The combination of oral amoxicillin plus clavulanic acid and chlorhexidine rinses reduces the incidence of alveolar osteitis associated with the extraction of mandibular third molars


To evaluate the use of 0.2% chlorhexidine gluconate rinses combined with a 5-day course of oral amoxicillin plus clavulanic acid for the prevention of alveolar osteitis after removal of mandibular third molars

Information not available

Randomized controlled trial

Summary

SUBJECTS
A total of 177 patients, 82 males and 95 females, with a mean age of 24 years participated in the study. One mandibular third molar was removed from each patient.

EXPOSURE
Patients were randomly divided into 3 groups. One group rinsed with chlorhexidine before removal of the tooth and twice daily for 7 days following the extraction. A second group also rinsed with chlorhexidine but was also prescribed 500 mg amoxicillin plus 125 mg clavulanic acid twice daily for 5 days following the extraction. A third control group rinsed with sterile saline alone.

MAIN OUTCOME MEASURE
The presence of alveolar osteitis was determined at 3 and 7 days after third molar removal. Alveolar osteitis was diagnosed when the patient reported pain that was unrelieved by paracetamol (acetaminophen) and exposed bone or necrotic tissue was present at the site of the tooth extraction.

MAIN RESULTS
The incidence of alveolar osteitis was 20.9% in the chlorhexidine-rinse-only group, 8.9% in the chlorhexidine/amoxicillin-plus-clavulanic-acid group, and 23.7% in the saline-rinse-only group. The incidence of alveolar osteitis was significantly less ($P = .001, \chi^2$ test) in the group that rinsed with chlorhexidine and received the antibiotic. Chlorhexidine rinse alone did not significantly reduce the incidence of dry socket as compared with the control group.
CONCLUSIONS

The authors concluded that chlorhexidine rinsing combined with oral amoxicillin plus clavulanic acid significantly reduces the incidence of alveolar osteitis after removal of mandibular third molars.

ANALYSIS

This randomized prospective clinical trial demonstrated that oral amoxicillin plus clavulanic acid combined with chlorhexidine rinses reduces the incidence of alveolar osteitis. In the Discussion section of the original article, the authors commented that their study design was flawed because they did not include a group that used a saline control rinse combined with oral amoxicillin plus clavulanic acid. Because the study did not include a group that received antibiotic and rinsed with control saline, it remains unclear if the chlorhexidine rinse is necessary for patients taking amoxicillin plus clavulanic acid. The authors concluded that further studies are needed to address this concern.

The study did not consider the possible placebo effect of taking medications following the extraction of the teeth. The diagnosis of alveolar osteitis depended on patients reporting pain as well as having exposed bone or necrotic tissue in the extraction socket. Taking pills following the extractions could have had a significant placebo effect on pain in the patients who received antibiotic following the extractions. The control rinse and chlorhexidine rinse groups were not prescribed a placebo to take following the extractions.

It will be difficult to apply the results of this study to North American patients. Patients having third molars removed in North America customarily receive a nonsteroidal anti-inflammatory agent and/or a narcotic analgesic to relieve pain rather than paracetamol (acetaminophen). Because “pain unrelieved by analgesics” is a criterion used to diagnose alveolar osteitis, North American patients taking these stronger analgesics may have a lower incidence of alveolar osteitis.

This study demonstrates that antibiotics in combination with chlorhexidine rinsing following removal or third molars may reduce the incidence of alveolar osteitis. However, because the study has significant design flaws, more studies are needed before routine use of amoxicillin plus clavulanic acid after removal of third molars can be recommended. In future studies, the benefits of prophylactic antibiotics must be balanced with risks like adverse reactions to the antibiotics and creation of resistant bacteria.1 In addition, only a single dose of antibiotic immediately before surgery may be needed to prevent infection/alveolar osteitis rather than the 5-day postoperative course of antibiotic evaluated in this study.1

REFERENCE


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TABLE 2. Characterization of teeth and AO

<table>
<thead>
<tr>
<th></th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
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<tbody>
<tr>
<td></td>
<td>Infected (AO)</td>
<td>Asymptomatic</td>
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<tr>
<td>Erupted</td>
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<td>9</td>
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<tr>
<td>Soft tissue impaction</td>
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<tr>
<td>Full bony impaction</td>
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<td>18</td>
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AO, Alveolar osteitis.