Critical Review Form
Therapy

Prospective study of the risk of not using prophylactic antibiotics in nasal packing for epistaxis. J Laryngol Otol. 2012 Mar;126(3):257-9.

Objectives: **"to investigate whether the absence of prophylactic antibiotic prescriptions for patients undergoing nasal packing for spontaneous epistaxis increases the risk of complications, such as those suggested in the literature." (p. 257)**

Methods: **This was a prospective, observational before and after study of all subjects admitted to the otolaryngology service of a tertiary care center in London, UK who underwent nasal packing for spontaneous epistaxis. The initial group of patients was enrolled between October and December 2008. All of these patients were prescribed a 5-day course of oral antibiotics (amoxicillin-clavulanic acid, 625 mg TID or clarithromycin 500 mg BID). The second group of patients was admitted between January and March 2009. Patients in this group were not prescribed prophylactic antibiotics. The duration of packing in both groups was dictated by clinical circumstance. Exclusion criteria included the prescription of antibiotics for an unrelated condition, post-operative epistaxis, cardiac anomalies, and the need for surgical intervention to control epistaxis.**

Outcomes were assessed using the following modalities:

1. **Fiberoptic nasendoscopy and otoscopy.**
2. **The results of Rinne and Weber tests.**
3. **Biochemical marker levels (i.e. CRP).**
4. **A questionnaire evaluating facial pain, purulent nasal discharge, otalgia, and new hearing loss.**

There were 78 patients enrolled during the initial phase of the study, and 71 patients enrolled during the second phase. Of the initial 78 patients, 76 were packed with Merocel, 3 of whom later required packing with bismuth iodoform paraffin paste (BIPP); 2 patients were packed initially with BIPP. Of the 71 patients in the 2nd group, 68 were packed with Merocel, of whom 6 later required packing with BIPP; 3 patients were initially packed with BIPP.

Guide		Comments
I.	**Are the results valid?**	
A.	**Did experimental and control groups begin the study with a similar prognosis (answer the questions posed below)?**	
1.	Were patients randomized?	No. This was a controlled before and after study. In the control group, patients were prescribed oral antibiotics (amoxicillin-clavulanic acid or clarithromycin); the intervention involved a change in protocol, whereby prophylactic antibiotics were no longer prescribed in patients with nasal packing.
2.	Was randomization concealed (blinded)? *Was the method of group allocation concealed to prevent subversion of the randomization scheme?*	N/A
3.	Were patients analyzed in the groups to which they were randomized?	Yes. Presumably all patients in the control group received antibiotics, and all patients enrolled after the intervention did not receive prophylactic antibiotics. Patients were analyzed based on when they were enrolled into the study, either before or after this change in protocol.
4.	Were patients in the treatment and control groups similar with respect to known prognostic factors?	Uncertain. The authors do not provide any information on demographics, patient comorbidities, or duration of nasal packing. The patients were similar with respect to the type of packing employed.
B.	**Did experimental and control groups retain a similar prognosis after the study started (answer the questions posed below)?**	
1.	Were patients aware of group allocation?	Yes. This was a nonrandomized, unblinded trial. It seems unlikely, however, that performance bias on the part of the patients would have significantly altered outcomes.
2.	Were clinicians aware of group allocation?	Yes. It is possible that performance bias on the part of the clinicians could have altered outcomes.
3.	Were outcome assessors aware of group allocation?	Yes. It is possible that observer bias could have affected the interpretation of outcomes.
4.	Was follow-up complete?	Yes. Follow-up details are incomplete, and the timing of various outcome measures is not well defined. Presumably all patients had all of the follow-up testing

		and completed the questionnaire.
II.	**What are the results (answer the questions posed below)?**	
1.	How large was the treatment effect?	Of the 78 patients in the control group (who received oral antibiotics): • 6 (7.7%) complained of otalgia. • All had normal Rinne and Weber testing and normal tympanic membranes on otoscopy. • None developed sinusitis, otitis media, toxic shock syndrome, or any other complication. Of the 71 patients in the intervention group (who did <u>not</u> receive prophylactic antibiotics): • 8 (11.3%) complained of otalgia. • All had normal Rinne and Weber testing and normal tympanic membranes on otoscopy. • None developed sinusitis, otitis media, toxic shock syndrome, or any other complication. The relative risk of otalgia in patients not receiving antibiotics was 1.5 (95% CI 0.4 to 4.0).
2.	How precise was the estimate of the treatment effect?	See above.
III.	**How can I apply the results to patient care (answer the questions posed below)?**	
1.	Were the study patients similar to my patient?	No. These were patients admitted to the otolaryngology service of St. George's Hospital in London, UK for epistaxis. Our patients are primarily treated in the ED and released, even when nasal packing is employed. Having said that, the nasal environment would likely be similar in this admitted to the hospital and discharged. Baseline characteristics and demographics for these patients was not provided; specifically, it would be helpful to know the age range of the included patients, the incidence of diabetes, and the presence of other conditions associated with immunocompromise. Additionally, this study included patients with posterior nasal packing, but did not provide the actual number of patients requiring posterior packing.
2.	Were all clinically important outcomes considered?	No. The outcomes assessed included the presence of otalgia, results of Rinne and Weber testing, otoscopy findings, and nasendoscopy findings. All outcomes

		were presumably assessed prior to hospital discharge. The possibility of complications days or weeks later was not addressed. The authors did not assess patient satisfaction or adverse events from antibiotic administration (e.g. nausea, vomiting, diarrhea, candidal infections, allergic reactions).
3.	Are the likely treatment benefits worth the potential harm and costs?	Uncertain. This was a relatively small before and after study with several methodological limitations. Demographic information and the prevalences of comorbidities were not provided for the two groups. The presence of infectious and symptomatic complications was addressed "before discharge," and the possibility of delayed complications days later was not addressed. The incidence of infectious complications is likely very low, and such a small study would not be able to detect a clinically significant difference in this incidence with and without prophylactic antibiotic administration.

Limitations:

1. **This study is subject to the many biases inherent in before and after study design, and the authors do not detail attempts to mitigate such bias.**
2. **The duration of packing was not made explicit for either group, limiting both comparison between the groups and the generalizability (external validity) of the findings.**
3. **Patients with anterior and posterior packing were included in the study, and the relative numbers of each was not made explicit (external validity).**
4. **No information on demographics or comorbidities was reported.**
5. **All outcomes were assessed before hospital discharge, and hence some late infectious complications may have been missed.**
6. **Adverse events from antibiotics not assessed (allergic reactions, anaphylaxis, diarrhea, nausea/vomiting).**

Bottom Line:

In this small before and after study there were no infectious complications in any of the patients, regardless of whether or not prophylactic antibiotics were administered following nasal packing for epistaxis. The study was limited by both methodological flaws (e.g. study design, reporting of information) and sample size. Additionally, the study failed to assess the adverse effects of antibiotic administration.