ORIGINAL RESEARCH PAPER

Pharmacology

A CASE STUDY OF UNUSUAL ADVERSE OUTCOME IN THE PATIENTS OF A NEURODEVELOPMENTAL DISORDER RECEIVING PHARMACOLOGICAL TREATMENT.

KEY WORDS: Methylphenidate, ADHD, Hyperhidrosis

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ABSTRACT

Hyperactivity and inattention is commonly observed in school going children. These are the components of a neurodevelopmental disorder known as Attention Deficit Hyperactivity Disorder which can be identified in few such children. An eleven years girl visiting to the OPD was diagnosed with attention deficit hyperactivity disorder. The treatment protocol for her included psychological and pharmacological interventions. Methylphenidate was prescribed to her, which is a central nervous system stimulant, a commonly used drug for the treatment of ADHD. Rare side effects have been reported with the use of this drug. Hyperhidrosis is one such side effect which was observed in our patient. After that, the dose of methylphenidate was reduced. It was observed that after about 6-month duration, she improved from the condition of excessive sweating.

INTRODUCTION:

Attention-deficit hyperactivity disorder (ADHD) is a chronic psychiatric disorder in which there is hyperactivity and/or inattention in children whereas adults experience inner restlessness, inability to relax, overtalkativeness, inattention, poor planning, and impulsivity.[1-3] Common symptoms occurring in the children are- uneasiness, cannot stay in place, has trouble waiting for the turn, talking without thinking, usually because of excitement or nervousness, excessive talking, and also interrupts others. The disorder has significant impact on psychosocial functioning manifested in the form of lower level of education, higher level of unemployment, criminal tendencies, unsuccessful relationships, and road traffic accidents. According to DSM 4, prevalence of ADHD is 5.9% to 7.1% in school going children. [4-6] Methylphenidate is a piperidine derived central nervous system stimulant generally used in the treatment of ADHD in children and adults. Methylphenidate rarely can cause an adverse reaction known as hyperhidrosis (excessive sweating). Here we are sharing one such rare case of school going girl child.

Case:

An 11year old girl with previous normal developmental history was diagnosed with ADHD of inattentive type. Her weight was 35kg. She was started on 10mg/day methylphenidate extended release tablets. She was kept on the same dose for two months. The symptoms of ADHD showed mild improvement according to her teachers and parents. As there was good tolerance to this dose, the dose was further increased to 18mg/day methylphenidate extended release tablets. Follow up was done after three months. The symptoms showed moderate improvement, but the girl developed hyperhidrosis (excessive sweating) on her face, upper extremities and trunk. Despite of this, same dose of medication was continued for 1 more month because of improvement in the symptoms. Though the symptoms of ADHD improved discreetly, hyperhidrosis also increased. For this, her dose was reduced to 10mg/day methylphenidate extended release tablets. With this, tablet atomoxetine 10mg/day was also started. After about 6-month duration, she improved from the condition of excessive sweating.

DISCUSSION:

According to the American Psychiatric Association, the Diagnostic and Statistical Manual of Mental Disorders, 5.9% to 7.1% of school aged children have ADHD. [4-6] Drugs used in the treatment of ADHD are CNS stimulants like amphetamine, methamphetamine, methylphenidate, non-stimulants like atomoxetine, clonidine, guanfacine, tricyclic antidepressants, escitalopram, bupropion, venlafaxine, etc.

Most children who are pharmacologically treated, receive CNS stimulants, of which, Methylphenidate is most commonly prescribed [7]. Methylphenidate is reported to reduce social, emotional and functional impairments experienced by ADHD patients. Common side effects with Methylphenidate are nausea, decreased appetite, weight loss, sleep disturbance. Apart from these, Methylphenidate is known to cause some unusual side effects such as hyperhidrosis, hallucinations [8], skin eruptions [9,10], obsessive compulsive symptoms [11], painful muscle cramps [12].

In Methylphenidate induced hyperhidrosis, exact mechanism of excessive sweating has not been understood completely. Methylphenidate is a dopamine and norepinephrine reuptake inhibitor, and the medications affecting these neurotransmitters are known to cause sweating abnormalities. Literature is available regarding few cases of dose dependent hyperhidrosis in children with ADHD. In few cases which were reported, the problem of hyperhidrosis was observed at the dose of 27mg/day or 36mg/day. This suggests that the occurrence of this adverse reaction is patient specific. When reaction is observed for a particular dose in patient, the medication can either be changed of the dose of methylphenidate can be reduced to the dose where the reaction was not observed. other neuropsychiatric drugs causing hyperhidrosis are Amphetamine, Buspirone, Carbamazepine, Citalopram, Clozapine, Desipramine, Donepezil, Duloxetine., Escitalopram, Fluoxetine, Haloperidol, Levodopa, Modafinil etc.
As per history of patient, there was temporal relationship between drug and the event. There was no any other possible cause for hyperhidrosis. Dechallenge was positive as patient recovered from reaction after decreasing the dose of Methylphenidate. On assessing with Naranjo causality scale, the score was 7, showing 'Probable' causality [13].

Methylphenidate is one of the most common central nervous system stimulants used in the treatment of ADHD in young patients. As it is widely used, its common as well as uncommon adverse effects should be taken into consideration as it can cause discomfort to the patients. In such cases, patient specific dose optimization may help in reducing the occurrence of adverse reactions. The clinicians need to consider this fact during the treatment and prescribe the medication accordingly. In case of any unusual adverse reaction, it should be reported immediately, and the dose should be reduced, or the medication should be changed accordingly.

CONCLUSION:

Methylphenidate is the most commonly prescribed drugs for

ADHD. In the present case study, it was observed that methylphenidate caused hyperactivity of the sweat glands. ADRs due to Methylphenidate ranged from rashes to systemic involvement. ADR reporting and monitoring program targets to identify and quantify the risks associated with the drug use and thus promoting rational use of drugs. Hence awareness is required among all the health care fraternity and consumers to practically involve in ADR reporting. Careful drug selection for ADHD patients must be highlighted in order to improve outcome, reduce ADRs and improve patient compliance. Regular follow up should be done with the patients receiving methylphenidate as it will help in identifying common as well as uncommon adverse effects of medication.

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