Broad complex tachycardia and Tropisteron

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EDITOR:
The prophylactic administration of 5-HT3 antagonists has proven beneficial in the prevention of postoperative nausea and vomiting [1]. However, there have been case reports of the arrythmogenic effects of some of these agents [2–5]. We would like to report one such incident probably associated with the use of tropisetron.

Case report

A 14-yr-old male (72 kg) was admitted to undergo an attic-antrostomy for chronic middle ear infection. Following 4 h of stable anaesthesia induced with fentanyl, propofol and sevoflurane and maintained with desflurane in an air/oxygen mixture, tropisetron (2 mg) was administered intravenously (i.v.). Twenty minutes later, during skin closure, he developed a broad complex tachycardia with a rate of 201 bpm (previous rate 80 bpm) with no changes in saturations or capnography and maintaining his blood pressure (95/60 mmHg). This was sustained and a 70 mg bolus of lignocaine was given i.v. with no effect, followed by 300 mg of amiodarone (in two boluses) and 20 mmol of magnesium sulphate. The broad complex rhythm persisted, slowing to 186 bpm and systolic blood pressure dropped to 75 mmHg. A synchronized monophasic DC shock (200 J) was administered, which restored rhythm to normal sinus and heart rate to 80 bpm. The duration of the event was approximately 12 min and arterial blood gas analysis revealed no acidosis, hypoxia, hypercapnia or electrolyte abnormality. Anaesthesia was discontinued, the patient awoke normally and was transferred to the paediatric intensive care unit for overnight monitoring. Subsequent 12-lead electrocardiography and transthoracic echocardiography revealed no abnormalities. The patient denied prior similar episodes or family history and no further arrhythmias were noted. Following consultation with a paediatric cardiologist and cardiac electro-physiologist he was discharged home with instructions to return if any syncopal episodes or palpitations occurred.

Correspondence to: Cormac Fahy, Department of Children's Anaesthesia, Women's and Children's Hospital, 72 King William Street, North Adelaide, SA 5006, Australia. E-mail: Cormac.Fahy@cywhs.sa.gov.au; Tel: +61 8 8161 7231; Fax: +61 8 8161 7020

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Discussion

The arrhythmia experienced was either ventricular tachycardia (VT) or supraventricular tachycardia (SVT) with aberrant conduction. Although the clinical impression at the time was that this was VT, cardiological opinion suggested that an SVT with aberrancy was more likely. The normal electrolytes, echocardiogram and electrocardiogram have prompted reflection as to the cause of the arrhythmia. While there are many causes of tachyarrhythmias during anaesthesia, the only notable event prior to this was the administration of tropisetron [6]. A previous report noted SVT accompanied by ST segment depression following i.v. tropisetron, which responded to sublingual nitroglycerin [7]. These authors postulated that the 5-HT3 antagonists may suppress the von Bezold-Jarisch reflex (BJR), which then leads to the development of tachyarrhythmias. This has been speculated upon previously regarding similar events following administration of ondansetron and dolasetron [2,4,5]. BJR is a cardioinhibitory reflex which classically induces bradycardia, hypotension and peripheral vasodilatation [8]. Blockade of 5-HT3 receptors on cardiac vagal afferents may result in cardiac stimulation leading to tachyarrythmias and sometimes ischaemia.

Tropisetron accompanying product information does mention the possibility of prolongation of QT interval but suggests that the relationship has not been established. The purpose of this report is to draw attention to a rare but noted potential complication of a very effective and useful group of agents.

C. J. Fahy, I. Ward, J. Hopkinson
Department of Children's Anaesthesia
Women's and Children's Hospital
North Adelaide, SA
Australia

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Evaluation of the i-gel airway in 300 patients

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EDITOR:

There are many types of supraglottic airway devices currently available. The i-gel airway, manufactured by Intersurgical UK, is a new single-use supraglottic airway device with a unique non-inflatable cuff made of thermoplastic elastomer (Fig. 1). The gel-like cuff accurately mirrors the perilaryngeal anatomy to create a perfect fit and enable rapid, easy, safe and reliable application [1,2]. The stem of the device incorporates a gastric channel that allows gastric tube drainage, a bite guard that improves device patency and a widened buccal cavity stabilizer that ensures stable position [1,2]. It has a display of size and patient weight guidance. It is similar to the Pro-seal laryngeal mask airway (LMA), but has better features [3]. This report is a prospective audit of utilization and observations of the i-gel in a UK teaching hospital, as there are limited published data regarding its performance.

After audit registration and patient consent, we used the i-gel in 300 adults, with body mass index 20–40, who underwent elective surgery under propofol–fentanyl–sevoflurane anaesthesia. The surgery undertaken included perineal, limb, superficial, ear, nasal and eye surgery. The nasal and eye surgeons rated the i-gel as satisfactory and un-impeding of surgery. The i-gel has reliably stable positioning and does not require tying/taping down. However, tying/taping was required for patients in the lateral position, to minimize displacement and ventilation leak. About 55 cases were anaesthetized and ventilated adequately in the lateral position. The i-gel was inserted easily in 20 patients in the lateral position.

Correspondence to: Olumuyiwa A. Bamgbade, Department of Anaesthesia, Central Manchester University Hospital, Manchester M13 9WL, UK. E-mail: mubitim@yahoo.co.uk; Tel: +44 161 2764551; Fax: +44 161 2768027

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The i-gel is designed for successful insertion in <5 s. It is easy to insert and remove because of its shape, contours, firm stem, bite guard and buccal stabilizer. We achieved rapid, first-attempt insertion within 5 s in 290 patients and second-attempt insertion within 10 s in 8 patients requiring jaw thrusts. We did not need to twist the i-gel or insert fingers in the patients' mouth. The i-gel was not successful in two obese male patients, nor was the standard LMA successful; and both patients required tracheal intubation. Ninety successful insertions were performed by first-time users such as anaesthesia trainees, medical students, paramedics, nurses and firemen who were training in our hospital. We found removal very easy, as did the trainees and recovery nurses. Three patients with difficult airway underwent successful fibreoptic endotracheal intubation through the i-gel airway, under general anaesthesia. The i-gel airway sizes 3, 4 and 5 will accommodate endotracheal tube sizes 6.0, 7.0 and 8.0, respectively.

The gel-like cuff minimizes airway trauma and neurovascular compression. Although two patients had blood on the cuff at removal, there were no reports of postoperative upper airway problems. The cuff provides adequate seal for all ventilation modes [1,4]. All patients underwent adequate pressure-mode ventilation with airway pressures of 10–30 cm H_2O initially and spontaneous breathing subsequently. The seal seems to improve over time probably due to the thermoplastic cuff warming to body temperature. The manufacturer recommends ventilation pressure $\leqslant$40 cm H_2O. We observed significant leak at pressures $>$33 cm H_2O. The i-gel is suitable for weaning patients off ventilation because of its seal, bite guard and minimal airway stimulation. An elderly patient and an obese patient with intraoperative respiratory difficulty were weaned off the anaesthetic ventilator with the aid

