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CASE REPORT

Accidental Ingestion of Risperidone in a Toddler with Autism

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ABSTRACT

Risperidone (RIS) is an atypical antipsychotic which can be clinically used to treat certain specific symptoms of autism in children and adolescents as per international guidelines and scientific literature. However, globally sparse literature is available regarding accidental ingestion and toxicity of RIS despite the increasing frequency of its usage in children and adolescents. A rare case of accidental RIS ingestion in a toddler with autism has been reported. It has been reviewed and discussed with the support of relevant literature regarding the clinical aspects and management.

Keywords: Accidental, Autism, Ingestion, Risperidone, Toddler.

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INTRODUCTION

Risperidone (RIS) is an atypical antipsychotic medication commonly used to treat psychotic illnesses in adults. There are a few reports in the Indian and global literature regarding its clinical toxicity profile in over dosages and accidental ingestions in those younger than 18 years of age.[1] The prescribing of second-generation antipsychotics, such as RIS has continued to increase over the past decade for children, adolescents, and adults.[2] Globally, sparse literature exists regarding RIS toxicity in children and adolescents. To the best of our knowledge, this is the first case of RIS ingestion and toxicity in a toddler with autism from India.

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CASE REPORT

A 3-year-old boy weighing 13.5 kg was referred for emergency psychiatric referral following ingestion of RIS syrup accidentally. He had consumed about 5 mL of RIS (1 mg/mL) approximately 2 hours prior to presenting in the casualty. Parents reported that he had been diagnosed with autism recently in view of speech delay, repetitive behaviors, inadequate social interaction, self-injurious behavior of eye poking, impulsivity, and hyperactivity. He was on syrup RIS 0.5 mL (0.5 mg) daily since past 1 month from a private psychiatrist. On day of ingestion, he was playing with toys in his room when mother found him crying excessively, restless, drooling of saliva, up-rolling of his eyes with the syrup RIS bottle lying spilt on the floor besides him. He had vomiting, inability to talk, or move his limb. Parents, however, denied any history of seizure phenomena on the day of ingestion or any prior history of seizure disorder.

The patient was initially taken up by Emergency Department and subsequently seen by pediatricians, pediatric intensivists, pediatric neurologists, and psychiatrists in a multidisciplinary team approach. On examination, the patient was drowsy, had slurred speech, was dribbling saliva, had rigidity in all four limbs, up rolling of eyeballs with Glasgow Coma Scale 10/15, and was afebrile. On examination, his vitals were stable. He was slightly drowsy, power was 3/5 in both upper and lower limbs. Deep tendon reflexes were sluggish. Plantars were upgoing. Blood investigations, such as complete blood count, serum electrolytes, serum creatine phosphokinase, serum creatinine, liver function test, lactate dehydrogenase, serial electrocardiograms, electroencephalography, and computed tomography imaging were normal and Neuroleptic Malignant Syndrome was ruled out. Serum assays for RIS were planned but could not be done at our setup. Continuous cardiac monitoring was done. He was kept for observation in Pediatric Intensive Care Unit for 3 days. Gastric lavage, supportive management, and intramuscular promethazine (50 mg over 3 days with 25 mg on day 1, 12.5 mg on day 2, and 12.5 mg on day 3) were given. On day 4, he was shifted to Pediatric Ward as rigidity had reduced clinically, extensor plantars reverted, and the motor power became fully normal at the time of discharge. Glasgow Coma Scale scores became normal. Patient was discharged on day 7 of admission. He was re-evaluated

prior to discharge and confirmed to have autism and serial follow-ups were planned. His autism assessment score on Clinical Autism Rating Scale showed severe autism. He had severe self-injurious behavior in the form of eye poking, which was reported historically and seen during assessments. He was started on tablet Aripiprazole 2.5 mg at night considering the severity of autism and self-injurious behavior of eye poking. His ophthalmological and neurological evaluation to rule out any organic basis of eye poking was normal. His Vineland Social Maturity Scale was functioning at 2 years and 8 months level and on Gesell Development Schedule functioned at 2 years 7 months level. He was started on regular sessions of sensory integration therapy, occupational therapy, speech therapy, and behavior therapy. He has been doing well on medication and therapy and has shown a significant reduction in his autistic symptoms and self-injurious eye poking behavior over the past 3 months during serial follow-ups.

DISCUSSION

Although the incidence of extrapyramidal symptoms associated with therapeutic RIS use is low, its occurrence following overdose is less clearly defined. Cheslik and Erramouspe[3] published a case of RIS overdose in a child and highlighted the potential for dystonic reactions at low doses. Accidental ingestion may respond well to an anticholinergic agent. Overdose management includes gastrointestinal lavage, activated charcoal with cathartic, cardiovascular monitoring, and supportive therapy. The therapeutic action of RIS depends not only on the parent compound but its major active metabolite, 9-hydroxyrisperidone (9-OH-RIS); pharmacokinetics is modified by the genetic polymorphisms of cytochrome (CYP2D6), the main site of RIS metabolism. Diverse symptoms of an acute RIS poisoning result from its interaction with multiple receptors, i.e., serotoninergic 5-HT2A and 5-HT7, dopaminergic D2, adrenergic alpha1 and alpha2, as well as histamine H1. The clinical picture of acute RIS poisoning consists predominantly of central nervous system and cardiovascular effects and the most severe symptoms are: hypotension, dysarrhythmias, consciousness disturbances, seizures, and respiratory failure. Quantitative determination of RIS blood concentration seems to be helpful in confirmation and monitoring of acute poisoning.[4] Antia et al[2] reviewed literature and identified 40 reports that included 63 patients, ranging in age from 1 day to 17 years of age.

The clinical presentations included drowsiness, lethargy agitation, irritability, combativeness, and tachycardia. There were 11 fatalities in the cases reviewed, 1 from clozapine overdose, 3 from RIS overdose, 2 from olanzapine overdose, and 5 from quetiapine overdose. All other cases reported no significant sequelae and resolved without any reported clinical consequences. Duration of overdose symptoms ranged from 24 hours to 7 days. They recommend that future case reports may additionally include serum medication level, weight of patient, co-ingestants, the health of the patient at baseline, relevant laboratory, and toxicology studies and standardized scale to rate the level of consciousness, such as the Glasgow Coma Scale.[2] Cobaugh et al[5] have reviewed the literature and have described an evidence-based consensus guideline for out-of-hospital management considering multiple factors of age of the child, type of atypical antipsychotic, dosage consumed, etc. They recommend that all patients less than 12 years of age who are naïve to atypical antipsychotic medications and are experiencing no more than mild drowsiness can be observed at home unless they have ingested more than four times the initial adult dose for the implicated antipsychotic medication or a dose that is equal to or more than the lowest reported acute dose that resulted in at least moderate toxicity, whichever dose is smaller. Any patient already experiencing any signs or symptoms, other than mild drowsiness, thought to be related to atypical antipsychotic medication toxicity should be transported to an emergency department. Continuous cardiac monitoring should be implemented, because of reports of conduction disturbances associated with this class of medications. Provide usual supportive care en route to the hospital, including airway management and intravenous fluids for hypotension. Depending on the specific circumstances, follow-up calls should be made to determine outcome at appropriate intervals.[5]

CONCLUSION

A case of accidental ingestion of RIS by a toddler with autism has been presented. The child was managed conservatively with good results. After this accident, child was put on medication and appropriate behavioral therapy for autism. He is showing good response.

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