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GUIDELINES

Recommendations for penicillin skin testing in Taiwan



Infectious Diseases Society of Taiwan

Medical Foundation in Memory of Dr. Deh-Lin Cheng

Foundation of Professor Wei-Chuan Hsieh for Infectious Diseases Research and Education

Lee CY's Research Foundation for Pediatric Infectious Diseases and Vaccine

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Penicillin, or other forms of it, is one of the most commonly prescribed antibiotic used to treat bacterial infections. Penicillin allergy may present with a wide range of symptoms and signs from mild ones such as runny nose, rash or hives on the skin, to deadly angioedema, asthmatic attack, and anaphylactic shock.

The purposes of a penicillin skin test (PST) are to identify people at risk of a severe to immediate-type allergic reaction to penicillin, to determine the safety of penicillin and its derivatives for those who have ever had allergies to antibiotics, to increase therapeutic choice of antibiotics for infection, to reduce antimicrobial expenditure and to reduce drug resistance. The standard PST can give a positive predictive value of nearly 100% and a negative predictive value of 97–99%. The standard reagents used in PST include major determinant, minor determinant, positive control, and negative control. The standard procedure for administering a PST is to first perform a prick test followed by an intradermal test. Due to the lack of availability of major and minor determinant testing reagents in Taiwan, PST is usually performed with diluted penicillin G and directly followed by an intradermal test. With its low value in predicting severe penicillin allergy, risk remains when performing this modified PST. Disputes regarding this test have existed in the medical society for decades. Therefore, a consensus conference to establish clinical practice guidelines for penicillin skin testing in Taiwan was held on March 5, 2011. This meeting followed a symposium on the

practice of PST and discussion encompassed different perspectives, including the immunopathogenesis of anaphylaxis rendered by penicillin, current medical evidence on PST and anaphylaxis caused by penicillins, comparison of current guidelines in the practice of PST in Taiwan and worldwide, penicillin drug allergy-related medical disputes, and penicillin-related anaphylaxis medical disputes. The meeting was held by the Infectious Diseases Society of Taiwan, the Medical Foundation in Memory of Dr. Deh-Lin Cheng, the Foundation of Professor Wei-Chuan Hsieh for Infectious Diseases Research and Education, and Lee CY's Research Foundation for Pediatric Infectious Diseases and Vaccine. Participating parties of this consensus conference included board members of the Infectious Diseases Society of Taiwan, as well as experts in the field of infectious diseases, medical law, and judges from the medical tribunal. The aim of these guidelines is to provide a national guidance to improve the practice of PST to reduce clinical practice-related medical disputes in Taiwan.

In summary, although its clinical detection rate for hypersensitivity is low, current PST practice in Taiwan is allowed. The standard of care includes indication for relevant use of penicillins, history of penicillin allergy, and administering PST under a setting that is equipped for emergent resuscitation (as shown in the flow chart). The following are recommended when PST is performed or parenteral penicillins are administered:

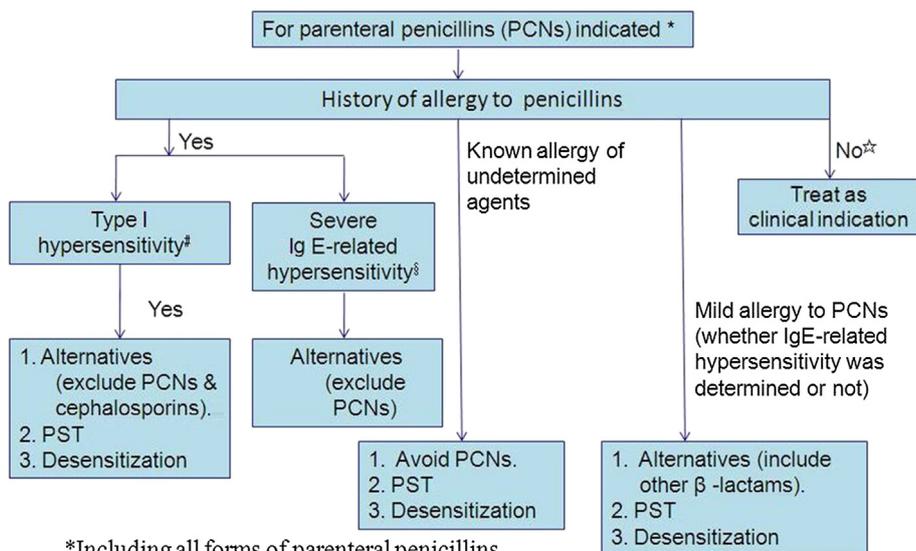
1. Clinician(s) with the ability to handle serious allergic reaction (anaphylaxis) must be in or around the field.
2. Medications for resuscitation, including adrenaline (epinephrine 1:1000), antihistamines and steroids, are available.

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3. Well-prepared equipment for resuscitation, including sphygmomanometer, tourniquet, intravenous infusion fluids, and related medical equipment (intravenous catheter, intubation equipment), are available.
4. Observation of the patient's clinical condition for 30 minutes after initiation of infusion or injection of penicillins.

Consensus conference participants (in alphabetical order): Yu-Jiun Chan, Shan-Chwen Chang, Feng-Yee Chang, Po-Yen Chen, Yee-Chun Chen, Yao-Shen Chen,

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*Including all forms of parenteral penicillins.

Type I hypersensitivity: angioedema, bronchospasm, urticaria, anaphylactic shock.

§ Stevens-Johnson syndrome or toxic epidermal necrolysis.

☆ Including no allergy history by experienced use of PCNs

Flow chart. Guidelines for the practice of penicillin skin testing (PST).