THE DEVELOPMENT OF A CLINICAL PRACTICE GUIDELINE FOR PENICILLIN SKIN TEST (PST) IN TAIWAN

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PURPOSE

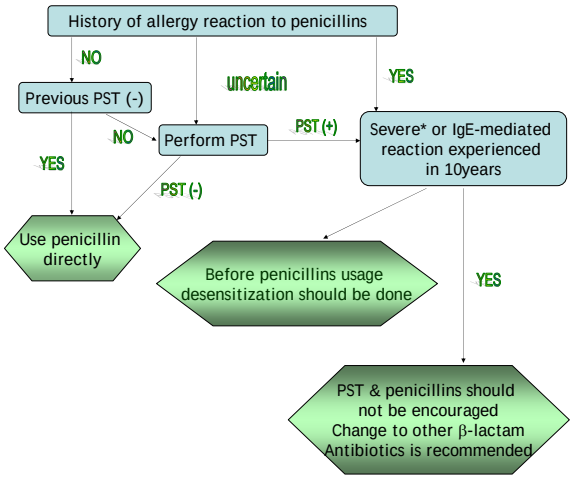
The incidence of penicillin allergic reactions is estimated to be 0.7-1% in population, and the IgE-mediated immediate reactions is about 0.004-0.015%. Since the IgE-mediated anaphylactic reactions could be fatal, every efforts were made to avoid administering penicillin to penicillin-allergic patients. Many investigations indicate that penicillin skin test (PST) with the major (benzylpenicilloyl poly-L-lysine, BPL) and minor determinants (benzylpenicillin, benzylpenicilloate and benzylpenilloate) of penicillin can reliably identify persons at high risk for penicillin reactions. In Taiwan, the reagent of PST was prepared with the diluents of penicillin G rather than the commercial product of PST (the major or minor determinants of penicillin) used in the majority of the studies or guideline. Therefore, we tried to conduct a clinical practice guideline for penicillin skin testing (PST) to fulfill the clinical practice in Taiwan.

METHOD

Systematic literature search in PUBMED database, National Guideline Clearinghouse (NGC) website and U.S. Food and Drug Administration (FDA) and critical appraisal of articles on penicillin skin test (include penicillin G components) were performed by a multidisciplinary team (allergists, infectious disease physicians and pharmacists). All specialists's suggestions were incorporated into the final PST protocol.

RESULTS

The PST practical clinical decision was focused on 2 parts: 1. Before penicillins prescribed (Figure 1); 2. Before other β-lactam antibiotics (eg, cephalosporins or carbamazepines) prescribed (Figure 2).



*: Stevens-Johnson syndrome or toxic epidermal necrolysis etc

Figure 1 Algorithm for administration of penicillins

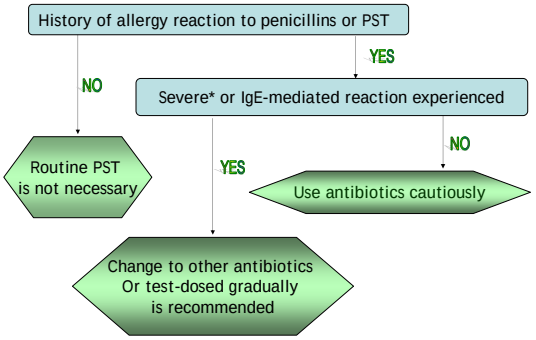


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Figure 2. Algorithm for administration of cephalosporins or carbapenems

Patients with a PST negative and no known history of allergy reaction to penicillin could use penicillin directly. If penicillin was preferred to be used in the skin-test-positive patients (non anaphylactic reactions), a desensitized regimen should be performed. Patients with prior severe or IgE-mediated reactions to penicillin should not receive PST and penicillin. Nevertheless, according to a study, 80% of patients with unequivocal history PCN-induced anaphylaxis lose their sensitivity over a period of 10 years. So the physicians can decide if the PST performed or not in these patients. Use of other β-lactam antibiotics (eg, cephalosporins, carbapenem or monobactams) in patients with prior non-severe, non-IgE-mediated reactions to penicillin is considered safe. Routine PST prior other β-lactam antibiotics could not be suggested unless the prior severe or IgE-mediated reactions to penicillin observed.

DISCUSSION/CONCLUSIONS

A randomized, controlled trial of routine penicillin skin testing in history-negative for penicillin allergy patients was shown not to be cost-effective, and therefore skin testing at this time is recommended only for patients with a prior history of β-lactam allergy. In Taiwan, the major determinant or most minor determinants were not available. Though the result of penicillin skin test, used of diluents of penicillin G (0.3ml of 1,000U/ml intradermally administered), may not be reliably identify persons at high risk for penicillin reactions, but the cost of PST procedure is cheaper than US or other developed countries. Routine PST prior penicillin usage in patients with uncertain history could be recommended for the ethical consideration. Although the penicillin skin test reagent used in Taiwan is different from those in other documented evidence, our own clinical practice guideline of PST has eventually been developed and based on the results of other authors. The major and minor determinants should thus be used in the future to fulfill the guideline.

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