GUIDELINES FOR THE TREATMENT OF PATIENTS WITH A HISTORY OF AN ADVERSE REACTION ATTRIBUTED TO PENICILLIN (PCN)

Approach to Patient with History of “PCN Allergy”

Previous “Reaction”

<table>
<thead>
<tr>
<th>Non-Significant</th>
<th>Significant Non-IGE Mediated</th>
<th>Significant IgE Mediated</th>
</tr>
</thead>
<tbody>
<tr>
<td>GI upset</td>
<td>Serum Sickness</td>
<td>Anaphylaxis</td>
</tr>
<tr>
<td>Isolated Fever</td>
<td>Hemolytic Anemia</td>
<td>Urticaria/Angioedema</td>
</tr>
<tr>
<td>Headache</td>
<td>Stevens-Johnson/TEN</td>
<td>Significant Rash</td>
</tr>
<tr>
<td></td>
<td>Interstitial Nephritis</td>
<td>Hypotension</td>
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<tr>
<td></td>
<td></td>
<td>Bronchospasm</td>
</tr>
</tbody>
</table>

Give PCN or Derivative  Use Alternative Antibiotic  Consult Allergy Fellow  For Skin Testing

Skin Testing +  Skin Testing -

Desensitization Protocol  Give PCN/Derivative after risks explained to patient (see below)

**PCN Skin Testing:** Skin testing for PCN is done only through consultation with the Allergy Fellow and is predictive of IgE mediated reactions only. Skin testing cannot be done if the patient has been on recent (24-48h) antihistamines, psychotropics with antihistamine activity or IV heparin. If the need for PCN is urgent and skin testing cannot be performed, desensitization may be indicated (see below). Skin testing is also not done unless there is a previous history to suggest PCN allergy. Skin testing is NOT predictive for significant non-IgE mediated reactions (serum sickness, hemolytic anemia, Stevens-Johnson/TEN, interstitial nephritis), where an alternative antibiotic is suggested.

**If skin testing is negative,** the risk of an IgE mediated reaction is <2% or no greater than that for the general population. In this case, the patient should be informed of this small risk which should be weighed against the risk of infection.

If acceptable to the patient, full dose PCN can be administered. The patient should be closely watched for the first hour of infusion.

**If skin testing is positive,** the risk of an IgE mediated reaction from full dose PCN administration is 60% to 90%. In this case a desensitization protocol must be undertaken.

**Cross reactivity with Cephalosporins:** Some degree of cross reactivity between PCN and cephalosporins exists and ranges from 1% to 15%. Although cephalosporins have been tolerated uneventfully by patients
with positive skin tests to PCN, cautious test dosing is recommended when patients allergic to PCN require cephalosporins.

**Desensitization to PCN: Antibiotic Desensitization Guidelines**

Purpose: To provide guidelines to assure safe care for patients at risk for anaphylaxis during drug desensitization. Patients may be admitted to be desensitized to penicillin, Bactrim, ceftazidime, aztreonam, metronidazole, tobramycin, gentamycin, and vancomycin (list is not all inclusive).

**Contraindications**
1. Serum sickness
2. Hemolytic anemia
3. Stevens-Johnson syndrome
4. Toxic epidermal necrolysis (TEN)
5. Interstitial nephritis

**Procedure:**
1. Allergy must be consulted prior to desensitization in order to provide specific recommendations for the desensitization procedure.
2. Due to the risk of anaphylaxis and death, informed consent must be obtained by the ordering physician.
3. Notify Pharmacy of plan for desensitization. Pharmacy may be able to locate the previous protocol that was used by a specific patient. The previous protocol could be used as a model for the identification of the treatment plan.
4. Patients with a history of severe reaction (respiratory distress, hypotension, or other life threatening events) during the last desensitization will require desensitization to be performed in an ICU.
5. The physician must remain at the patient’s bedside from the time the first dose is administered until the time at which the third dose has begun.
6. **1:1 nursing is required.** Because the procedure can take 4 to 8 hours to complete, CSR staff should be requested to supplement unit staffing, if necessary.
   a. Vital signs including RR, BP, and HR should be monitored and documented prior to every dose and every 15 minutes until 1 hour after last dose is completed.
   b. An anaphylaxis treatment kit containing epinephrine, diphenhydramine, and hydrocortisone must be at the bedside during the desensitization procedure.
   c. Oxygen and suction set up must be at the bedside.
   d. If the patient has a reaction during desensitization:
      i. For warm sensations or rash, stop the desensitization, notify the physician responsible for the patient, and administer diphenhydramine as ordered. The physician must then contact Allergy for further instructions.
      ii. For respiratory distress, hypotension, or other life threatening reactions, stop the desensitization, call the physician responsible for the patient stat, and administer epinephrine as ordered. The physician must then contact Allergy stat for further instructions.
   e. If a patient has an anaphylactic reaction that remains unresponsive to specific therapy after 30 minutes, the patient must be promptly transferred to an ICU.
   f. If a patient has an anaphylactic reaction, a MedWatch form must be completed and sent to Drug Information. Drug Information, 6-8200, can be contacted for further information.

**Examples of desensitization protocols** (see link under index page)