



## A CASE REPORT ON MEROPENEM INDUCED PSYCHOSIS

## Internal Medicine

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## ABSTRACT

Meropenem is one of the most commonly used broad-spectrum antibiotic for the treatment of infection. There are several adverse effects related to Meropenem. The most common side effects among them are nausea, vomiting, rashes, diarrhoea, and hypersensitivity. In this particular case report we are discussing about not so frequently occurring but very important side effects of Meropenem that is Psychosis. Since Meropenem is widely used drug, reporting of this kind of adverse events are crucial.

## KEYWORDS

Meropenem, Psychosis, Delirium, Antibiotics

## INTRODUCTION

Meropenem is a broad spectrum antibiotic which comes under Carbapenem class. It work against the Gram-positive and Gram-negative organism. Meropenem acts by penetrating bacterial cell readily and it interferes with synthesis of vital cell wall components leads to cell death. Meropenem was approved for medical use in 1996. The most common adverse effects are diarrhoea, nausea and vomiting, injection site inflammation, headache, rash and thrombophlebitis. Many of these adverse effects were observed in severely ill individuals already taking many medications including Vancomycin. There are reports of seizures and psychosis caused by Meropenem has been reported. Several cases of hypokalaemia have been also reported.

## CASE REPORT

A 77 years old male brought to Emergency Department of our hospital with the complaints of acute onset of chills – progressive in nature and high-grade fever – insidious in onset. Patient had a history of Urosepsis 2 months back. He is a known case of Adenocarcinoma Prostate, Type 2 Diabetes Mellitus, Peripheral Neuropathy, Systemic Hypertension, Dyslipidaemia and Parkinson's disease and were on medications. Routine Blood investigations showed elevated total count (11,500 cells/cumm) and urine routine examination showed numerous Pus cells and bacteria. For which he was started on Inj. Ceftriaxone 1g BD and Septran DS BD as an empirical therapy. Urine and blood culture was sent, showed growth of Klebsiella pneumoniae, and thus antibiotic was changed to Inj. Meropenem 1g TID. Patient initially started complaining of headache after 2 days of antibiotic administration. Later he developed hallucination and delirium, which worsens the condition. Meropenem was stopped as it was suspected to cause psychosis. His symptoms resolved with modification of his antibiotic regimen. This led us to the conclusion that Inj. Meropenem probably cause psychosis.

## DISCUSSION

Meropenem is a broad-spectrum carbapenem antibiotic used to treat a wide variety of infections in the body. It is active against Gram-positive and Gram-negative bacteria. Meropenem produce its action by penetrating bacterial cells and interfering with the synthesis of cell wall components and leads to cell death.

According to DSM criteria, presence of one or more of the symptoms that include delirium, hallucination, disorganized speech or catatonic behaviour is called Psychosis.

Antibiotics induced psychosis are very common now a days (Table 1). Tetracyclines are the most common antibiotics that causes psychosis, about 7000 self-reported were found. Around 3000 cases were reported on Carbapenem induced psychosis.<sup>1</sup> The mechanism of antibiotics induced psychosis is unclear but it may vary depending upon the class of drug.

Carbapenems are associated with seizure activity mainly because of its antagonistic effect on GABA-A receptor. It is also associated with

psychosis and other neurotoxic effects.<sup>2</sup> There are about 91 self-reported cases of Meropenem induced Psychosis in Vigiaccess till date. The exact incident of antibiotic associated with psychosis is well known due to the underreporting and an unknown distribution of medication<sup>3</sup>.

**Table 1: Common Antibiotics causing Psychosis**

Class of Antibiotics	Name of Antibiotics
Penicillins	Amoxicillin
	Augmentin
Cephalosporin	Cefalexin
Aminoglycosides	Gentamycin
	Fluoroquinolones
Carbapenem	Imipenem
	Meropenem
Tetracyclines	Minocycline
Macrolides	Clarithromycin
	Erythromycin

## CONCLUSION

Meropenem induced psychosis is not very common, only a very few records are there. These reports shows that the psychiatric symptoms resolve within 2 weeks after stopping the offending medication. The management of these conditions begins with identifying the culprit medication and discontinuing them. It is very crucial that physicians recognize the psychiatric side effects of antibiotics because they are elemental treatment option.

## ACKNOWLEDGEMENT

The authors would like to thank the Department of General Medicine, Believers Church Medical College Hospital, Thiruvalla and Department of Pharmacy Practice, Nazareth College of Pharmacy, Othera for helping in reporting this ADR.

## Conflicts Of Interest

There are no conflicts of interest.

## ABBREVIATIONS

ADR: Adverse Drug Reaction

BD: Twice daily

TID: Thrice daily

## REFERENCES

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