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ONLINE CASE REPORT

Ann R Coll Surg Engl 2012; **94:** e159–e160
doi 10.1308/003588412X13171221590610

A case report of anaphylaxis to chlorhexidine during urinary catheterisation

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ABSTRACT

Chlorhexidine gluconate is a chemical antiseptic that is effective against Gram positive and negative bacteria and on certain viruses and fungi. A bacteriocidal and bacteriostatic agent, this cationic drug is absorbed on to negatively charged cell surfaces of organisms, disrupting the cell membrane, which results in increased permeability. Its use is mainly topical as a surgical hand antisepsis, site preparation/cleansing and for pre-genitourinary procedures such as urethral catheterisation. Like any drug, caution should be employed with its use as hypersensitivity reactions are being documented increasingly in the medical literature. In the following case, we present a patient who was catheterised with the chlorhexidine containing Instillagel® (CliniMed, High Wycombe, UK), prior to undergoing elective orthopaedic surgery.

KEYWORDS

Chlorhexidine – Anaphylaxis – Urinary Catheterisation

Accepted 4 December 2011; published online 30 April 2012

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Case history

A 67-year-old man had undergone a total knee replacement in 2005 for advanced osteoarthritis. He was an ex-smoker for more than 30 years and suffered from a slight left hearing deficit and tinnitus, for which he had follow-up with the audiology department. He also had primary open angle glaucoma and had bilateral upper lid blepharoplasties for blepharochalasis in 2009 as well as a left corneal implant in 1998.

This patient was reviewed by the orthopaedic team in 2008 for worsening right hip pain. In July 2009 he was found to have radiological evidence of early degenerative changes and therefore had an intra-articular hip injection in July and September 2009.

On the patient's pre-operative visit in March 2010 it was noted that he was allergic to chlorhexidine skin preparation and so iodine skin preparation solely would be used. He had an anterolateral right hip replacement that same month and was seen in July with complaints of lateral hip and groin pain, which led to an examination under anaesthesia (EUA) and intra-articular injection shortly thereafter.

At a follow-up appointment in October 2010 it was noted that the patient still had hip pain despite having had the previous intra-articular injection in September as well as an unremarkable EUA. It was decided to schedule an elective revision and exploration of his right hip prosthesis in December 2010. While under general anaesthesia, he was catheterised urethrally with the aid of Instillagel® (CliniMed, High Wycombe, UK) lubrication (later realised to contain 0.25% chlorhexidine) and developed an anaphylactic reaction subsequently with hypotension and a skin rash.

The patient was stabilised with parenteral adrenaline and chlorphenamine. The catheter was removed, the bladder washed out and the surgery abandoned. He was transferred to the ward safely with some complaints of pain in his bladder with and without voiding but he remained clinically stable otherwise. A full blood count taken after the event showed haemoglobin levels of 14.4g/dl, a white cell count of 11.19 x 10^9/l with lymphocytes of 6.12 and monocytes of 0.69 x 10^9/l. A blood film showed several atypical monocytes and lymphocytes with satisfactory basic chemistry results. His mast cell tryptase levels, taken serially on the day and one day after, were 4.77µg/l, 10.7µg/l and 14.8µg/l respectively (normal range: 10–14µg/l). He was discharged two days after the event and re-scheduled for the hip revision surgery.

The patient had skin prick testing to all drugs received in the peri-operative period (fentanyl, propofol, atracurium, rocuronium, levobupivacaine and a latex solution) and these were all negative. However, skin prick testing to 0.5% chlorhexidine solution produced two strongly positive wheal and flare responses with surrounding pruritus.

The patient went on to have an uneventful revision of his right hip replacement in January 2011 with the avoidance of all chlorhexidine products and was discharged from hospital four days after surgery.

Discussion

Chlorhexidine is used regularly among health practitioners as an antiseptic and disinfectant. It is available in many forms such as liquid mouthwash, solution, cream and gel. There have been previous reports of anaphylaxis to this drug.[2] Unfortunately, it can be present in potentially obscure forms such as the bactericidal contributing component to the now commonly used Instillagel®.

According to clinical guidelines on infection control,[3] the use of urethral lubricants is necessary prior to catheterisation. Instillagel® has a known usage contraindication in patients with hypersensitivity to the active ingredients (amide-type anaesthetics, chlorhexidine and alkyl hydroxybenzoates). However, while there are case reports of adverse reactions to Instillagel® in both the anaesthetic and urological literature, there are no reports to our knowledge in the general surgical or orthopaedic literature. Urethral catheterisation is a very common procedure prior to elective joint replacement surgery and staff need to be aware of the risks associated with using this product in patients with known allergy to chlorhexidine. More pertinently, they need to be aware that chlorhexidine is present in this product.

Conclusions

Anaphylactic reactions to chlorhexidine were once regarded as rare but recent literature seems to be challenging this.[2] The learning point from our case is that chlorhexidine should be used with caution, especially in topical applications, which have been postulated to be more of a risk with exposure to mucosal surfaces.[4] Mast cell tryptase levels were not particularly elevated in this patient and this should not rule out an allergy as basophilic degranulation rather than mast cells may be the casual factor.[5] (The ever increasing use of new agents should be met with as much criticism as reliance, especially with new reports of anaphylaxis streaming in. This criticism should include follow-up investigation for the presumed anaphylactic inducing agent.)

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