



METOCLOPRAMIDE INJECTION- INDUCED UNCONTROLLABLE MOVEMENTS (EXTRA PYRAMIDAL SYMPTOMS): A CASE REPORT

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ABSTRACT

A 21 year old male patient was suffering with chills, high fever and vomitings. He was accompanied by his father and consulted the physician. After thorough examination, the physician asked the patient for blood tests which revealed that he was malarial positive. His vitals are slightly higher than the normal. He was put on the following drugs immediately: Chloroquine phosphate injection (250mg/2 ml), Metoclopramide injection (Metoclopramide 5 mg/ml), and Paracetamol tablet (500mg). After 20 minutes, the patient started complaining of uncontrollable movements of neck and head. The abnormal movement of head and neck was noticed from right side to left side. The physician has recognized the side effect that it was due to metoclopramide injection and he has administered diazepam injection (5 mg/ml). The patient has completely recovered from the drug induced uncontrollable movements after 15 minutes. Hence there is a vital need for therapeutic drug monitoring system in health care units before and after administration of drugs to the patient so that, we can achieve better health out come and patient satisfaction.

KEYWORDS: Malaria, *Anopheles*, *Plasmodium*, Chloroquine phosphate, Metoclopramide, Paracetamol, Diazepam, Uncontrollable movements, Dystonia, Akathisia Tardive dyskinesia, Therapeutic drug monitoring.

INTRODUCTION

Extrapyramidal symptoms (EPS), also known as extrapyramidal side effects (EPSE), are drug-induced movement disorders that include acute and tardive symptoms. These symptoms include dystonia (continuous spasms and muscle contractions), akathisia (motor restlessness), parkinsonism (characteristic symptoms such as rigidity), bradykinesia (slowness of movement), tremor, and tardive dyskinesia (irregular, jerky movements).^[1]

Malaria is a mosquito-borne disease caused by a plasmodium parasite and spread by the *Anopheles* mosquito. It is a flu-like illness, which begins with a high fever and chills. Other symptoms include vomiting and nausea, headaches, body pain, weakness, and fatigue.

Malaria is a life-threatening disease. It's typically transmitted through the bite of an infected *Anopheles* mosquito. Infected mosquitoes carry the *Plasmodium* parasite. The World Health Organization (WHO) estimates that about 3.2 billion people are at risk of malaria globally.^[2]

In the United States, the Centers for Disease Control and Prevention (CDC) report 1,700 cases of malaria

annually. Most cases of malaria develop in people who travel to countries where malaria is more common.^[3]

The biggest burden of malaria in India is borne by the most backward, poor and remote parts of the country, with >90-95% cases reported from rural areas and <5-10% from urban areas; however, the low malaria incidence in urban areas may be due to almost non-existing surveillance.^[4]

Almost no reports were available on metoclopramide induced extrapyramidal symptoms in malarial patients where as metoclopramide induced extrapyramidal symptoms were reported in other cases.^[5]

CASE REPORT

A 21 year old male patient was suffering with chills, high fever and vomitings. He was accompanied by his father and consulted the physician. After thorough examination, the physician asked the patient for blood tests which revealed that he was malarial positive. His vitals are slightly higher than the normal.

The patient was treated with the following drugs immediately: Chloroquine phosphate injection(250mg/2

ml), Metoclopramide injection (Metoclopramide 5 mg/ml), and Paracetamol tablet (500mg). After 20 minutes, the patient started complaining of uncontrollable movements of neck and head and the movement was noticed from right side to left side. The physician has recognized the side effect that it was due to metoclopramide injection and he has administered diazepam injection (5 mg/ml). The patient has completely recovered from the drug induced uncontrollable movements after 15 minutes.

DISCUSSION

Here, we report a case of extrapyramidal side effects development in malarial patient after a single injection metoclopramide previously administered chloroquine phosphate injection.

Metoclopramide injection is a medicine that is used for the treatment of nausea and vomiting due to chemotherapy, radiotherapy and migraine, gastritis, heart burn, hiccups, lactation failure etc.^[6]

Treatment with metoclopramide can cause tardive dyskinesia, a serious movement disorder that is often irreversible. The risk of developing increases with duration of treatment and total cumulative dose. Metoclopramide therapy should be discontinued in patients who develop signs or symptoms of tardive dyskinesia.^[7]

The antiemetic properties of metoclopramide appear to be a result of its antagonism of central and peripheral dopamine receptors. Dopamine produces nausea and vomiting by stimulation of the medullary chemoreceptor trigger zone (CTZ), and metoclopramide blocks stimulation of the CTZ by agents like l-dopa or apomorphine which are known to increase dopamine levels or to possess dopamine-like effects.^[8]

In general, the incidence of adverse reactions correlates with the dose and duration of metoclopramide administration. The following reactions have been reported, although in most instances, data do not permit an estimate of frequency.^{[9],[10]}

Restlessness, drowsiness, fatigue and lassitude may occur in patients receiving the recommended prescribed dosage of metoclopramide Injection. Insomnia, headache, confusion, dizziness, or mental depression with suicidal ideation also may occur. There are isolated reports of convulsive seizures without a clear-cut relationship to metoclopramide. Rarely, hallucinations have been reported.

Acute dystonic reactions, the most common type of extrapyramidal reactions (EPS) associated with metoclopramide, Symptoms include involuntary movements of limbs, tardive dyskinesia most frequently is characterized by involuntary movements of the tongue, face, mouth or jaw, and sometimes by involuntary

movements of the trunk and/or extremities; Metoclopramide can precipitate extrapyramidal symptoms (EPS)/drug-induced movement disorders (DIMD). Tardive dyskinesia and Parkinsonism is generally seen after long-term use, whereas dystonia and akathisia can occur after a single dose of metoclopramide. A few cases of neutropenia, leukopenia, or agranulocytosis, generally without a clear-cut relationship to metoclopramide.^[10]

Hence there is a vital need for therapeutic drug monitoring system in health care units before and after administration of drugs to the patient so that, we can achieve better health outcome and patient satisfaction.

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