Outcomes of Administering Cefazolin vs. Other Antibiotics in Penicillin Allergic Patients for Surgical Prophylaxis

THE ISSUE

CEFAZOLIN is DRUG OF CHOICE for SURGICAL PROPHYLAXIS in most procedures
- In penicillin-allergic patients, cefazolin is avoided due to concerns of cross-reactions
- Alternative antibiotics are associated with: ↑ surgical site infections (SSIs), ↑ Clostridium difficile infections, & ↑ vancomycin-resistant enterococci

CROSS-REACTIVITY between PENICILLINS & CEPHALOSPORINS are due to similarities in their SIDE-CHAIN structures
- Cefazolin has an unique R3 side-chain and does not cross-react with any other penicillins & cephalosporins

In January 2018, some surgeons & anesthesiologists started using cefazolin in penicillin-allergic patients. In October 2018, all surgical pre-printed orders were updated to recommend cefazolin for penicillin-allergic patients, except in those with previous history of severe delayed skin reactions.

THE METHODS

RETROSPECTIVE CHART REVIEW was conducted at Vancouver General Hospital (VGH) from Oct. 9, 2017 – Oct. 9, 2018 for all eligible patients receiving surgical prophylaxis to ensure safety of cefazolin prior to new pre-printed orders.

1073 pre-op antibiotic orders in penicillin allergic patients assessed for eligibility

852 orders excluded
- 817 orders from non-anaphylactic patients
- 21 duplicate order entries
- 6 orders missing information
- 1 order administered with penicillin (contourer)
- 7 cancelled orders

221 antibiotic orders from penicillin anaphylactic patients reviewed

THE MEASUREMENTS

<table>
<thead>
<tr>
<th>Allergic Reactions</th>
<th>Infections</th>
<th>Antibiotic Adverse Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full Body</td>
<td>Rash</td>
</tr>
<tr>
<td>Cefazolin (n=48)</td>
<td>2 (2.6%)</td>
<td>1 (1.2%)</td>
</tr>
<tr>
<td>Clindamycin (n=33)</td>
<td>2 (3.2%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Vancomycin (n=63)</td>
<td>1 (3.0%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Others</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
</tr>
</tbody>
</table>

THE PURPOSE

To determine SAFETY & EFFICACY of CEFAZOLIN vs. OTHER ANTIBIOTICS for surgical prophylaxis in patients with previous anaphylaxis to penicillins.

THE CHALLENGES

- Education required for all healthcare providers to overcome historic fear of using cefazolin in penicillin-allergic patients
- Limited sample size (n=221)
- Inclusion reliant on accuracy of allergy history
- Opiates & anesthetic agents are possible causes of adverse drug events
- Lack of outpatient follow-up

THE KEY LESSONS LEARNED

- CEFAZOLIN appears SAFE for surgical prophylaxis IN PATIENTS WITH PENICILLIN ANAPHYLAXIS
- NO CASES OF ANAPHYLACTIC REACTIONS reported with cefazolin in penicillin-anaphylactic patients
- NO DIFFERENCES IN ALLERGIES & ADVERSE DRUG EVENTS with cefazolin vs. any antibiotic group
- ANESTHESIOLOGISTS can play role to promote APPROPRIATE ANTIBIOTICS

THE NEXT STEPS

- EDUCATE HEALTHCARE PROVIDERS (surgeons, nurses, anesthesiologists, physicians, pharmacists) on SAFETY OF CEFAZOLIN in penicillin-allergic patients
- Collect DATA POST-IMPLEMENTATION OF UPDATED PRE-PRINTED ORDERS to ensure cefazolin remains safe & effective for our patients

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