Hyoscine butylbromide associated psychosis: A case report

Durga Neupane[1], Nimesh Lageju[1], and Lokesh Jaiswal[1]

[1]BP Koirala Institute of Health Sciences

April 16, 2024

Abstract

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Hyoscine butylbromide associated psychosis: A case report

Durga Neupane[1], Nimesh Lageju[1], Lokesh Shekher Jaiswal[2]

MBBS, B.P. Koirala Institute of Health Sciences, Dharan, Nepal

Department of Surgery (Division of CTVS), B.P. Koirala Institute of Health Sciences, Dharan, Nepal

Authors

Durga Neupane

Email: neupanedurga26@gmail.com

ORCID iD

https://orcid.org/0000-0002-9736-9335

Nimesh Lageju

Email:Nimesh.lageju@yahoo.com

ORCID iD

https://orcid.org/0000-0002-1411-5867

Lokesh Shekher Jaiswal

Email: lokesh_shekher@yahoo.com

ORCID ID

https://orcid.org/0000-0002-0813-8747

Corresponding author

Durga Neupane

Email: neupanedurga26@gmail.com

ORCID iD

https://orcid.org/0000-0002-9736-9335

Word count: 1469

Running title: Hyoscine induced psychosis

Abstract

Hyoscine butyl bromide, an anti-spasmodic is often used for alleviation of colicky abdominal pain. Few studies have shown its safety and efficacy in children. Apart from common side effects, acute psychosis has been rarely reported. With this case report, we would like to reflect a message that hyoscine butylbromide should be used carefully in children, along with the emphasis on the correct dose, frequency and competency of the practicing clinician.

Keywords: hyoscine butylbromide; psychosis; children; abdominal pain; side effect

INTRODUCTION

Functional disorders of the gastrointestinal (GI) tract, not related with any organic, infectious or parasitic illness, are a regular cause of painful abdominal cramps, and have been estimated to occur in up to 30% of the adult population in Western countries (Sandler RS, Stewart WF, et al. 2000) (Bommelaer G, Poynard T, et al. 2004). Although abdominal cramping and pain is not life-threatening, it has a substantial impact on patients' quality of life (QOL) and considerable socioeconomic consequences (Maxion-Bergemamnn S, Thielecke F, et al. 2006) (Simren M, Brazier J, et al. 2004). Anti-spasmodics, analgesics, antacids, anti-diarrhoeals, laxatives and anti-gas products are the major drug therapies used for the relief of upper and lower abdominal symptoms (Quigley EMM, Locke GR, et al. 2006) (Poynard T, Regimbeau C, et al. 2001).

Hyoscine butylbromide is a derivative of the tertiary ammonium compound hyoscine (Evangelista S. 2004). Hyoscine, an alkaloid is present in the plant genus *Duboisia* which is grown in South America and Australia. It is chemically prepared by adding a butyl group to obtain a quaternary ammonium structure. This adjustment results in a molecule that still has anticholinergic activities comparable to those of hyoscine. But, in contrast with hyoscine, quaternary ammonium compounds such as hyoscine butyl- bromide should not be systemically absorbed. Limited systemic absorption may improve the adverse events profile compared with the parent compound hyoscine.

Herein, we report a case of hyoscine butylbromide associated psychosis in a 9-year-old-female child, with no significant personal and family history of mental disorder. She presented to OPD with a history of colicky abdominal pain and was prescribed hyoscine butylbromide 20mg to be taken three times a day. She experienced delusions and hallucinations after her second dose. A diagnosis of drug induced psychosis was established. She was asked to withdraw the medication and her psychotic features gradually disappeared. She was on her usual state of health after few days. On regular follow-up, she is free of symptoms.

CASE PRESENTATION

A 9-year-old female child was brought to the OPD with a chief complaint of abdominal pain for 1 day. The abdominal pain was generalized, acute in onset, colicky in nature without any aggravating and relieving factors. The child had been passing faeces and flatus. She had normal bladder habits. She did not give a history of vomiting. Her past medical history was not significant. She had never had a psychological problem before. Her family history was unremarkable. There were no psychiatric issues among the family members. She is from an upper-middle-class household. She eats two major and two minor meals every day as a non-vegetarian.

On examination, her general condition was fair. She was well oriented to time, place and person. On per abdominal examination, she had a soft, non-tender abdomen, no palpable organomegaly and normal bowel sounds.

A provisional diagnosis of non-specific colicky abdominal pain was made. She was then given a prescription for 20 mg hyoscine butylbromide to be taken three times a day for three days. The patient returned home

and took her first medication at midday and her second dose before bedtime.

Suddenly, at midnight, she woke up and began behaving strangely. She screamed and told that something was crawling over her back, which could indicate tactile hallucination. She experienced visual and auditory hallucinations as explained by her parents. Then, she was rushed to the emergency department at the same hospital where she was clinically assessed. At the emergency, she constantly attempted to pick things up from the floor (which was empty). She could not recognise her own relatives. She kept seeing her friends and often shouted at them to bring her a ball. The on-duty doctor found her to have features of acute psychosis in her and was referred to a psychiatrist.

A diagnosis of drug-induced psychosis was established. She was advised to withdraw the drug and her psychotic features gradually disappeared and was back to her usual state of health after a few days. On regular follow-up, she is free of symptoms.

DISCUSSION

Abdominal pain is reported by a third of school-aged children (Saps M, Seshadri R, et al. 2009). Although the use of analgesia to treat acute abdominal pain is well-supported (Falch C, Vicente D, et al. 2014), there is little evidence to lead the management of nonspecific abdominal pain in the emergency department, which accounts for two-thirds of cases of abdominal pain presenting to the emergency department.

In the pediatric study, hyoscine butylbromide, 10 mg given orally, was found to be beneficial compared to a homoeopathic preparation with no serious adverse effects (Müller-Krampe B, Oberbaum M, et al. 2007). One meta-analysis (Poynard T, Regimbeau C, et al. 2001) and one systematic review (Jailwala J, Imperiale TF, et al. 2000) concluded that antispasmodics, including hyoscine butylbromide, are effective in the treatment of abdominal cramping and pain/IBS. However, authors of another meta-analysis (Lesbros-Pantoflickova D, Michetti P, et al. 2004) disagreed with this conclusion.

As hyoscine butylbromide is barely absorbed, it is generally well-tolerated. In the two large-scale studies (Scha fer E, Ewe K. 1990) (Mueller-Lissner S, Tytgat GN, et al. 2006) that compared hyoscine butylbromide 30 mg/day with placebo (and paracetamol), 597 patients received hyoscine butylbromide and 592 patients received placebo. There was no significant difference in adverse events between the two groups including those commonly associated with anticholinergics such as nausea, constipation, dry mouth, blurred vision, tachycardia and urinary retention. Moreover, these adverse events not only occurred at a low incidence ([?]1.5%) but were also usually mild and self-limiting. No serious side effects were reported.

Herxheimer and Haefeli (Herxheimer A, Harfeli L. 1966) conducted a study in which three healthy volunteers received very high oral (single) doses of hyoscine butylbromide (200mg, 350mg and 600mg). These doses did not provoke anticholinergic effects, i.e. change in heart rate, vision or salivary excretion. The highest dose of 600 mg/day also did not produce CNS effects. For a subject weighing 60kg, this dose correlates into a dose of 10 mg/kg. As the lowest lethal dose (LD50)- value in a single-dose toxicity study in dogs, the most sensitive species, was 600 mg/kg, a safety factor of 60 for oral hyoscine butylbromide in humans can be extrapolated.

Despite the fact that there are also no data to support a difference in tolerability, one would expect that a locally active drug such as hyoscine butylbromide, which does not cross the blood-brain barrier, would induce a lower incidence of CNS/anticholinergic adverse events than systemically available smooth-muscle relaxants or drugs that do cross the blood-brain barrier (Tytgat GN. 2007). However, we report a case of acute psychosis due to toxicity of hyoscine butybromide.

Bulut et al presented a young female patient who progressively developed a series of complex neuropsychiatric symptoms including ataxia, slurred and rambling speech, stereotypic movements, vivid visual and auditory hallucinations, and self-mutilative behaviours in the days following the injection of hyoscine butylbromide in the emergency room to treat her menstrual cramps. A diagnosis of acute psychosis was established and was started on olanzapine. After few weeks, her condition was resolved (Bulut NS, Arpacıoğlu ZB. 2020).

Poonai et al randomly assigned children aged 8–17 years with nonspecific colicky abdominal pain who presented to the pediatric emergency department of London Health Sciences Centre, London, Ontario to receive hyoscine butylbromide, 10 mg given orally, or acetaminophen, 15 mg/kg given orally (maximum 975 mg) (Poonai N, Kumar K, et al. 2020). Hyoscine butylbromide was not excellent to acetaminophen in this setting. Adverse effects in the emergency department were reported by 32/116 (27.6%) participants in the hyoscine butylbromide group. Common side effects were nausea, vomiting, dizziness, and photosensitivity. There were no serious adverse effects (Poonai N, Kumar K, et al. 2020).

Conclusion

Only a few studies have shown the safety and efficacy of hyoscine butylbromide in alleviating abdominal pain in children without any severe adverse effects like acute psychosis being reported. The aforementioned case was a rare side effect of the drug. With this case report, we would like to reflect a message that hyoscine butylbromide should be used carefully in children, along with the emphasis on the correct dose, frequency and expertise of the practicing clinician.

Consent for study

As the patient was minor, a written informed consent was obtained from her father for the reporting and publication of this case report.

Funding

None

Conflict of interest

None

Ethical approval

Not required

Conflict of interests

None

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