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Loperamide cause of prolonged urinary retention after acute gastroenteritis

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Abstract. – Urinary retention is uncommon in children and only one case has been described in literature with loperamide treatment. We report the occurrence of prolonged urinary retention in a 10-years-old girl after receiving oral loperamide for an acute gastroenteritis. The first episode of urinary retention lasted for 24 hours; radiological evaluation (Magnetic Resonance, cistography and renal ultrasound) did not find abnormality; it was necessary deplete bladder with catheterism. Previous to the gastroenteritis, diuresis has always been regular and she did not suffer for any neurological or urinary problems. Patient was submitted to, without success, percutaneous posterior tibial nerve stimulation (SANS) and recovered after one year clean intermittent catheterization.

Conclusion: **In a period of increasing popularity of self-medical therapy for common children's diseases, paediatricians should be aware of the potential, rare and chronic effects of this type of treatment. Moreover our case suggests that reaction to loperamide should be added to the etiological list of prolonged urinary retention in young patients.**

Key Words:

Children, Loperamide, Urinary retention.

Introduction

Urinary retention (UR) is a clinic condition characterized by spontaneous micturition disability and by the behaviour of holding urine, comporting an important risk of develop bladder or upper urinary tracts impairment. In fact, urinary stasis could cause a bacterial bladder over-growth and permit a colonization of the upper tracts. This event has an high risk of involving to renal failure. The main causes of UR in children can be urinary tract infections, spine's malformation such as myelomeningocele, neurologic traumas, psychological disturbances and effects of medications. Till now it has been signalled only a case of UR due to loperamide in pediatric population[1]. Loperamide is a pethidine (meperidine) derivative used in the treatment of diarrhea. It is an opioid agonist of μ receptors which mainly acts peripherally. The drug seems to be generally safe, although some cases of necrotizing enterocolitis have been reported in children[2]. Central effects such as nausea, dizziness, dry mouth, abdominal pain, and lethargy can occur in a minority of users. Hypersensitivity reactions have not been reported.

Case Report

A 10-year-old girl was admitted to the Paediatric Department of Catholic University of Rome with a history of UR. The patient had been admitted to another hospital 1 year previously with spontaneous micturition disability lasted since 24h. Anamnesis evidenced that some days before the girl was treated with oral loperamide (2 mg for 2 days) for an acute gastroenteritis and she was not administered it previously. The girl wasn't able to feel micturition sensation although till that moment diuresis was always been regular and urinary leakages had never presented. No other neurological or important diseases were reported. Catheterism to deplete bladder was immediately effectuated. This practise permitted to measure an amount of 550 cc of urine. Spine Magnetic Resonance was normal. She was also submitted to a 12 weeks treatment of percutaneous posterior tibial nerve stimulation

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(SANS) without any success. She urinated only by Credè's practise. The young girl was evaluated to our Paediatric Department for the first time one year later the acute episode. No therapies were administered. On examination she was in good health; a urodynamic test evidenced an initial urinary residual of 220 cc, a great micturition feeling at the maximal bladder capacity and no presence of the micturition phase. At the test main values were: Bladder Infusion Pressure (BIP) 18 cm H_2O, Bladder Capacity (BC) 558 cc, Bladder Pressure at Capacity (BP) 23 cm H_2O, absence of Unhibited Contraction (UC) and total urinary residual. Intermittent Clean Catheterization was started twice a day and micturition with Credé manoeuvre was done every three hours. A follow-up started and diagnosis of UR due to loperamide was made.

Three months later the patient came back to us to evaluate bladder function. At physical examination she was a well-developed girl who enjoyed excellent health, with no signs of renal failure or systemic distress, no oedema was apparent, no abdominal tenderness or pain showed. She referred that micturition was possible just through abdominal press and abundant urine residual was noted after catetherization. Urine microscopy and culture and renal ultrasound were negative. Cysto X-ray demonstrated well-outstretched, regular bladder, with a total capacity of about 900 cc. No active or passive Bladder-Ureteral Reflux (BUR) without evidence of micturition phase. It was planned another check-up to teach her to use Clean Intermittent Catheterization (CIC) and to make it 4 times/day.

Six months later she repeated urine microscopy and urinalysis that were negative. Cystomanometry revealed urinary residual of 450 cc, appearance of first micturition feeling at 793 cc and great one at 854 cc; EBP 5 cm H_2O, BC 905 cc, BCEBP 29 cm H_2O, no UC, no micturition phase developed. Urinary residual was total. It was avoided her to continue CIC four times/day.

On follow-up nine months later, our young patient didn't develop urinary infection; she was feeling well with no fever or renal failure but a progressive increase of sensation of bladder repletion was reported and the beginning of spontaneous micturition between catheterism. Five months later the patient stopped CIC and spontaneous micturition only with a minor help of Credé manoeuvre at the end of micturition was started.

Discussion

We described a 10-year-old girl with a presumptive diagnosis of urinary retention after treatment with loperamide. Although loperamide can cause urinary retention, this is to our knowledge the first case of prolonged retention described in the pediatric population due to loperamide. However, unusual clinical features were noted in our case: the disease occurred in a well-developed 10 years old patient (most of patients suffering from UR are under 5 years); it occurred in a girl without neurologic disorders and no previous urinary infections were present. Loperamide was approved in nonprescription use in 1998 and the total incidence of opiate sensitive is unknown. In vitro and animal studies show that loperamide hydrochloride acts by slowing intestinal motility and by affecting water and electrolyte movement through the bowel[3]. Loperamide binds to the opiate receptor in the gut wall. Consequently, it inhibits the release of acetylcholine and prostaglandins, thereby reducing peristalsis, and increasing intestinal time. Loperamide increases the tone of the anal sphincter, thereby reducing fecal incontinence and urgency and is indicated for the control and symptomatic relief of acute non-specific diarrhea and of chronic diarrhea associated with inflammatory bowel disease[4-6]. It prolongs the transit time of the intestinal contents reducing daily fecal volume, increasing the viscosity and bulk density, and diminishing the loss of fluid and electrolytes[7]. Adverse events have been reported after post-marketing experience of loperamide affecting skin and subcutaneous tissue, immune system, gastrointestinal, renal and urinary tract and nervous system. In case of overdosage of loperamide, urinary retention, paralytic ileus and CNS depression may occur. Children may be more sensitive to CNS effects than adults and the drug is not recommended in infants below 24 months of age. If symptoms of overdose occur, naloxone can be given as an antidote. The importance of obtaining a thorough drug history in children presenting with UR cannot be overstated. In conclusion, this case suggests that reaction to loperamide should be added to the etiological list of UR in young patients.

References

1) Wang HH, Shieh MJ, Liao KF. A blind, randomized comparison of racecadotril and loperamide for stopping acute diarrhea in adults. World J Gastroenterol 2005; 11: 1540-1543.
2) Berggren A, Sillen U, Rubenson A. In vivo motor effects of loperamide on the rat urinary bladder. Acta Physiol Scand 1992; 145: 33-37.
3) Szule E. Moderation of urinary and faecal incontinence with loperamide. Ther Hung 1989; 37: 234-236
4) Litovitz T, Clancy C, Komberly B, Temple AR. Surveillance of loperamide ingestions: an analysis of 216 poison center reports. J Toxicol Clin Toxicol 1997; 35: 21-23.
5) Perez-Calderon R, Gonzalo-Garijo MA. Anaphylaxis due to loperamide. Allergy 2004; 59: 369-370.
6) Seggev JS, Fink JN. Urinary retention as a result of administration of terfenadine. J Allergy Clin Immunol 1994; 93: 1071-1072.
7) Gasbarrini G, Corazza GR, Feliciani M, Albano O, Stufano N, Altomare E, Fontana G, Valpiani D, Chiodo F, Banterle C, et al. A multicenter double-blind controlled trial comparing lidamidine HCl and loperamide in the symptomatic treatment of acute diarrhoea. Arzneimittelforschung 1986; 36: 1843-1845.