ABSTRACT

**Title:** Suspected Anticholinergic Syndrome After Elective Anorectal Manometry Using Ketamine

**Introduction**
Anticholinergic syndrome (AS) is a multi-system disorder with a reported incidence of 1-9% after general anaesthesia (GA). Central manifestations include excitatory symptoms including agitation, central nervous system depression and hyperpyrexia. Hypertension, dysrhythmias, muscle tremors and rashes are also among reported signs and symptoms. AS was once a common phenomenon after general anaesthesia because of the frequent administration of the anticholinergic agents atropine and scopolamine. It is now infrequently reported due to the decline in use of these drugs and its occurrence in the paediatric population is limited to a few case reports. This diagnosis should be considered in patients with altered mental status following GA. Anorectal manometry is a specialist procedure undertaken in our tertiary centre using ketamine GA. We report a case of suspected anticholinergic syndrome after GA for elective anorectal manometry.

**Case report**
A nine year old girl presented for elective anorectal manometry and endosonography under GA. She was fit and well with a past history of constipation and bedwetting, no known allergies and no history of atopy. She had previously undergone a GA for MRI with sevoflurane with no complications.

Anaesthetic technique during the two hour procedure consisted of weight adjusted ketamine boluses (total 8mg/kg). Ketamine is the agent of choice in this procedure as it has been shown to have no effect on manometry readings. Glycopyrrolate (10mcg/kg) was administered as an anti-sialogogue due to excessive oral secretions from ketamine. In addition, ondansetron (0.13mg/kg), paracetamol (15mg/kg), and Hartmanns solution (12ml/kg) were given. The patient was stable throughout the procedure and transferred to recovery uneventfully. She remained in recovery for an extended period due to excessive drowsiness, pyrexia of 39°C and tachycardia of 150/min. She developed a widespread erythematous, confluent rash over her arms, legs, chest and face. There was no evidence of hypotension, bronchospasm, desaturation or angioedema at any point. The patient was considered safe for transfer back to the ward after 5 hours in recovery. She was alert and orientated, and observations had returned to normal. Post-operative chest and abdominal X-rays and bloods were normal. She was discharged home the following day.

The patient was referred to the paediatric allergy team for investigation but subsequent results were negative.

**Discussion**
AS is a multi-system syndrome and diagnosis rests upon clinical features, exclusion of other conditions and can be detected by a positive response to the centrally acting cholinesterase inhibitor, physostigmine, although this was not considered at the time. The possible differential diagnosis in this case was drug allergy however this was disproved by testing. The patient displayed some signs of a malignant hyperthermia (MH) type crisis. However, none of the drugs used in this case have been listed as causative agents by recognised MH groups. Finally, a dose-dependent side-effect of ketamine could have been a contributory factor, as some of the signs were consistent with this. AS may be underdiagnosed in the post-operative period due to lack of awareness or as a result of its varying presentation and we highlight the need for increased awareness of this syndrome, especially in the paediatric population where anticholinergic use is frequent.

**References**