

892 Passive transfer test in a patient with specific hypersensitivity to clavulanic acid

JC. Cerdá¹, C. Martorell², R. Felix¹, M. D. De las Marinas¹, A. Martorell¹, I. Perez³, JC. Iglesias³, F. Pineda³, P. Stahl Skov⁴

¹ Allergy Unit, University General Hospital Consortium, Valencia. Spain.

² Allergy Service, University Clinic Hospital, Valencia. Spain.

³ Department of Innovation and Development. Diater Laboratories SA. Spain.

⁴ Department of Dermatology, University Hospital of Odense, Denmark & Charité, Berlin, Germany.

Introduction

We report on new in vitro diagnostic techniques which are used to confirm the diagnosis of specific hypersensitivity to clavulanic acid (CA).

Methods

A 31-year-old man presented skin rash and generalized pruritus a few minutes after taking the first dose of amoxicillin-clavulanic acid (AX/CA). Previously, this antibiotic had been well tolerated. Six months later, the patient tolerated well AX for one week. He was again treated with AX/CA, presenting intensely pruritic generalized urticaria, followed by facial and lingual edema and dyspnoea one hour after taking the first tablet. This resolved in 48 hours after treatment with corticosteroids and antihistamines. Since then, beta-lactam antibiotics have not been prescribed. Skin prick test (SPT) and intradermal tests (IDT) were performed with penicillin and its derivatives (see Table 1).

Skin prick test	Concentration
Penicillin G (PG)	10000 UI/mL
AX (Amoxicillin)	20 mg/mL
AX/CA	20 mg/mL
PPL (Major determinant PG)	0.04 mg/mL
DM (Minor determinant PG)	0.5 mg/mL
CA (Clavulanic acid)	5-20 mg/mL

Table 1. Skin prick test

Specific IgE levels to PG, penicillin V (phenoxymethylpenicillin potassium) (PV), AX and cefaclor (CF), UniCAP (Phadia) were determined. Histamine-release test (HRT) was made for CA, AX, AX/CA and PG (ReFlab). A passive transfer test of the patient's serum to stripped basophils of a healthy subject was made and sensitized cells were challenged by different drugs. Finally, a controlled oral challenge test (OCT) with PV and AX was made.

Conclusions

HRT (RefLab, Denmark) and passive transfer tests, in combination with the CA (Diater Laboratories) skin test kit, were useful and effective for the diagnosis of immediate hypersensitivity reactions to CA. Passive transfer test reveals the presence of a specific-IgE to CA in the patient's serum.

Results

Skin prick	Test*	Result	Concentration
PG	SPT/IDT	-	
AX (Amoxicillin)	SPT/IDT	-	
AX/CA	SPT	+	20 mg/mL
PPL(Major determinant PG)	SPT/IDT	-	
DM (Minor determinant PG)	SPT/IDT	-	
CA (Clavulanic acid) (Diater Laboratories)	IDT	+	0.5 mg/mL

Table 2. Skin test results

Controls were made with saline solution (-) and histamine (10x8 mm).

(*): SPT: Skin prick test; IDT: Intradermal test

SPT were positive for AX/CA and IDT was positive for CA (see table 2).

Specific IgE to PG, PV, AX and CF was <0.35 kU/L. HRT was positive (class I) for CA and AX/CA (RefLab) and negative for AX and PG. When donor basophils were sensitized to the patient serum potassium clavulanate and amoxicillin/clavulanic induced histamine release of 20% at a concentration of 300 µg/mL. No histamine release was observed when basophils were sensitized to non-allergic serum or when basophils were sensitized to patient serum pre-incubated with omalizumab. Oral challenge tests with PV and AX were negative.



Figure 1. Skin test results using CA (0.5 mg/mL)