



Case Report

Acute Extrapyramidal Symptoms Associated with Concomitant Use of Amitriptyline and Oral Contraceptive Pills: A Case Report

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Abstract

Extrapyramidal side effects (EPS), commonly referred to as Drug-Induced Movement Disorders (DIMD), are among the most common adverse drug effects from dopamine-receptor blocking agents. The EPS reported with TCA include dyskinesia, akathisia, Rabbit syndrome and dystonia. This case report describes a case of acute dyskinesia and akathisia following ingestion of Amitriptyline in a female taking Oral contraceptive Pills (OCP). Clinicians should be aware of this possible interaction before prescribing dopamine blocking agents to women on OCPs. Careful monitoring and appropriate patient education is necessary.

Keyword: *Extrapyramidal side effects, Drug-Induced Movement Disorders, Amitriptyline, Tricyclic Antidepressants, Oral Contraceptive Pills.*

Background

Extrapyramidal side effects (EPS), commonly referred to as Drug-Induced Movement Disorders (DIMD), are among the most common adverse drug effects from dopamine-receptor blocking agents. DIMD was first described in 1952 after chlorpromazine-induced symptoms resembling Parkinson disease.¹ A variety of movements have been described along the EPS spectrum. Acute disorders like dystonia, dyskinesia, akathisia, and Parkinsonism, and tardive syndromes like tardive akathisia and tardive dyskinesia have been described. The symptoms of EPS are debilitating,

interfere with social functioning and activities of daily living. This is often associated with poor quality of life and abandonment of therapy which may result in disease relapse, particularly in Schizophrenics.²

Most frequently associated drugs with EPS are centrally acting dopamine receptor Antagonist. The first-generation antipsychotics haloperidol and phenothiazine are the most common agents associated with EPS. EPS occurs less frequently with atypical antipsychotics.³ Other agents that block central dopaminergic receptors have also been identified as cause of EPS, including anti-

emetics (metoclopramide), Serotonin reuptake inhibitors (SSRIs) and Tricyclic antidepressants (TCAs). The EPS reported with TCA monotherapy include dyskinesia, akathisia, Rabbit syndrome and dystonia.⁴

Risks factors include a history of prior episode of EPS and high medication dose.⁵ Elderly females are more susceptible to drug-induced Parkinsonism and tardive dyskinesia.⁶ The exact mechanism behind pathophysiology the of EPS is poorly understood. It is thought to be due to antagonism of dopaminergic D2 receptors within the mesolimbic and mesocortical pathways of the brain. The anti-dopaminergic action in the caudate nucleus and other basal ganglia may also contribute significantly to the occurrence of EPS.⁷

This case report describes a case of acute dyskinesia and akathisia following ingestion of Amitriptyline in a female taking Oral contraceptive Pills (OCP).

Case Report

A 25 year old female presented to emergency around 2:30 A.M with complaints of restlessness, abnormal perioral movements, and abnormal movements of limbs for 4 hrs. There was history of intake of tablet Amitriptyline 25mg, Pregabalin 75 mg and Aceclofenac 100 mg in the evening. She took single dose of the tablets following which she developed the symptoms. These tablets were prescribed for her radiating low back ache. There was no history of trauma. There was no other significant neurological and psychiatric history. Drug history revealed intake of oral contraceptive pills (Ethinyl Estradiol 0.03 mg +Levonorgestrel 0.15 mg) for past 2 months for Irregular menstrual periods.

On examination, Patient was conscious and oriented. She had perioral chewing, pouting and lip licking movements. Non purposeful movements of upper limb and lower limb were noticed. On asking the patient about the symptoms, she told she was not able to control the movements. All oral medications were stopped.

Due to extreme restlessness patient was sedated with IV Lorazepam.

Investigations revealed microcytic anemia (Hb-8.4g/dl, MCV-69fl, MCH-21.7pg, MCHC-31.5g/dl), deranged hepatic functions test (T.Bili-1.23mg/dl, D.Bili-0.62mg/dl, S.Prot.-5.92mg/dl, S.Alb.-3.94mg/dl, SGOT-146 IU/L, SGPT-336 IU/L and ALP-288 IU/L) and Hypocalcaemia (Ca-8.01 mg/dl). Anemia Profile revealed S.Ferritin-9.21ng/ml, S.Iron-16µg/dl, TIBC-458 µg/dl. Ultrasound was normal and viral markers negative. The patient was completely asymptomatic the next day. She was managed with Hepato-protective agents and iron supplementations and discharged on oral medications.

Discussion

In this case report we have described a case of acute Dyskinesia and Akathisia following ingestion of amitriptyline. Various forms of EPS have been described in patient taking TCAs. EPS may be challenging to distinguish from other idiopathic movement disorders. Various diseases which present with similar complaints are Huntington's disease (distinguished based on family history and genetic testing), Sydenham's chorea (identified with a history of streptococcal infection), Wilson disease (adolescent-onset) and cerebrovascular lesions. Restlessness in akathisia appear similar to anxiety and psychotic agitations.⁸

Our patient had history of usage of OCP pills for 2 months. Oestrogen can cause dyskinesia. Prior exposure to Oestrogen, neuroleptics and/or lithium is a risk factor for EPS.⁹ Our patient also had hepatic dysfunction. Tricyclic antidepressants rely on hepatic metabolism (via CYP2D6) and renal elimination. Patients may be more susceptible to the adverse effects of TCA, due to altered metabolism in the setting of liver dysfunction. TCA should be started at a low dose. If TCAs are deemed necessary, Nortriptyline and Desipramine can be preferred, due to low potency.¹⁰

Predictors of patients at risk for antidepressant induced EPS is not established. Though our patient had concomitant usage of oestrogen and TCA, interaction between both the agents is not well established. Hepatic dysfunction might have played a role in potentiating the side effects in this patient. Though dyskinesia can be caused by both Oestrogen and Amitriptyline, to our knowledge this is the first case report describing acute Extrapyramidal symptoms following single dose of Amitriptyline in a Women on OCP's. Further study into this interaction is needed. Clinicians should be aware of this possible interaction before prescribing dopamine blocking agents to women on OCPs.

Conclusion

Various drugs are associated with Drug Induced Movement Disorder (DIMD) also known EPS. Most common agents are centrally acting dopamine receptor blockers. EPS can interfere with patient compliance, causing significant morbidity and decreased quality of life. Clinicians should be aware of the potential for any class of antidepressants to cause EPS. Careful monitoring and appropriate patient education is necessary.

Declarations

Conflicts of interest: None

Source of Funding: None

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