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Chapter 4

Unveiling Haloperidol's Impact: A Case Report on Induced Parkinsonism and Extrapyramidal Symptoms

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1. Introduction

The onset of a parkinsonian condition in individuals receiving medication that inhibits dopaminergic transmission is the hallmark of Drug induced Parkinson [1]. After Parkinson's disease drug-induced Parkinsonism is the second most common underlying cause of Parkinsonism in the elderly [2]. Haloperidol a neuroleptic medication, is one of the primary causes of drug-induced Parkinson's disease in the global. One first-generation antipsychotic that is frequently used to treat schizophrenia is haloperidol [3]. Due to its propensity to cause a number of extrapyramidal symptoms, including tardive dyskinesia and Parkinsonism, haloperidol's use is restricted. The precise aetiology of extrapyramidal symptoms brought on by haloperidol is still unknown [4]. Dopamine turnover rate rises as a result of dopamine receptor blockade brought on by Haloperidol treatment. Because of this, Reactive Oxygen Species may be produced as metabolic by products [5, 6]. Apart from generating free radicals, the ingestion of Haloperidol is linked to a notable reduction in the levels of the antioxidant glutathione [7].

According to population research, there are 22.94 cases of drug Induced Parkinson's for every 100,000 person-years in the 50–99 age group. These findings can be extrapolated to the entire US population, yielding an estimated 20,000–25,000 incidence instances annually. According to a different study, which concentrated on people 64 years of age or older, 3.3% of these patients had drug Induced Parkinson's, or 37% of all cases of Parkinsonism [8, 9].

2. Case report

A 39-year-old male patient come to tertiary care hospital with chief complaints of weakness, stiffness in his body, and dysdiadochokinesia. Along with these symptoms, he also displayed slurred speech, increased salivation, and rigidity in his movements. He has a medical history of delusional disorder and alcohol dependence syndrome. Vital signs were stable, with a blood pressure of 120/80 mm/Hg, heart rate of 80 beats per minute, respiratory rate of 16 breaths per minute, and temperature of $98.6^{\circ}F$ $(37^{\circ}C)$. On the basis of chief complaints and investigation doctor advised Tablet Haloperidol (10mg) BD and Tablet olanzapine (10mg) TDS. After 2 days patient symptoms were worse, including stiffness resembling a cogwheel and a mask-like facial expression. On diagnosis Haloperidol-related extrapyramidal effects were identified. There is no history of Parkinsonism prior to the use of offending drug. To reduce these symptoms the patient was prescribed injection Promethazine 1amp BD, Tetrahydropalmatine (2mg) bid. oral, Olanzapine, Resperidone+Trihexyphenidyl HCL (Riswel-LS), and a vitamin B supplement. It was advised that the patient stop taking haloperidol. Following a seven-day course of treatment, the patient's symptoms subsided, and they exhibited signs of improvement.

3. Discussion

One common antipsychotic drug used to treat schizophrenia is haloperidol, which functions mainly as a dopamine inverse agonist. Although it is useful in treating psychotic symptoms, it has significant extrapyramidal side effects, most notably movement abnormalities. The signs of these negative effects can range from uncontrollably slow or sluggish motions to stiff muscles and expressionless facial muscles [10, 11]. Low affinity for acetylcholine receptors and inhibition of serotonergic 5-HT2A and dopaminergic D2 receptors comprise the underlying pathogenic process. One notable side effect of haloperidol use is drug-induced Parkinsonism, which is usually reversible and can take several months to more than a year to manifest in certain circumstances. About 20% of cases, however, may still have symptoms, in which case antipsychotic-induced Parkinson's disease and suitable dopaminergic medication should be taken into consideration. Its long half-life of

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15 to 19 hours and high hepatic metabolism are responsible for its prolonged duration of effect [12]. Standard dosage-induced prolonged extrapyramidal symptoms (EPS) may be made worse by concomitant alcohol dependence syndrome, which reduces hepatic clearance. Thus, careful haloperidol dosage control is essential, especially in individuals with hepatic impairment, requiring dose modifications to reduce the possibility of long-term side effects.

4. Conclusion

Extrapyramidal symptoms (EPS) brought on by haloperidol may last for several weeks or months after the medication is stopped. Physicians must regularly evaluate their patients in order to track their development and stop unfavorable events from getting worse, which improves both the patient's health and financial results. Accurate diagnosis, stopping the causing medicine, lowering risk factors, and supportive care are the main management tactics. Depending on the unique circumstances of each patient, preferential use of second-generation antipsychotics with a lesser propensity to cause extrapyramidal symptoms, such as clozapine, quetiapine, and risperidone, may be considered. The objective of this strategy is to maximize therapeutic effectiveness while lowering the possibility of very detrimental side effects from first-generation antipsychotics.

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