

Risperidone Overdose with Acute Dystonia in Children - A Case Report

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Abstract

Prescription of atypical antipsychotics has been on increasing trend in adults and adolescents. The prescription of atypical antipsychotics to children is very common in developed countries. However, increased trend of atypical antipsychotics in use has also been paralleled by geometric progression in the incidence of intentional and non-intentional overdose. Although, the incidence of extrapyramidal symptoms were associated with lower therapeutic risperidone. In this juxtapose we present a case report findings of risperidone overdose presenting with acute dystonia at lower dosage. Since an overdose is commonly leads to neurological and cardiovascular involvement in children and also serial electrocardial monitoring is warranted. The treatment of risperidone overdose is mainly consists of gastric lavage, supportive therapy etc. Extrapyramidal symptoms associated secondary to risperidone overdose, readily responds to anticholinergics. In Indian context, a very few case fatalities were reported.

Keywords: Risperidone; Overdose; Children; Acute Dystonia

Introduction

Prescription of atypical antipsychotics to children, adolescents and adults has continued to increase over the past decade [1,2]. However, increase in use has also been paralleled by an increase in the incidence of intentional and nonintentional overdose [2,3]. Risperidone is an atypical antipsychotic medication used to treat psychotic illnesses in children and adults [4,5]. There are few reports in Indian and Global literature regarding its clinical toxicity profile in younger than 18 years of age [6]. Although, incidence of extrapyramidal symptoms was associated with lower rate of therapeutic risperidone, occurrence of the following over dosage is less clearly defined at global level [5]. Here, we are describing a case report of siblings with alleged history of consumption of risperidone presented in acute dystonia.

Case Report New Findings

Siblings aged 8 and 5 year old girls were brought by aunts to Paediatric casualty with alleged history of consumption of tablets from their grandmother for the treatment of Psychosis with chief

complaints of excessive sleepiness, restlessness and fewer episode of uprolling of eyes at 17 hours post consumption. Retrospectively, it was revealed that, an attempt was made by the family members for mass suicide. Children gave history of swallowing green (4 mg) colour tablets. Risperidone 4 mg tablets around 4 numbers, parents mixed with food and fed to each child (16 mg Risperidone to each child). After investigation, the children were admitted to PICU ward. At admission, the vitals were estimated, found to be stable. Children were drowsy (GCS 12/15) and had slurred speech. Multiple episode of torticollis and uprolling of eye balls lasting for 1 - 2 minutes were noticed. Neurological examination done was found to be within normal limits. Diagnosis of acute dystonia secondary to risperidone ingestion was made during the observational period. Gastric lavage and decontamination, supportive management followed by intravenous Promethazine 25 mg, for dystonia; second dose was repeated at 6 hours. There is no incidence of tachycardia or arrhythmia on serial electrocardiac monitoring. Subsequently, the routine blood investigations were sent to laboratory for fur-

ther process, planned for serum risperidone levels. Gastric lavage sample confirmed the presence of risperidone. An oral diphenhydramine [1 - 2 mg/kg TID] was given for next two days. Sensorium improved by six hours and speech normalised by 12 hrs. Episodes of tori collie and uprolling of eye balls reduced by 6 hrs and completely stopped by 24hrs. Children became asymptomatic by 36 hrs. Children were shifted to paediatric ward on day three of admission; and discharged on day 5 of admission and no complications noted at follow up.

Figure 1: Acute dystoniatorcicollis and oculogyric.

Figure 2: Day 3 of admission, post recovery.

Figure 3: At the time of final discharge.

Discussion

Risperidone is an atypical antipsychotic approved for the treatment of psychotic disorders in adults in 1994. Its major action is antagonism at serotonin and dopamine receptors and minor action by antagonism at alphaadrenergic receptors and histamine receptors [6-8]. Its primary metabolite is 9-hydroxyrisperidone, which has pharmacological activity similar to that of risperidone. The half-life of the active metabolite is approximately 24 hours [8,9]. Risperidone has proven effective in treating children and adolescents with neuropsychiatric disorder such as autism spectrum, conduct disorders, Tourette syndrome etc [4-8]. Increase in risperidone use has also been paralleled by an increase in the incidence of intentional and nonintentional overdose [2,3]. Although, the incidence of extrapyramidal symptoms were associated with therapeutic risperidone use, its occurrence following overdose is less clearly defined in the literature [10]. The most common adverse reactions associated with risperidone use are drowsiness, slurred speech, altered levels of consciousness, hypertension, tachycardia, electrocardiogram abnormalities, atypical motor behavior, tremors and other extrapyramidal symptoms [10,11] such as pseudoparkinsonism, acute dystonic reactions, akathisia, and tardive dyskinesia [8]. Electrocardiograph abnormalities are in the form of QT-interval prolongation. Central nervous system depression and extrapyramidal symptoms are less commonly associated with Risperidone [11]. The most likely explanation for extrapyramidal symptoms observed with risperidone is due to its antagonism at Dopamine

(D2) receptors [12]. The dystonia typically involves head and neck muscles and the tongue and, in its severest form, the oculogyric crisis, extraocular muscles, torticollis [8]. The high potency of the dopamine blocker, young age, and prior dystonic reactions may be predisposing factors for drug induced dystonia. Antia identified 40 reports that included 63 patients, ranging in age from 1 day to 17 years of age and found 3 fatalities attributed to risperidone overdose, all in patients who had been prescribed the drug [3]. Catalano reported fifteen year old female child, ingested 110 mg of risperidone with minimal adverse effects. Cheslik and Erramouspe reported a case with accidental ingestion of Risperidone about 4 mg and highlighted the potential for dystonic reactions at low doses [10]. There is a very close similarity between our case and case reported by Cheslik in form of consumption of low dose, yet with Extrapyramidal symptoms. Aciri and Henretig reported case series in 1998, which identified four cases of children and adolescents, from 16 months to 15 years, that ingested risperidone. Results were as follows: there were no symptoms that were more serious than dystonia (50%), tachycardia (25%), or lethargy (25%). Doses ingested ranged from 1 mg in the 16-month-old to 60 mg in a 13-year-old. The patients' conditions resolved with the use of diphenhydramine [10]. Treatment of overdose consists of Gastric lavage with or without charcoal, supportive therapy. There is no specific antidote. Children with Dystonic reactions benefit from anticholinergics. Intravenous diphenhydramine, 1 - 2 mg/kg/dose, or benztropine may rapidly reverse the drug related dystonia [11]. Dystonias in children should always suggest the possibility of antipsychotic exposure, often as a result of intentional administration by parents [12].

Conclusion

Physicians and junior doctors to be aware of colour specific dosage of Risperidone, which helps in calculating the consumed amount. Accidental ingestion of low doses of risperidone can also cause extrapyramidal symptoms in children and respond well to treatment with anticholinergic agents.

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