

Title: Obesity is Associated with an Increased Prevalence of Penicillin Allergy

Authors: Sarah M Abbassi, Eugenio Capitle, Radhika Trivedi, Alan H Wolff

BACKGROUND:

Penicillin allergy is the most frequently reported drug allergy. While epidemiologic data has shown an increased risk of atopy and asthma in obesity, there is conflicting evidence for the relationship between atopy and drug allergy. There are also no studies on the prevalence of penicillin allergy in individuals who are obese, nor on the atopic status of obese patients with penicillin allergy. Because of the ramifications associated with penicillin allergy labels, including use of broader spectrum antimicrobials and antimicrobial resistance, it is important to understand the epidemiology of penicillin allergy. The aim of this study is to determine if the prevalence of penicillin allergy is increased in obese patients.

METHODS:

The 2012-2014 National Inpatient Sample database (NIS) was queried to identify patients with a diagnosis of obesity. ICD-9 code V14.0 was used to designate a history of penicillin allergy among the analytic sample. Diagnosis of asthma, allergic rhinitis, angioedema, urticaria and atopic dermatitis were recorded. Patient demographic characteristics including race, age, and gender were also collected. The prevalence of penicillin allergy and associated atopic comorbidities in the obese subset was compared to non-obese controls from the database.

RESULTS:

Of 2,268,842 obese patients in the NIS, 4.3% were found to have a documented penicillin allergy which was significantly more than the 2.8% prevalence in the non-obese subgroup ($p < .0001$). Obese patients had a 55% increased odds of penicillin allergy compared to non-obese patients, OR 1.55 (1.54-1.55), $p < .0001$.

CONCLUSIONS:

Obese patients have a statistically higher documented penicillin allergy compared to non-obese patients.