Louw for typing the manuscript; Dr J. A. van der Westhuysen, Medical Superintendent of Tygerberg Hospital, for permission to publish; and Dr. J. J. Heydenrych for critical review of the manuscript.

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Awareness during total intravenous anaesthesia using etomidate

A case report

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Summary

Total anaesthesia using a combination of droperidol and fentanyl and an etomidate infusion was induced and maintained intravenously in a 29-year-old patient undergoing laparotomy for a colonic resection. Post-operatively the patient complained of awareness. Possible explanations for this are discussed.

Awareness during anaesthesia and surgical operations is well described. This is commonly associated with a nitrous oxide/oxygen/muscle-relaxant technique. A trend towards total intravenous anaesthesia has resulted in the omission of nitrous oxide from the method. We report a patient in whom awareness occurred using an etomidate infusion in place of nitrous oxide.

Case report

A fit 29-year-old electronics technician weighing 60 kg presented for performance of anterior colonic resection for multiple polyps in which carcinomatous changes had occurred. At the pre-operative visit he was assessed as being fit for anaesthesia (American Society of Anesthesiologists’ grade I). He had previously undergone one uneventful general anaesthetic by an inhalation technique for the repair of knee ligaments.

Premedication comprised droperidol 5 mg and papaveretum 15 mg intramuscularly 70 minutes pre-operatively. On arrival in the operating room the patient was sedated and calm. Intravenous induction of anaesthesia was achieved with droperidol 15 mg and fentanyl 500 µg over 5 minutes, followed by
etomidate 18 mg. Muscle relaxation and intubation were facilitated with alcuronium 20 mg intravenously. Anaesthesia was maintained with a constant infusion of etomidate 1 mg/kg/h (etomidate concentrate 125 mg/ml). Constant infusion of etomidate using a volumetric infusion pump was ensured by infusion through a centrally placed line inserted via the left antecubital fossa and checked by radiographic control.

The patient was ventilated, with an expired minute volume of 6 l using an air/oxygen mixture at a fractional inspired oxygen concentration of 0.4. Supplemental fentanyl 550 µg was administered in 50 µg intravenous bolus doses during the 180-minute procedure. Additional doses of alcuronium 5 mg and 2.5 mg were administered at 75 and 150 minutes respectively. The blood pressure was monitored on the right arm, and continuous oscilloscopic ECG monitoring was employed. Adequacy of ventilation was confirmed by a random arterial blood gas estimation. Etomidate infusion was discontinued at the end of the procedure, and the muscle relaxant reversed with atropine 1.2 mg and neostigmine 3 mg.

The time taken for the patient to open his eyes after cessation of the infusion and reversal of the muscle relaxant was 4 minutes, with response to verbal commands by 7 minutes. At the postoperative visit 5 hours later, the patient was resting and in no pain. He spontaneously reported recalling several events during the procedure. He was aware of endotracheal intubation, the passage of a nasogastric tube and of being positioned in the Lloyd-Davis rests. He heard the surgeon’s request to commence operating and his explanation to students about the colonic anatomy. At other times he heard voices, but could not recall with certainty what was said. The patient was not unduly perturbed about these events since he experienced no discomfort, pain or shortness of breath.

Discussion

Clinically stable anaesthesia was achieved using a technique of etomidate bolus followed by etomidate infusion together with droperidol, fentanyl and alcuronium. At no stage during the procedure was there any suggestion of light anaesthesia or of inadequate analgesia as might have been suggested by the occurrence of lacrimation, sweating, hypertension, tachycardia and small movements of the extremities. Haemodynamic stability was maintained throughout the procedure — the mean pulse rate was 64 ± 9/min and the mean systolic blood pressure 128 ± 7 mmHg.

Awareness during anaesthesia may be affected by premedication, the induction agent and technical and patient factors. Awareness during surgical operations performed under N₂O/O₂/muscle-relaxant anaesthesia has been well described, especially in relation to caesarean section. The quoted incidence of awareness in these patients was 2.5 - 4% and 4%. Although droperidol and low-dose fentanyl are not anaesthetic agents, the combination reduces the incidence of dreaming. Our patient received a total of 20 mg droperidol and 1050 µg fentanyl.

Etomidate is a hypnotic agent possessing no analgesic properties, and has been shown to be relatively non-cumulative and to be rapidly metabolized, but its elimination half-life, volume of distribution and systemic clearance rate vary considerably, whether after single bolus doses or continuous infusion. The plasma levels of etomidate at which patients were awake varied considerably — from 200 to 420 ng/ml. It would therefore appear that estimation of plasma etomidate levels is an unreliable indication as to whether the patient is asleep or awake.

The minimum infusion rate for etomidate has not yet been defined. Detection of awareness using clinical signs of anaesthesia is unreliable. The fact that awareness may possibly occur in the patient must therefore remain in mind when a technique incorporating an etomidate infusion is used by anaesthetists.

We acknowledge the constructive criticism of Professor C. H. van Hasselt in the preparation of this manuscript. Janssen Pharmaceutica kindly supplied the etomidate concentrate. We are grateful to Dr N. E. Howes, Chief Superintendent of Johannesburg Hospital, for permission to publish.

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