Perioperative delabeling of penicillin allergies

“Perioperative delabeling of penicillin allergies” refers to a process that involves the removal of the label of penicillin allergy for patients prior to undergoing surgery or other invasive procedures.

Many patients carry a label of penicillin allergy, either because they have experienced an allergic reaction to penicillin in the past or because they were mistakenly labeled as allergic due to other symptoms. This can result in the use of alternative, less effective antibiotics for surgical prophylaxis or treatment of infections, which can increase the risk of adverse outcomes such as surgical site infections.

Perioperative delabeling of penicillin allergies involves a comprehensive evaluation of the patient's allergy history and symptoms, followed by skin testing or other diagnostic tests to confirm or rule out a penicillin allergy. If a patient is found to be tolerant to penicillin, the label of penicillin allergy is removed and the patient is given penicillin-based antibiotics as appropriate for surgical prophylaxis or treatment of infections.

Perioperative delabeling of penicillin allergies is an important strategy to improve the safety and effectiveness of antibiotics use in surgical settings, reduce the risk of adverse outcomes, and promote antimicrobial stewardship.

Patients with penicillin allergy labels are more likely to have postoperative wound infections. When penicillin allergy labels are interrogated, a significant number of individuals do not have penicillin allergies and may be relabeled.

Jiang et al. conducted a study to gain preliminary evidence into the potential role of artificial intelligence in assisting with perioperative penicillin adverse reaction (AR) evaluation.

A single-center retrospective cohort study of consecutive emergency and elective neurosurgery admissions was conducted over a two-year period. Previously derived artificial intelligence algorithms for the classification of penicillin AR were applied to the data.

There were 2063 individual admissions included in the study. The number of individuals with penicillin allergy labels was 124; one patient had a penicillin intolerance label. Of these labels, 22.4% were not consistent with classifications using expert criteria. When the artificial intelligence algorithm was applied to the cohort, the algorithm maintained a high level of classification performance (classification accuracy 98.1% for allergy versus intolerance classification).

Penicillin allergy labels are common among neurosurgery inpatients. Artificial intelligence can accurately classify penicillin AR in this cohort and may assist in identifying patients suitable for delabeling [1].

1)
Jiang M, Lam A, Lam L, Kovoor J, Inglis J, Shakib S, Smith W, Abou-Hamden A, Bacchi S. Artificial intelligence and the potential for perioperative delabeling of penicillin allergies for neurosurgery inpatients. Br J Neurosurg. 2023 Feb 16:1-4. doi: 10.1080/02688697.2023.2173724. Epub ahead of print. PMID: 36794659.