LOPERAMIDE INTOXICATION IN A BABY

S H Tan

Department of Paediatrics
National University of Singapore
Singapore General Hospital
Outram Road
Singapore 0316

S H Tan, MB ChB (Manc.), M Med(Paed)
Senior Lecturer

SYNOPSIS

The essence of treatment of gastroenteritis in infancy and childhood is rehydration and the correction of electrolyte disturbances. Antidiarrhoeal agents are frequently used as an adjunct to treatment. Such drugs may not be as innocuous as previously thought to be and there have been several reports of opiate-like toxic effects with their usage in childhood diarrhoeas. In this paper, a case of loperamide toxicity is reported in a 5-week old Chinese male infant.

It is therefore questionable whether such pharmacological agents should be used at all in childhood diarrhoeas and one should be alerted to the possible toxic effects of such drugs such as respiratory depression, particularly those that are morphine derivatives.

INTRODUCTION

The management of gastroenteritis in infancy and childhood consists of rehydration and correction of electrolyte disturbances. Antidiarrhoeal agents like kaolin preparations and loperamide (Imodium) are also frequently used as an adjunct, especially by general practitioners.

Loperamide has been described as an innocuous drug but recently a few cases of opiate-like toxic effects have been reported from their usage in childhood diarrhoeas(1, 2).

In this paper, a case of loperamide toxicity is reported in a 5-week old infant treated for diarrhoea.

CASE REPORT

X.Y.E., a 5-week old Chinese male infant, weighing 4.7 kg, was admitted with a history of frequent apnoeic spells and cyanosis after 3 doses of loperamide at 6-hour intervals.

He initially presented with a history of mild diarrhoea and vomiting of 2 days duration, and was prescribed only loperamide 0.6 mg every 6 hours on the day prior to admission. After he had taken 2 doses as prescribed, he began to refuse his feeds and became drowsy. The parents continued with a third dose, after which he started to have apnoeic spells with cyanosis.

There was no significant past medical history. Birth history was uneventful, and he had been well since birth. There was no family history of seizures or allergies.

On clinical examination, he was febrile and not arousable. He was pale and cyanosed and had very frequent episodes of apnoea. The lungs were clear on auscultation. He developed a bradycardia with ventricular ectopics. The posture was opisthotonic and he had dystonic posturing with spasms of all limbs. Both pupils reacted equally to light but were pinpoint in size. The anterior fontanelle was normotensive. There was hypertonia of all limbs with hyperreflexia and a sustained ankle conus. Clinically the picture was that of respiratory depression and hypoxic encephalopathy.

Investigations revealed no evidence of sepsis or liver dysfunction. The metabolic work-up was normal except for a raised blood lactate of 58.2 mg%. The blood gases showed severe hypoxia with hypercapnia and metabolic acidosis.

The patient was managed with supportive treatment viz. intermittent positive pressure ventilation, together with mannitol to reduce cerebral oedema and phenobarbitone to decrease cerebral metabolism. His neurological state gradually improved and he was weaned off the respirator after 3 days.

When seen as an outpatient at 3 months of age he had mild hyperreflexia of the lower limbs but this eventually disappeared. At 9 months of age his developmental milestones were within normal limits and there were no abnormal neurological signs detected.

DISCUSSION

Loperamide (Imodium), a butyramide derivative is widely used as an oral drug for symptomatic control of diarrhoea. It has been said that it does not have an opiate effect in man at normal terapeutic doses (3,4,5).

Central opiate activity as shown by pupillary diameter measurements, does not occur at normal therapeutic oral doses (6,7,8).

Pharmacokinetic studies have shown peak plasma levels to occur within 4 hours after ingestion with a plasma half-life in man of 7 to 15 hours (9,10). In animal studies, maximal total radioactivity in the brain was detected at 8 hours(11).

Therapeutic trials have shown loperamide to be effective and safe in the symptomatic treatment of acute or chronic diarrhoea in both adults and children (12,13). It is said to be well tolerated with mainly gastrointestinal side-effects which may be related to the diarrhoeal condition itself (14,15).

There has, however, been several reports of loperamide therapy causing drowsiness, irritability and central nervous system signs suggestive of opiate toxicity in infants(1,2). In the United States of America, loperamide is not recommended in the paediatric age group under 12 years. For children younger than 8 years, the recommended therapeutic dose is 0.08 mg per kg. body weight daily. Loperamide may not be suitable for infants in particular as their blood-brain barrier may be immature. The use of it in children with severe, chronic or life threatening diarrhoea has been advocated (16,17). However, its role in the management of acute childhood diarrhoea is questionable if it can produce such severe opiate-like side effects.

The essential part of treatment in acute childhood diarrhoea is rehydration and correction of electrolyte imbalance. The correct treatment would be to rest the gut by eliminating all milk or solid feeds and substituting with glucose or dextrose saline feeds over 24 to 48 hours of acute symptoms(18). Antimotility drugs should only be considered as an adjunct to treatment rather than an alternative to treatment of dehydration, and may not be advisable at all in infants and young children. It may also prolong the illness in acute infective gastroenteritis(19).

In summary this is a case report of loperamide intoxication in an infant suggesting that the drug may have an opiate-like effect which is not desirable in children with acute gastroenteritis.

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