1059 Assessment of Irritant Skin Test Reactions to Common Vaccines

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RATIONALE: Skin testing to vaccines can be a useful tool in the assessment of suspected allergic reactions. However, some vaccines appear to induce significant irritant effects and limited data exist regarding the possible irritant properties of common vaccines.

METHODS: Healthy adult volunteers with no history of food or drug allergy or adverse vaccine reactions were tested to 10 common vaccines: DTaP (Infanrix), DT, MMR, hepatitis B (Engerix-B), HiB (ActHIB), IPV (IPOL), varicella (Varivax), hepatitis A (Havrix), strep pneumoniae (Prevnar), and influenza (Fluarix). Each vaccine was tested at full strength prick and 1:100, 1:10, and full strength intradermal. All tests were read at 15 minutes.

RESULTS: No positive (irritant) results occurred with prick testing to any vaccine. At the 1:100 concentration, all intradermal tests were negative except for one subject to DTaP and DT and in three to influenza. At the 1:10 concentration, positive tests occurred in one subject to DT, one to Prevnar, two to DTaP, and 11 to influenza. At full strength, positive intradermal tests occurred with all vaccines except hepatitis A and IPV and were most common with MMR (20/20), varicella (20/20), and influenza (13/20), and HiB (5/20). On follow-up, no one had persistent reactions but delayed-type reactions were common for most vaccines at the 1:10 and full strength concentrations.

CONCLUSIONS: Irritant responses to full strength intradermal skin tests are very common with most vaccines and would affect skin testing results with some vaccines at 1:10 dilution. These data should be considered in the evaluation of patients with suspected vaccine hypersensitivity.

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1060 Penicillin Skin Testing and Challenges in the Absence of the Major Penicillin Determinant

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RATIONALE: Since Pre-Pen (Hollister-Stier, Spokane, WA) was discontinued in October 2004, there has been a significant concern about penicillin skin testing and challenge with beta lactam antibiotics in individuals with history of penicillin allergy. From 1984-2004, 92/881 (10.5%) patients were skin test positive using Pre-Pen and 3 minor determinants. Twelve skin test positive patients had been challenged without reaction.

METHODS: We conducted a retrospective analysis of consecutive cases with a history of penicillin or cephalosporin allergy since October 2004. Individuals were skin tested with histamine, saline, K penicillin G, Na Benzylpenicilloate and Benzylpenicilloyl-n-propylamine and challenged to the appropriate beta lactam or cephalosporin antibiotic in increasing doses if the skin test results were negative. The accelerating doses included a regimen of 3mg, 30mg, 300mg and 2.7 gm of the appropriate antibiotic over 30minute intervals. For amoxicillin, 3 mg, 30 mg and 220-250 mg was used.

RESULTS: 104 patients were evaluated. One of 104 (1.0%) of the individuals was positive to all 3 minor determinants and was not challenged further. 89/103 skin test negative individuals were challenged with the appropriate beta lactam or cephalosporin antibiotic. Four (4.5%) individuals had minor pruritus or transient, localized erythema; however, all were able to complete the test dosing protocol successfully.

CONCLUSIONS: Skin testing with minor determinants and careful test dosing appears to be safe and effective in individuals with history of beta lactam allergy. The test dosing protocol may have neutralized anti-penicillin IgE in patients who potentially would have been Pre-Pen positive on skin testing.

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1061 Cytokine and Chemokine Expression in the Skin from Patients with Maculopapular Exanthema to Drugs

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RATIONALE: Delayed allergic reactions to drugs appear 24-48 hours to several days after drug intake, being maculopapular exanthema (MPE) the most frequent clinical manifestation. Although Th1 cytokines have been demonstrated to have an important role, the involvement of chemokines is now poorly understood in drug allergy. We determined the expression of different cytokines and chemokines in the affected tissue (skin) from patients with a MPE.

METHODS: We evaluated the mRNA expression in skin biopsies from 15 patients and 10 healthy controls. Semiquantitative real-time PCR was carried out to determine the expression of cytokine IL-4, IL-10, IL-13, TNF-α and IFN-γ, and the chemokines CXCL9, CXCL10, CCL20 and CCL27 and their receptors CXCR3, CCR6 and CCR10 respectively.

RESULTS: The different determinations showed an increase in the expression of TNF-α and IFN-γ ($p=0.014$ for both) in patients with MPE compared to controls. There were also increases in the expression of the chemokines CXCL9 ($p=0.002$) and CXCL10 ($p=0.027$), and in their corresponding receptor CXCR3 ($p=0.028$). Although we observed an increase in the skin homing receptor CCR6 ($p=0.05$), no difference in its ligand, CCL20, was found.

CONCLUSIONS: We found higher level of expression of Th1 cytokines, chemokines, and chemokine receptors in skin biopsies from patients with a delayed adverse reaction to drugs. Our results could stand out the role of these molecules in the development of maculopapular exanthema.

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1062 Predicting Severity of Reactions During Aspirin Desensitization in Patients with Aspirin Exacerbated Respiratory Disease (AERD)

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RATIONALE: AERD patients invariably develop bronchial and/or nasoocular reactions during aspirin (ASA) desensitization. Although the clinical features of the reactions are well known, clinical predictors of severe ASA reaction (>20% decline in FEV1) have not been described. The ability to predict the severity of a bronchial reaction would assist in determining individualized approaches to ASA desensitization.

METHODS: Retrospective analysis of baseline history and desensitization data from 420 AERD patients. Odds ratios were calculated for associations between potential clinical predictors and percentage FEV1 change during ASA desensitization, classified into mild (<20% decline) or moderate to severe bronchial reactions (>20% decline).

RESULTS: Factors associated with bronchial reactions of >20% decline in FEV1 during ASA desensitization included: ages 31-40, baseline FEV1 <80%, duration of AERD symptoms <10 years, lack of leukotriene modifier use, and history of previous ER visits for asthma. Factors associated with a reduced risk of moderate or severe reactions included baseline FEV1 >80%, use of leukotriene modifiers, and absence of previous ER visit for asthma. Continuous prednisone use, number of prednisone bursts in the last 12 months, and presence of atopy had no significant association with risk of more severe ASA reactions.

CONCLUSIONS: Risk factors for more severe bronchial reactions during ASA desensitization of AERD patients were identified. Based on these results, patients at high risk for a severe bronchial ASA reaction should be considered for special precautions during desensitization or referral to a center with experience in oral ASA challenges.