

**Leukopenia in a patient on haloperidol decanoate: a case report****Samreen Ahmed\*, Saima Warraich**

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**ABSTRACT**

We are reporting a case of leukopenia developed in a patient on haloperidol decanoate injections. A literature review revealed it as an uncommon side effect of antipsychotics; however, regular monitoring of blood cell count is crucial in patients on antipsychotics. In this case report, we discussed the effective doses, side effects, and drug interactions of haloperidol decanoate. Neuroleptic malignant syndrome is a rare but serious side effect of haloperidol.

**Keywords:** Diabetes, Haloperidol, Leukopenia, Dry foot gangrene

**INTRODUCTION**

Most common causes of neutropenia are drugs and toxins.<sup>1</sup> Some of the drugs that can cause neutropenia are antibiotics, antimalarials, and antifungals.<sup>2</sup> Haloperidol decanoate, an injectable form of haloperidol, is usually administered once every month. Haloperidol is a typical antipsychotic and works as a dopamine D1 and D2 receptor antagonist. The duration of absorption of haloperidol decanoate is 2-4 weeks. Haloperidol is usually cleared by hepatic enzymes. The half-life of haloperidol is 18 hrs but for decanoate its 3 weeks.<sup>3</sup>

**CASE REPORT**

Mr. XYZ is a 56-year-old Hispanic male, single, unemployed, with past psychiatric history of cannabis use disorder, schizoaffective disorder, and schizophrenia; disorganized type. Patient has past medical history of diabetes. Patient has multiple hospitalizations in the psychiatric unit. Due to non-compliance, the patient was prescribed monthly haloperidol decanoate injections. This time, the patient was presented

in the emergency room with psychosis. Psychiatry was consulted for agitated behavior, but the patient was admitted to the medicine floor because of having foot gangrene. During psychiatric evaluation in the emergency room, patient seemed to be older than the stated age, agitated, uncooperative with poor eye contact. Patient's speech was clear and coherent. His mood was found to be neutral with constricted affect. Thought process and thought content was not assessed since the patient refused to cooperate during the interview. Patient's insight, judgment, and impulse control seemed to be poor. During the hospital course, he was due for his haloperidol decanoate dose hence patient received haloperidol decanoate. After 2 days of receiving haloperidol decanoate, 200 mg intramuscularly, patient developed acute leukopenia with a drop in white cell count from 7000 to 1000 cells/mm<sup>3</sup> in a matter of only 3 days. Patient's medications were reviewed; unasyn and haloperidol, in addition to foot gangrene, were considered as a possible cause.

Hematology was consulted who administered neupogen. Considering it as a possible cause of culprit, hematology

advised to consider discontinuing haloperidol decanoate if the patient develops leukopenia again, even when the patient is off antibiotics. Patient's white cell count improved after two doses of neupogen and remained stable.

Patient's white cell count was monitored during the hospital course that remained within the normal limits. Haloperidol decanoate was not discontinued considering the fact that patient was on it in the past without any side effects. The patient showed improvement in his psychotic symptoms hence was discharged home.

## DISCUSSION

As far as doses are concerned, literature review on PubMed revealed that haloperidol decanoate, when used in doses 50, 100, 200 mg as compared to 25 mg, showed reduced exacerbation of symptoms according to a randomized control trial that was conducted in the United States, at six sites.<sup>4</sup>

The common side effects of haloperidol include sedation, weight gain, erectile dysfunction, and menstrual disturbances.<sup>3</sup> Blood dyscrasia is one of the uncommon side effects.<sup>3</sup> Literature reviewed on PubMed that revealed alopecia areata,<sup>5</sup> and rhabdomyolysis,<sup>6</sup> in patients that took haloperidol decanoate. In rare cases, death, as a result of malignant neuroleptic malignant syndrome induced by low-dose haloperidol, was also reported by a forensic medicine laboratory in China.<sup>7</sup>

Although, neurotoxicity was reported as a side effect when haloperidol decanoate was used in combination of lithium.<sup>8</sup> In the literature, a case of neuroleptic malignant syndrome with leukopenia induced by haloperidol overdose was reported in Taiwan in 1998;<sup>9</sup> there is no significant data found regarding leukopenia as a side effect of haloperidol when given in therapeutic dosage.

There's no significant data in the literature reporting any interactions of unasyn with haloperidol. No significant data revealing the association of gangrenous infections and leukopenia was found in the literature. The literature review did not reveal leukopenia as a common side effect of unasyn. Infection can also cause leukopenia but his foot gangrene was dry that makes infection an unlikely cause but there is still come possibility. In this case, its unclear what was the

exact cause of leukopenia, both infection and medications could have led to patient's leukopenia.

## CONCLUSION

The patient developed leukopenia possibly due to haloperidol hence we recommend physicians to regularly monitors the blood cell counts.

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