CHAPTER 1

Drugs for Sedation

Professor James Whitwam

Introduction

Modern endoscopic techniques are being practised by a progressively wider spectrum of specialists for a greater range of both diagnostic and increasingly complex therapeutic procedures, particularly in the fields of gastroenterology, urology [1], gynaecology and cardiology, by orthopaedic and vascular surgeons, and interventional radiologists.

Such procedures are at best unpleasant and can be extremely disturbing for many patients, causing anxiety amounting to fear and feelings of panic, particularly when the airway is compromised as may occur during endoscopy. Fear more than pain is a major stimulus to increased sympathetic activity, causing hypertension, arrhythmias, an increase in the myocardial oxygen demand to supply ratio with myocardial ischaemia, the risk of myocardial infarction and cardiac arrest which will be compounded by hypoxae mia.

Apart from anxiolysis, amnesia is also a desirable state in such patients ensuring that they have no fear of returning for further investigation or treatment. Arguably in this context a high degree of amnesia is equivalent to anaesthesia, with the advantage of maintaining verbal communication and avoiding the anaesthetic state with its complications, responsibilities and medico-legal implications.

Sedo-analgesia

Whenever possible, pain at the site of intervention, and hence nociceptive reflexes, should be obtunded by using a local anaesthetic drug. However, even under these circumstances, complete management of the patient includes sedation, not only to allay anxiety but also if the procedure is prolonged or the position uncomfortable. A combination of local analgesia and sedation is termed sedo-analgesia [1].

When pain occurs and local anaesthesia is not feasible, for example in colonoscopy and some gynaecological procedures, such as oocyte retrieval, it may become necessary to consider the administration of a centrally acting analgesic drug, e.g. fentanyl or alfentanil, which has a synergistic interaction with the sedative drug and may cause deep sedation or induce anaesthesia.
with loss of verbal communication and the airway, and also increase respiratory and cardiovascular depression. At any subsequent enquiry such an event implies that the practitioner and assistant are competent in the conduct of anaesthesia and resuscitation to standards required by specialists in anaesthesia [2]. Polypharmacy should by avoided except by suitably trained practitioners [2].

**Objectives of sedation**

1. Behavioural. Anxiolysis, reduction of attention, amnesia, maintenance of verbal communication and cooperation by the patient.
2. Physiological. Retention of a brisk glabellar eye blink response, reduction of sympathetic activity and possibly also muscle tone.
3. Monitoring. Arterial oxygen saturation (SaO₂) greater than 90% or within 5% of control values.

**Conduct of sedation for gastroscopy**

External stimuli can reduce the effectiveness of sedative drugs. The environment should be orderly and quiet with carefully planned illumination such that the total candela in the patients’ view are reduced to only a necessary minimum. After initial work up and stabilisation of sedation, repeated cuff blood pressure measurements are best avoided, and other monitoring equipment should be muted apart from alarms.

However, in view of the currently reported mortality rate, there should be **pre-requisites before sedation for gastroscopy is commenced**.

a) Availability of continuous monitoring with both a pulse oximeter and ECG.
b) Both the practitioner and assistant should have recently certified evidence of training in cardiopulmonary resuscitation.
c) Resuscitation equipment, i.e. oxygen delivery and ventilation systems, suction, defibrillator and drugs required for resuscitation should be immediately to hand.
d) There should be the possibility of rapid transfer to full critical care facilities (e.g. intensive care, operating theatres, transfusion).
e) An intravenous cannula should be introduced to allow continuous venous access.

**Drugs available for sedation**

All drugs used for the induction of anaesthesia by the intravenous route can be administered in smaller doses to provide sedation. Inhalational anaesthetic agents with analgesic properties, e.g. nitrous oxide, have been used