**Systematic Review Snapshot**

**TAKE-HOME MESSAGE**
In patients with basilar skull fracture, there is inadequate evidence to recommend for or against antibiotic prophylaxis in the prevention of meningitis, irrespective of cerebrospinal fluid leakage.

**METHODS**

**DATA SOURCES**
The authors electronically searched the Cochrane Central Register of Controlled Trials (February 2011), MEDLINE, EMBASE, and Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS) and hand searched abstracts of neurosurgical conference proceedings and reference lists. Experts in the field were contacted to request additional sources. No language or publication restrictions were applied.

**STUDY SELECTION**
Studies were included if they were randomized controlled trials comparing antibiotics versus placebo or no intervention after basilar skull fracture. Primary outcome was the development of meningitis. Similar observational trials were also identified for inclusion in a separate meta-analysis. Three authors independently identified potentially suitable articles from the search strategy, and disagreements were resolved by discussion with the fourth author.

**DATA EXTRACTION AND SYNTHESIS**
Two authors independently extracted data with standardized data collection forms and globally.

**Does Antibiotic Prophylaxis Prevent Meningitis in Patients With Basilar Skull Fracture?**

**EBEM Commentator**
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**Results**

<table>
<thead>
<tr>
<th>Presence of CSF leakage</th>
<th>Number of Studies</th>
<th>Number of Participants</th>
<th>Odds Ratio</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>All patients</td>
<td>4</td>
<td>208</td>
<td>0.69</td>
<td>0.29–1.61</td>
</tr>
<tr>
<td>With CSF leak</td>
<td>3</td>
<td>92</td>
<td>0.44</td>
<td>0.09–2.15</td>
</tr>
<tr>
<td>Without CSF leak</td>
<td>2</td>
<td>106</td>
<td>0.77</td>
<td>0.25–2.41</td>
</tr>
<tr>
<td>Presence of CSF leakage</td>
<td>1</td>
<td>10</td>
<td>0</td>
<td>0–0</td>
</tr>
</tbody>
</table>

CSF, cerebrospinal fluid.

Five randomized controlled trials were included in the systematic review. Only 2 studies reported the number of and explanations for withdraws leading to an overall high risk of bias in this evidence base. One study was excluded from the meta-analysis because the number of patients in each randomized group was unavailable, although none of the 160 patients enrolled developed meningitis. There were no reported adverse effects of antibiotics in any of the 5 trials.

**Commentary**
Basilar skull fracture (BSF) occurs in approximately 7% to 15% of all nonpenetrating head trauma and is associated with cerebrospinal fluid (CSF) leakage in 2% to 20.8% of patients. Signs that may raise clinical suspicion of BSF include otorrhea, rhinorrhea, raccoon eye’s, Battle’s sign, facial nerve palsy, hemotympanum, and vertigo. CSF leakage can be associated with a dural tear and if present puts patients at higher risk of developing meningitis.

Two previous meta-analyses on this topic showed disparate results, had significant methodological flaws, and did not include recent literature.

The Cochrane review by Ratilal et al highlights a need for continued research into...
the use of prophylactic antibiotics in patients with BSF. The studies included in this review were few and underpowered and had risk of selection bias. However, this review highlights that the current evidence does not permit strong recommendations for the use of antibiotic prophylaxis in patients with BSF irrespective of the presence of CSF leakage. In the absence of strong evidence of either harm or benefit, antibiotic prophylaxis can be used at the discretion of the practicing physician.