



ELSEVIER

Journal of
**Pediatric
urology**

CASE REPORT

Methylphenidate-induced erections in a prepubertal child

B.D. Kelly ^{a,*}, D.J. Lundon ^{a,1}, D. McGuinness ^{b,1}, C.M. Brady ^{c,1}

^a Department of Urology, Galway University Hospital, Ireland

^b Child & Adolescent Mental Health Service, Galway, Ireland

^c Cork University Hospital, Cork, Ireland

Received 19 December 2011; accepted 29 March 2012

Available online 30 April 2012

KEYWORDS

Methylphenidate;
Prepubertal erection

Abstract Methylphenidate is a medication used routinely in the management of attention deficit hyperactivity disorder. We report a case of a prepubertal child who developed unwanted erections after commencing a response-adjusted dosing regimen of sustained release methylphenidate. Despite priapism being a rare adverse reaction associated with methylphenidate, physicians and parents need to be aware as it can have significant long-term complications.

© 2012 Journal of Pediatric Urology Company. Published by Elsevier Ltd. All rights reserved.

Introduction

We present a case of a prepubertal 12-year-old Caucasian boy with recurrent erections. He had been on 36 mg of methylphenidate (CONCERTA[®], Janssen-Cilag Ltd Pharmaceuticals) for over 2 years for treatment of attention deficit hyperactivity disorder (ADHD). There were no medication compliance issues nor was he taking any other medications. His parents reported no other side effects from this

medication and an excellent improvement in his symptoms attributable to his ADHD medication.

Case report

The patient was diagnosed with ADHD 2 years previously and was initially commenced on oral methylphenidate 18 mg every morning by a child psychiatrist, and subsequently this dosage was adjusted up to 36 mg daily. He received this dose every day except Sundays which were his drug-holiday days. This 12-year-old boy had also been experiencing prolonged, painful erections unaccompanied by sexual excitation for 2 years. He experienced approximately three short-lived erections per day. No bladder, bowel or neurological symptoms were reported, nor were there any abnormalities detected on examination of his

* Corresponding author. Tel.: +353 857212337; fax: +353 91544130.

E-mail address: drbriankelly@hotmail.com (B.D. Kelly).

¹ All authors contributed equally to writing this article.

abdomen, spine or lower limbs. Both testes were also normal on examination with normal testicular volume for age. No abnormalities were found on investigation of other causes of priapism and testosterone levels were normal.

Given previous case reports of stuttering priapism associated with scheduled weekly medication withdrawals and drug holidays, the child's parents and psychiatrist were advised regarding this potential adverse reaction and, as a result, the medication was gradually reduced and subsequently stopped. No further reports of unwanted erections have been reported.

Discussion

OROS Methylphenidate is a long-lasting, slow-release version of Methylphenidate, and is used frequently in the management of ADHD in children over the age of 6 years [1]. The CONCERTA® tablet is coated such that an immediate release of drug is followed by a sustained release of the medication. Common side effects include abdominal pain, angina, headaches and drowsiness [2]. Methylphenidate is a stimulant medication, causing the release of dopamine from the presynaptic vesicles in dopaminergic nerves [3]. Sublingual dopamine agonists have been used as a treatment for erectile dysfunction, and hypersexuality is a recognised side effect of subcutaneous dopamine therapy in Parkinson's disease [4,5]. Therefore, it is probable that our patient's erections are mediated via the dopaminergic system.

Priapism is defined as a persistent erection that is not accompanied by stimulation or sexual desire, and that lasts in excess of 4–6 h. Two forms of priapism exist, low and high flow. Both forms are incredibly rare in the paediatric population. Priapism has been reported in prepubertal boys from a variety of causes, including sickle cell disease, trauma and malignancy [6–8]. Priapism requires urgent urological assessment to reduce the risk of long-term complications, which include erectile dysfunction, impotence and fibrosis [9,10].

Interestingly, in total there are only three case reports of priapism associated with methylphenidate in the literature: two cases of priapism associated with the withdrawal of methylphenidate and a case associated with commencement of the medication. In 2004, Schwartz and Rushton described the case of a 15-year-old boy who had been on oral methylphenidate (CONCERTA®) for management of ADHD. Priapism occurred during drug-holiday days, or on days when he forgot to take his medication. Relief of early morning unwanted erections occurred after taking his morning dose of methylphenidate [11].

A similar case was described in 2006 in the Canadian Adverse Reaction Newsletter. A 16-year-old boy on methylphenidate (CONCERTA®) for ADHD experienced persistent painful erections that lasted up to 24 h on days that he forgot to take his medication; the erections would resolve when the medication was taken [12].

In contrast, a case report of a 14-year-old boy with intermittent erections while taking methylphenidate for the management of ADHD has since been published. The unwanted erections ceased after the medication was

discontinued and no further unwanted erections were reported at follow up [13].

Conclusion

This is the first report of recurrent bothersome erections in a prepubertal child related to the commencement of methylphenidate. As this can be an embarrassing subject for a young adolescent or child to discuss, psychiatrists, paediatricians, parents and patient need to be made aware of this uncommon side effect.

Conflict of interest/funding

None.

References

- [1] Swanson J, Gupta S, Lam A, Shoulson I, Lerner M, Modi N, et al. Development of a new once-a-day formulation of methylphenidate for the treatment of attention-deficit/hyperactivity disorder: proof-of-concept and proof-of-product studies. *Arch Gen Psychiatry* 2003;60(2):204–11.
- [2] King S, Griffin S, Hodges Z, Weatherly H, Asseburg C, Richardson G, et al. A systematic review and economic model of the effectiveness and cost-effectiveness of methylphenidate, dexamfetamine and atomoxetine for the treatment of attention deficit hyperactivity disorder in children and adolescents. *Health Technol Assess* 2006;10(23). iii-iv, xiii-146.
- [3] Viggiano D, Vallone D, Sadile A. Dysfunctions in dopamine systems and ADHD: evidence from animals and modeling. *Neural Plast* 2004;11(1–2):97–114.
- [4] Mulhall JP, Bukofzer S, Edmonds AL, George M, et al. An open-label, uncontrolled dose-optimization study of sublingual apomorphine in erectile dysfunction. *Clin Ther* 2001;23(8):1260–71.
- [5] Voon V, Fernagut PO, Wickens J, Baunez C, Rodriguez M, Pavon N, et al. Chronic dopaminergic stimulation in Parkinson's disease: from dyskinesias to impulse control disorders. *Lancet Neurol* 2009;8(12):1140–9.
- [6] Mockford K, Weston M, Subramaniam R. Management of high-flow priapism in paediatric patients: a case report and review of the literature. *J Pediatr Urol* 2007;3(5):404–12.
- [7] Jesus LE, Dekermacher S. Priapism in children: review of pathophysiology and treatment. *J Pediatr (Rio J)* 2009;85(3):194–200.
- [8] Rogers ZR. Priapism in sickle cell disease. *Hematol Oncol Clin North Am* 2005;19(5):917–28. viii.
- [9] Hinman Jr F. Priapism; reasons for failure of therapy. *J Urol* 1960;83:420–8.
- [10] Spycher MA, Hauri D. The ultrastructure of the erectile tissue in priapism. *J Urol* 1986;135(1):142–7.
- [11] Schwartz RH, Rushton HG. Stuttering priapism associated with withdrawal from sustained-release methylphenidate. *J Pediatr* 2004;144(5):675–6.
- [12] Extended-release methylphenidate (Concerta) withdrawal: suspected association with priapism Canadian Adverse Reaction Newsletter, vol. 16; 2006. p. 3.
- [13] Cakin-Memik N, Yildiz O, Sismanlar SG, Karakaya I, Agaoglu B, et al. Priapism associated with methylphenidate: a case report. *Turk J Pediatr* 2010;52(4):430–4.