

MEETING ABSTRACT

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Allergic diseases of the skin and drug allergies – 2026. Immunologic evaluation of the patients with cefaclor hypersensitivity

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Background

Cefaclor is the most common cephalosporin to induce anaphylaxis. We evaluated immunologic findings of cefaclor hypersensitivity.

Methods

36 patients with a history of immediate reactions to cefaclor were enrolled from Ajou University Hospital and Asan Medical Center, South Korea. Those with immediate hypersensitivity reactions to cefaclor were defined by a certain clinical history with or without specific IgE to cefaclor by immunoCAP system. Serum specific IgE, IgG1 and IgG4 levels to cefaclor-HSA conjugate were measured by ELISA, and compared with those of ImmunoCAP system. The binding specificity was evaluated by ELISA inhibition test.

Results

Anaphylaxis (group I, 80.6%) was the most common phenotype, followed by urticaria (group II, 19.4%). There were no significant differences in clinical characteristics, such as age, sex and atopy status between group I and II. The serum specific IgE to cefaclor by ImmunoCAP was found in total 29 (80.6%) patients, 24 (82.8%) in group I and 5 (71.4%) in group II with no significant according to clinical parameters. The prevalence of serum specific IgE, and IgG1, IgG4 to cefaclor-HSA conjugate by ELISA tended to be higher in group I (51.7%, 53.6%, 20.7%) than in group II (14.3%, 14.3%, 0%), although these differences were not statistically significant. Serum specific IgG4 to cefaclor-HSA conjugate was observed only in group I.

10.3% patients in group I had high specific IgG1 to cefaclor-HSA conjugate with no specific IgE. Significant associations were found between specific IgE and IgG1 or IgG4 antibodies ($p < 0.001$, $p = 0.004$). ELISA inhibition tests showed significant inhibitions by both free cefaclor and cefaclor-HSA conjugate.

Conclusions

Most common manifestation of immediate hypersensitivities to cefaclor was anaphylaxis in which IgE mediate response is the major pathogenic mechanism. Detection of serum specific E and IgG subtypes to cefaclor-HSA conjugate may be useful to diagnose cefaclor anaphylaxis. The IgG subtype-mediated response was suggested in some cases of cefaclor anaphylaxis.

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