Case study

Intravenous HyoscineButylbromide "scopolamine" for the Treatment of Extrapyramidal Symptoms. A case study

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ABSTRACT

Aim: Extrapyramidal symptoms (EPS) represent motor disturbances frequently induced by medications that impact the dopamine pathways. Although not traditionally employed for addressing EPS, there is potential in using hyoscinebutylbromide, an anticholinergic antispasmodic, owing to its mechanism of action that influences cholinergic receptors.
Presentation of case: We present a 34-year-old female patient, post-haemorrhoidectomy under spinal anaesthesia, who developed post-lumbar puncture headache with nausea and vomiting. A single dose of metoclopramide (10 mg) led to rapid onset of EPS—tremor, restlessness, and akathisia. Intravenous hyoscinebutylbromide (20 mg) resulted in prompt alleviation of EPS.
Discussion and Conclusion: This case highlights hyoscinebutylbromide's potential in managing medication-induced EPS, even in unconventional cases. Rapid symptom resolution and a 7-day follow-up without side effects underscore its short-term efficacy and safety. While broader application and mechanisms necessitate further research, hyoscinebutylbromide could be a valuable option for EPS management.

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Keywords: EPS, Antipsychotic Medications, Neurological Side Effects, Neuropsychopharmacology

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1. INTRODUCTION

Extrapyramidal symptoms (EPS) encompass a range of motor disturbances that can arise from the use of certain medications, most commonly antipsychotics and antiemetics[1]. Moreover, symptoms include dystonia, akathisia, parkinsonism, and tardive dyskinesia, and they can manifest as distressing motor disturbances, posing significant challenges in managing this psychiatric conditions [2, 3]. Meanwhile antipsychotic medications have revolutionized the treatment of mental illnesses, the occurrence of EPS remains a frequently encountered drawback, impairing the quality of life for many patients [4]. A metoclopramide, a dopamine antagonist frequently used for nausea and vomiting, is a well-known cause of EPS [5]. Furthermore, Hyoscinebutylbromide (scopolamine), has emerged as a promising therapeutic intervention for treating EPS and, long known for its anticholinergic properties, has been utilized in various medical contexts, including motion sickness, nausea, and irritable bowel syndrome [6, 7]. It is an anticholinergic agent, although not traditionally employed for EPS, its mechanism of action, which exhibits both peripheral and central antimuscarinic actions, encompassing sedative, antiemetic, and amnesic effects [8], suggests potential efficacy in managing these symptoms, It's worth noting that hyoscinebutylbromide has been reported in only a single case study, administered in a transdermal form, for the treatment of EPS [9]. By modulating the cholinergic system in the

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Newer , atypical anti-psychotic does not causes it.

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brain, scopolamine may counteract the excessive dopaminergic activity that underlies the pathophysiology of EPS [9, 10]. This novel approach to EPS management differs from traditional strategies targeting the dopaminergic system. In this case study, we delve into the intriguing potential of intravenous Hyoscinebutylbromide as an innovative and effective therapeutic approach to alleviate the burden of EPS, shedding light on the evolving landscape of neuropsychopharmacology and its implications for psychiatry.

2. PRESENTATION OF CASE

A 37-year-old female patient underwent a haemorrhoidectomy procedure with spinal anaesthesia, and her medical presentation one-day post-operation raised concerns about the development of persistent post-dural puncture headache (PDPH), accompanied by symptoms of nausea and vomiting. A single intravenous dose of metoclopramide (10 mg) was administrated to alleviate these symptoms. However, shortly following the administration of metoclopramide, the patient experienced tremors, restlessness, and a sense of akathisia, which raised suspicions of EPS as a potential side effect. Furthermore, the medical team initiated immediate intervention in response to the recognized EPS symptoms. Regrettably, benztropine and diphenhydramine commonly used medications for the treatment of EPS, were unavailable "out of stock." Consequently, the decision was made to consider alternative approach, to administer a low dose of benzodiazepine. Simultaneously, the patient received an intravenous injection of hyoscinebutylbromide at a dosage of 20 mg to alleviate the persistent nausea and vomiting. Remarkably, within 30 minutes after receiving hyoscinebutylbromide, the patient exhibited a significant reduction in tremors, restlessness, and akathisia. The motor symptoms showed substantial improvement, contributing to the patient's overall sense of comfort and relief and within 2-hour symptoms had disappeared. Throughout this medical intervention process, the patient was meticulously monitored for any potential adverse effects associated with administering hyoscinebutylbromide.

The patient's clinical response to intravenous HyoscineButylbromide therapy was observed to be favourable. Before the administration of hyoscine, the Extrapyramidal Symptom Rating Scale (ESRS) score [11], was recorded as "6." Within 30 minutes' post-administration of hyoscine, the ESRS score decreased to "4." Remarkably, this reduction in symptom severity continued to improve, with the ESRS score decreasing to an impressive "1" after 2 hours of hyoscine therapy. Notably, no adverse side effects were observed during or after the administration of hyoscine (Table 1). This clinical outcome suggests that intravenous hyoscine effectively alleviated the patient's EPS, leading to a notable improvement in her overall well-being and a significant reduction in motor symptom distress.

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Table 1. Patients Extrapyramidal Symptom Rating Scale (ESRS) score.

Comment [U9]: Reference ???// I sit well accepted rating scale

ESRS	Before treatment	30 minutes after treatment	2 hours after treatment
Impression of slowness or weakness, difficulty in carrying out routine tasks	0	0	0
Difficulty walking or with balance	1	1	0
Stiffness, stiff posture	0	0	0
Restless, nervous, unable to keep still	2	1	0
Tremors, shaking	3	2	1
Oculogyric crisis, abnormal sustained posture	0	0	0
Abnormal involuntary movements (dyskinesia) of tongue, jaw, lips, face, extremities or trunk	0	0	0

3.DISCUSSION

The treatment of EPS associated with antipsychotic medications has long been a clinical challenge, marked by distressing motor disturbances that can severely affect patients' quality of life and adherence to treatment[3]. There has been growing interest in exploring novel therapeutic approaches to address these adverse effects in recent years. One such approach involves intravenous HyoscineButylbromide (scopolamine), a medication traditionally employed for its anticholinergic properties in conditions like motion sickness and gastrointestinal disorders[7]. This case study delves into the intriguing potential of intravenous scopolamine as an innovative and effective intervention for the management of EPS.

The patient's favourable response to intravenous hyoscinebutylbromide and the subsequent absence of side effects are noteworthy. Follow up was done for the patient for 7 days' post-treatment without the recurrence of EPS or any new adverse effects underscores the short-term safety and efficacy of this intervention. Meanwhile, limited published research papers explore the potential of EPS associated with hyoscinebutylbromid. In a randomized controlled clinical trial of the augmentation of a standard antiemetic regimen consisting of metoclopramide and dexamethasone with transdermal scopolamine, the researchers observed a trend suggesting that scopolamine might possess inhibitory effects on EPS triggered by metoclopramide. However, the sample was small to achieve statistical significance [12]. Another case study also in line with our findings and additional investigation is warranted to explore the suitability of scopolamine as a viable therapeutic option for extrapyramidal symptoms induced by neuroleptic medications [9].

This case adds to the limited evidence regarding using hyoscinebutylbromide for medication-induced EPS. Given the encouraging outcomes observed here, future research could delve into larger cohorts to establish optimal dosing, safety profiles, and long-term effects of hyoscinebutylbromide in treating EPS associated with diverse pharmacological agents.

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4. CONCLUSION

Intravenous hyoscinebutylbromide demonstrated its potential as a valuable treatment for medication-induced EPS in this patient. The rapid resolution of symptoms observed in this case supports the consideration of hyoscinebutylbromide as an option for managing EPS related to various medications. Further investigation is warranted to understand better its role in treating EPS associated with different pharmacological agents.

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