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UNCOMMON CUTANEOUS MANIFESTATION OF MEROPENEM: HYPERPIGMENTATION IN A CLINICAL CASE

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ABSTRACT:

Background: Meropenem is a broad-spectrum carbapenem antibiotic that is frequently employed in the treatment of severe infections. While generally well tolerated, infrequent cutaneous adverse drug reactions (CADRs), such as hyperpigmentation, are seldom documented.

Case Presentation: We present a 45-year-old woman diagnosed with right leg cellulitis, initially treated with cefotaxime. The treatment was changed to meropenem and metronidazole because it wasn't working. Five days later, she had hyperpigmentation all over her left hand that didn't hurt. The Naranjo Adverse Drug Reaction Probability scale said that the reaction was "probable." Meropenem was stopped and replaced with piperacillin–tazobactam. After that, there was no more progress

Conclusion: This case underscores the importance of recognizing meropenem-induced hyperpigmentation, a rare but clinically relevant adverse drug reaction (ADR). It is very important to be careful, keep records, and report for the safety of patients and pharmacovigilance.

KEYWORDS: Cellulitis, Meropenem, Hyperpigmentation, Adverse drug reaction, Pharmacovigilance

INTRODUCTION:

Cellulitis is a common bacterial infection that affects the skin and the tissues just below it. It makes a certain area red, swollen, sore, and warm. 5 5 5 The two most common causes are Streptococcus pyogenes and Staphylococcus aureus. Cellulitis can cause systemic illness, abscesses, or necrotizing fasciitis if it is not treated correctly, so it is very important to start antibiotic therapy as soon as possible. 5
In severe or hard-to-treat cases, empirical therapy often uses β-lactam antibiotics, then moves on to broad-spectrum drugs like carbapenems. 1 1 Most people believe that meropenem, a carbapenem that works against many bacteria, is safe and well-tolerated. 1 Some of the bad effects that have been reported are stomach problems, allergic reactions, seizures, and mild rashes. 2 However, diffuse hyperpigmentation and other uncommon cutaneous adverse drug reactions (CADRs) are very rare and not well known. We present a case of a middle-aged female who developed diffuse hyperpigmentation temporally linked to meropenem therapy during the treatment of lower limb cellulitis. This case adds to the few studies that have been done on this topic and shows how important pharmacovigilance is in clinical practice.

CASE PRESENTATION:

A 45-year-old female presented to the emergency department with a three-day history of pain, swelling, and erythema in her right leg. She said she hadn't been hurt, bitten by an insect, had chronic venous insufficiency, or had cellulitis before. Her medical history was normal, and she had never had any known allergies or drug reactions before.
Examination in a clinical environment:

Clinical examination:

- Localized erythema and edema involving the right leg from ankle to mid-calf
- Tenderness and warmth on palpation

- No ulceration, crepitus, or discharge
- Vital signs: stable, afebrile at admission

Laboratory investigations:

- Total leukocyte count: 18,000 cells/mm³ (neutrophilia)
- Liver and renal function: within normal limits
- Blood cultures: sterile

Initial management:

The first steps in treatment were to give the patient intravenous cefotaxime (1 g every 8 hours), diclofenac, pantoprazole, and other supportive care. The clinical response was not good enough after 72 hours of treatment; the pain got worse and the swelling didn't go down.

Escalation of therapy:

The treatment plan was changed to include intravenous meropenem (1 g every 8 hours) and metronidazole (500 mg every 8 hours) based on clinical judgment. After five days of treatment with meropenem, the patient's left hand's skin started to get darker all over. The pigmentation did not cause itching, pain, or mucosal lesions, peeling, or systemic symptoms.

Dechallenge and outcome:

Instead of meropenem, the patient was given piperacillin-tazobactam (4.5 g every 8 hours). People were still taking the other drugs. The hyperpigmentation stopped getting worse, but it didn't go away right away. There were no new skin issues during the follow-up.

Causality Assessment:

The Naranjo Probability Scale yielded a score of 6, indicating a "probable" correlation between meropenem and hypertension. Other possible causes, such as other medications, lack of nutrients, or systemic illness, were ruled out.

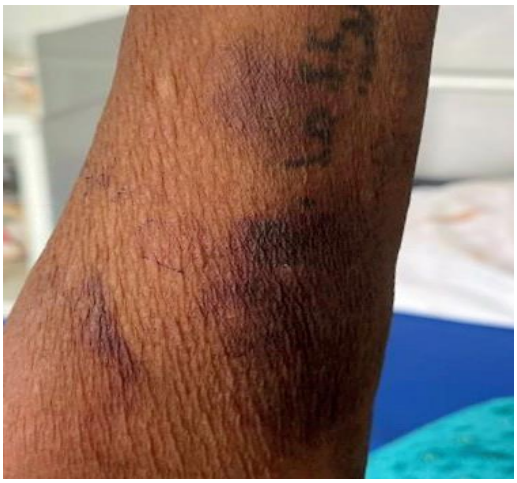

Figure 1: Clinical photograph showing generalized darkening of skin over the left hand without pruritus or desquamation during meropenem treatment.

DISCUSSION:

Cutaneous adverse drug reactions (ADRs) are a large part of all ADRs, but they are often not reported enough, especially when the symptoms are mild or unusual. 2,5 Clofazimine, amiodarone, antimalarials, tetracyclines, and cytotoxic agents have all been linked to hyperpigmentation as a side effect. On the other hand, carbapenems don't come up very often.

Mechanisms of drug-induced hyperpigmentation may include:[1]

1. Increased melanin production via stimulation of melanocytes.
2. Deposition of drug/metabolite in dermal tissues.
3. Drug-induced inflammation leading to post-inflammatory pigmentation.
4. Iron or hemosiderin deposition secondary to vascular damage.

In our case, the onset of pigmentation was directly correlated with the commencement of meropenem and ceased upon its discontinuation, with no further causative factors identified. The temporal correlation and absence of systemic involvement strongly suggest that meropenem is the causative agent.

Relevance to clinical practice:

Hyperpigmentation, though not life-threatening, can affect quality of life, aesthetic appearance, and patient adherence to treatment.

If they aren't actively reported and recognized, rare reactions may not be noticed.

To enhance drug safety databases, it is crucial to report such incidents to pharmacovigilance programs globally, such as the WHO-Uppsala Monitoring

Centre and the PvPI in India.

A review of the current literature reveals a scant number of isolated case reports concerning meropenem-associated pigmentation, highlighting its rarity. This case adds to what we already know and shows how important it is for doctors to be aware.

CONCLUSION:

this case shows that meropenem can cause a rare but serious side effect: diffuse hyperpigmentation. [3] Doctors should watch for rare skin reactions while giving antimicrobial therapy. [4] It is very important to quickly recognize, document, and report for the safety of patients and to make pharmacovigilance data stronger. Even though these ADRs don't hurt anyone, they can still affect the choice of drugs and how well patients follow their treatment in a clinical setting.

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CONFLICT OF INTEREST:

The authors declare no conflict of interest.

REFERENCES:

1. Garval E, Vuiblet V, Durlach A, Perceau G, Anuset D, Bernard P. Skin pigmentation induced by meropenem and levofloxacin. Ann Dermatol Venereol. 2017 Dec;144(12):793-798.
2. Blanco Garcia-Granero D, BarrancoR, Garcia-Moguel I. First case of symmetric drug-related Intertriginous and Flexural Exanthema Induced by Meropenem. J Investing Allergol Clin Immunol 2021; Vol. 31(6): 516-517
3. Rosa M, GimenzGarcia, MD, and Sergio Carrasco Molina, MR. Drug-Induced Hyperpigmentation: Review and Case series. JABFM July-August 2019 Vol. 32 No. 4.
4. Sanie-Jahromi F, Hoseini SS, Nowroozzadeh MH. In-vitro safety assessment of meropenem on human retinal pigment epithelium (RPE). Heliyon. 2024 Jul 1;10(14)0:e33916.
5. Daniel SJ, Jayaraman BG, Selvam S, Thangaraj A. Meropenem induced symmetric drug-related interigininous flexural examthema. IP Indian J Clin Exp Dermatol. 2025;11(2):269-271.
6. Trissa M Connors et al. Brown-gray hyperpigmentation in a photosensitive distribution after levofloxacin exposure. Dermatol Online J. 2018