**IS IT POSSIBLE TO DECREASE THE RATE OF STAPHYLOCOCCUS AUREUS PERITONITIS?**

Staphylococcus aureus peritonitis is frequently a devastating infection, resulting in severe abdominal pain, prolonged hospitalization, and catheter loss (1). The paper by Wanten et al. (2) confirms previous reports that patients who are S. aureus nasal carriers are at increased risk of S. aureus peritonitis (3,4). Can we reduce the risk of S. aureus peritonitis in this high-risk population? The answer is yes. Several protocols are effective in diminishing the risk of S. aureus infections (Table 1).

Cyclical oral rifampin (300 mg twice a day for five days, every 12 weeks) markedly reduced S. aureus catheter infections compared to placebo, but the reduction in S. aureus peritonitis was insignificant (0.11/year vs 0.16/year in placebo), perhaps because the mean follow-up time was only ten months in the rifampin-treated group (5). However, a subsequent study from the same center showed that intermittent prophylactic rifampin was an independent predictor of a reduction in peritonitis (6). At the University of Pittsburgh Medical Center we also found rifampin to be effective in reducing S. aureus peritonitis to 0.02/year, compared to a rate of 0.16/year during the historical period (7).

Intranasal mupirocin, highly effective in eliminating S. aureus in the nares, decreased S. aureus peritonitis from a previous rate of 0.21/year to 0.02/year, with a concomitant reduction in S. aureus catheter infections (8). Positive nose cultures were treated with 2% mupirocin nasal ointment three times a day for seven days; this was repeated as necessary for subsequent positive nose cultures. In contrast, in a multicenter prospective randomized trial, intranasal mupirocin, twice daily for five days given every month to nasal carriers, did not reduce S. aureus peritonitis rates (0.16/year in the mupirocin group compared to 0.23/year in the placebo group), although there was a dramatic lowering of S. aureus exit-site infections in the mupirocin group (9).

Convinced by the work of Zimmerman et al. (5) in 1992, we began a randomized trial to examine the effectiveness of daily exit-site mupirocin compared to cyclical rifampin (7). The two groups had equivalent numbers of nasal carriers. Both protocols reduced S. aureus catheter infections, and, to a lesser extent, S. aureus peritonitis. Indeed, the rates of catheter-related peritonitis fell from 0.14/year in the period prior to prophylaxis to 0.05/year after prophylaxis was introduced, a decrement entirely due to a decrease in S. aureus peritonitis (10).

Therefore, convincing data now exist to indicate that prophylaxis is effective in reducing the risk of S. aureus peritonitis. Several questions remain. Should only carriers be treated? Probably, since noncarriers have minimal risk of S. aureus peritonitis, as shown in the paper by Wanten et al. (2). Which protocol is preferred? There are no data demonstrating superiority of one protocol over another. Rifampin is contraindicated in patients with liver disease, in those patients on warfarin, or who wear contact lenses (which become stained), and results in significant side effects in 12% of patients, primarily nausea and vomiting. Resistance develops, which then makes this drug not available to treat infections. Intranasal mupirocin is safe and effective in eliminating nasal carriage. The application of mupirocin to the exit site is also safe, effective, and is very acceptable to the patient, which enhances compliance. However, mupirocin should not be applied to polyurethane catheters as damage to the catheter may result. If resistance to mupirocin develops, then little is lost, since this is not a drug used to treat peritonitis. Each center should decide on a regimen of prophylaxis, then implement it in patients who are S. aureus nasal carriers.

**TABLE 1**

Prophylactic Protocols for Prevention of Staphylococcus aureus Infections in PD Patients

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Frequency</th>
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<tbody>
<tr>
<td><strong>Rifampin</strong></td>
<td>300 mg 2 times daily for 5 days every 12 weeks</td>
</tr>
<tr>
<td><strong>Intranasal mupirocin</strong></td>
<td>3 times daily for 7 days for each positive nose culture</td>
</tr>
<tr>
<td><strong>Intranasal mupirocin</strong></td>
<td>2 times daily for 5 days each month</td>
</tr>
<tr>
<td><strong>Exit-site mupirocin</strong></td>
<td>applied daily as part of routine care</td>
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Beth Piraino
Department of Medicine
University of Pittsburgh Medical Center
Pittsburgh, Pennsylvania, U.S.A.
REFERENCES


