

Letter to the Editor

Beta-lactam allergy in children

Editor,

We read the paper of Atanaskovic-Markovic et al. recently published in *Pediatric Allergy and Immunology* (1). This study set the alarm bells ringing, not least among pediatricians and general practitioners as the authors reported a high percentage (58.3%) of beta-lactam-positive allergy in a group of 1170 pediatric patients. The results are surprising as most of the studies have reported a prevalence of around 10–20% (2, 3) of positive results. The authors claim that their results cannot be compared with the literature because they studied only the pediatric population. However, different groups have reported a low rate of prevalence (around 4–10%) in the pediatric population (4–7). Some foods and additives have the ability to trigger an allergic reaction (8). Similarly, skin reactions can be associated with viral infections. These types of symptoms can be wrongly diagnosed as drug allergy. In a study of patients categorized according to clinical history, 14.1% in the group with a convincing history of allergy, 6.7% in the group with a vague history, and 0% in patients with an unacceptable history were skin test (ST) positive (9).

We studied 4- to 6-yr-old children ($n = 91$) suspected of beta-lactam allergy (10). After obtaining written informed consent, skin prick tests (SPT) were performed with major and minor determinants, penicillin G and the suspected drug if it was other than penicillin, (11). In patients older than 12 or those with a very convincing history, we performed intradermal tests. If the ST results were negative, a controlled oral challenge with the suspected drug was performed. After 15 days, ST and drug challenges were performed again, following the recommendations of the European Network for Drug Allergy (12). We found only one positive result, according for $< 2\%$ of our study population.

In the study of Atanaskovic-Markovic et al. essential data about ST are lacking. Information

about the commercial brand, minor determinants used in the study, and specific concentration of each drug for SPT and intradermal tests is unknown. A second re-evaluation was not performed either (13).

It is surprising that almost 87% of diagnoses were made by SPT, as diagnosis is usually made by intradermal tests (7, 11), even in populations with high positive results (14). Furthermore, results of intradermal testing were not shown. Most practitioners refrain from intradermal testing in children under 12 yr, except under special circumstances (4, 12).

SPT and intradermal tests were performed in 100 children without penicillin allergy as controls without informed consent. This is, at least, unethical.

On the other hand, the authors talk about selective sensitization as a positive reaction to a culprit drug with good tolerance to all other drugs. It can be coincided that in patients with positive ST to a single drug, they performed oral challenge with the other drugs, but they failed to mention it. It is more likely that they are mentioning only the results of ST.

Similarly, the authors report a 26.3% selective sensitization to benzilpenicillin (BP) determinants. No mechanism of BP sensitization with aminopenicillin tolerance is known; therefore we think that they are again referring only to the results of ST. In addition, they admit that they found an almost 100% reactivity between BP and other penicillins. If only ST was evaluated, without oral challenge, one cannot be sure of real selective sensitizations.

Overdiagnosis of penicillin allergy in the pediatric population is a cause for concern, with the accompanying increases in health costs and harm. Bearing this in mind, the result of Atanaskovic-Markovic et al. should be interpreted with caution. Further studies are needed to confirm or refute these data.

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