



Safe use of imipenem after delayed hypersensitivity to meropenem—Value of patch tests

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There are few data available concerning the possibility of cross-reactivity between meropenem and imipenem, which is assumed to be high because they are structurally related and belong to the same antibiotic class. Aiming to evaluate this cross-reactivity we

performed patch tests in two patients with a nonimmediate cutaneous adverse drug reaction (CADR) imputable to meropenem. In one of the patients a challenge test with imipenem was also performed.

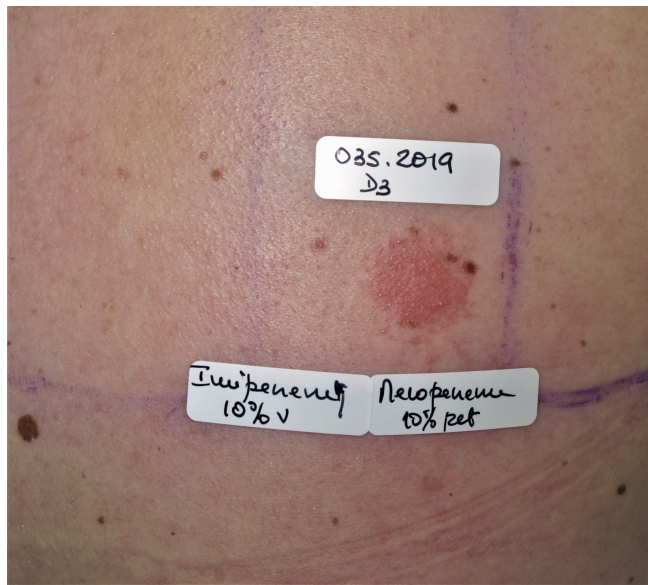


FIGURE 1 Patient 1 - strong positive reaction (++) to meropenem 10% pet. and negative to imipenem 10% pet. on day 3

CASE REPORT

Patient 1: A 38-year-old woman with systemic lupus erythematosus under treatment with 20 mg oral prednisolone daily developed a morbilliform drug reaction 11 days after starting meropenem and vancomycin for abdominal wall cellulitis.

Patient 2: A 61-year-old woman with a postoperative infection developed a maculopapular exanthema 12 days after treatment with vancomycin, ceftriaxone, and metronidazole, and 10 days after meropenem.

Patch tests were performed 8 weeks after complete healing of the CADR with the European baseline series, an antibiotics series (Chemotechnique Diagnostics, Vellinge, Sweden), and carbapenems prepared in-house by diluting the intravenous powder in pet. at 10% (more than 30 controls were studied with these preparations who reacted negative). After 48 hours of occlusion, readings were done at day (D)3 and D5-D7 according to ESCD recommendations.

In patient 1, who needed additional antibiotic treatments due to her underlying condition, we performed a therapeutic challenge with intravenous imipenem-cilastatin 5% in physiologic saline solution on two consecutive days: 50 mg followed within half an hour by 125 mg on D1 and a full dose of 500 mg on D2.

In both patients there was a strong positive reaction to meropenem (++) and no reaction to imipenem and other involved drugs (Figure 1). In patients 1, there was no cutaneous reaction after oral provocation.

DISCUSSION

Cross-reactivity among carbapenems has rarely been addressed by clinical studies. The limited available data show a lack of cross-reactivity between these drugs in immediate reactions, suggesting that patients with reported carbapenem allergy may use an alternative

carbapenem with caution.¹ There are only three case reports of patients who developed a delayed exanthema to imipenem with good tolerance to meropenem and, conversely, one case of delayed reaction to meropenem with tolerance to imipenem.²⁻⁴

Patch tests with carbapenems have a negative predictive value of 100%: in individuals with reported T-cell hypersensitivity to penicillins; negative PT results correlate with a subsequent tolerance to a therapeutic dose of carbapenems.⁵ Published reports of a lack of cross-reactivity between imipenem-cilastatin and meropenem in patients with a nonimmediate hypersensitivity reaction did not report performance of patch tests with both drugs. To our knowledge, this is the first case to illustrate the lack of cross-reactivity by patch testing in patients with this reaction, in patient 1 confirmed by a negative drug challenge.

Avoiding a carbapenem can be life-threatening in the absence of an effective alternative, because these drugs are among the few antibiotics effective against an extended spectrum of β -lactamase-producing organisms. Our study supports the absence of cross-reactivity in patients with cell-mediated allergy to carbapenems and reinforces that patients with allergy to meropenem should undergo patch test with imipenem and if results are negative there is no contraindication to use this drug.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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