Are Prophylactic Antibiotics Necessary for Anterior Nasal Packing in Epistaxis?

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Editor's Note: *Emergency physicians must often make decisions about patient management without clear-cut data of sufficient quality to support clinical guidelines or evidence-based reviews. Topics in the Best Available Evidence section must be relevant to emergency physicians, are formally peer reviewed, and must have a sufficient literature base to draw a reasonable conclusion but not such a large literature base that a traditional "evidence-based" review, meta-analysis, or systematic review can be performed.*

The lifetime incidence of epistaxis is approximately 60%,[1] resulting in 450,000 emergency department (ED) visits per year.[2] Anterior nasal packing remains a common procedure in these cases, and patients are frequently prescribed oral antibiotics when packing is placed. A survey from the United Kingdom in 2005 revealed that 78% of physicians believed that the use of prophylactic systemic antibiotics reduced the risk of infection when anterior nasal packing was used.[3] An article on the management of epistaxis from the American College of Emergency Physicians noted that "most sources recommend" the use of prophylactic systemic antibiotics "to prevent sinusitis and toxic shock syndrome."[4] However, there is limited evidence to support such recommendations, and the benefits of systemic antibiotics administration must be weighed against the potential harm. Studies of antibiotic use after rhinoplasty and septoplasty have demonstrated a lack of benefit[5] in part because of the low incidence of infectious complications. The incidence of toxic shock syndrome, for example, is estimated to be approximately 16.5 per 100,000 cases after nasal surgery.[6] Assuming similarly low, or lower, infectious complication rates in epistaxis, the common practice of prescribing antibiotics after nasal packing becomes suspect, and the evidence requires close review.

SEARCH STRATEGY

A PubMed MEDLINE search was performed with the keywords "epistaxis AND antibiotics" with no limits, yielding 200 articles. The Cochrane Database was searched with the terms "epistaxis AND antibiotics," resulting in 2 citations. EMBASE was searched with the terms "epistaxis AND antibiotics," resulting in 167 citations. All citations were reviewed to identify original research evaluating the efficacy of systemic antibiotics in the setting of anterior nasal packing for epistaxis. There were 3 relevant articles identified. The bibliographies of these articles were reviewed for additional references, but none were identified.

ARTICLE SUMMARIES

Biswas and Mal[7]

This was a prospective study of 28 patients with epistaxis managed with anterior nasal packing, admitted to the otolaryngology service of a large teaching hospital in Bristol, England, between August 1, 2005, and January 31, 2006. Merocel packing was used in 16 cases, whereas Rapid Rhino was used in the remaining 12. Unilateral packing was used in 21 cases, whereas 7 required bilateral packing. Eleven patients had packing remain in place for more than 24 hours and were prescribed antibiotics (amoxicillin with clavulanic acid) according to hospital guidelines; of these, packing remained in place for 24 to 48 hours in 8 patients, for 48 to 72 hours in 2 patients, and for more than 72 hours in 1 patient. Two additional patients received antibiotics for coexisting conditions, whereas 15 patients did not receive systemic antibiotics.

In those 21 patients with unilateral nasal packing, 9 of whom received antibiotics, nasal swabs were obtained and sent for bacterial culture from both the packed and unpacked nares after packing removal. There was no significant difference in bacterial growth noted between patients who received antibiotics and those who did not. The microbiological results were also similar between the packed and nonpacked sides after pack removal. Cultures were not obtained in the 7 cases in which bilateral nasal packing was used. All patients underwent rigid nasal endoscopy after removal of nasal packing to assess for signs of infection. All patients were also evaluated in clinic 1 week after discharge from the hospital. No clinical infections were encountered in any patient throughout the study. None of the patients complained of fever, nasal discharge, or facial pain, and none had signs of infection on endoscopy.

Pepper et al[8]

This was a prospective before-and-after study of all subjects admitted to the otolaryngology service of a tertiary care center in

London, England, who underwent nasal packing for spontaneous epistaxis. There were 78 patients enrolled during the initial phase of the study, between October and December 2008. Merocel packing was used in 76 of these patients, whereas a bismuth iodoform paraffin paste dressing and Foley catheter were used in the remaining 2; 3 of the patients whose nares were initially packed with Merocel subsequently required a bismuth iodoform paraffin paste dressing and Foley catheter. There were 71 patients enrolled during the second phase, between January and March 2009. Of these, 68 patients' nares were packed with Merocel and 9 with bismuth iodoform paste dressing and a Foley catheter; 6 patients initially receiving nares packing with Merocel subsequently required a bismuth iodoform paraffin paste dressing and Foley catheter.

All patients in the initial phase were prescribed a 5-day course of oral antibiotics (amoxicillin-clavulanic acid or clarithromycin). Patients enrolled during the second phase were not prescribed antibiotics. The duration of packing in both groups was dictated by clinical circumstance, though the authors noted that packing remained in place for 24 to 36 hours in most cases. Exclusion criteria included the prescription of antibiotics for an unrelated condition, postoperative epistaxis, cardiac anomalies, and the need for surgical intervention to control epistaxis. Fiberoptic nasoendoscopy, otoscopy, Rinne and Weber testing, and a questionnaire evaluating facial pain, purulent nasal discharge, otalgia, and new hearing loss were evaluated in all patients.

There were no differences in outcomes between the 2 study groups. Of the 78 patients in the antibiotic group, 6 (7.7%) complained of otalgia. All of these patients had normal Rinne and Weber testing results and normal tympanic membranes on otoscopy. None developed sinusitis, otitis media, toxic shock syndrome, or any other complication. Of the 71 patients in the no antibiotic group, 8 (11.3%) complained of otalgia. As in the first group, all of these patients had normal Rinne and Weber testing results and normal tympanic membranes on otoscopy, and none developed sinusitis, otitis media, toxic shock syndrome, or any other infectious complication.

Biggs et al[9]

This retrospective before-and-after study included patients admitted to the otolaryngology service at the University Hospital Southampton NHS Foundation Trust with spontaneous epistaxis requiring anterior nasal packing. There were 38 patients included during the first cycle, between September 30, 2010, and January 11, 2011. During this period, it was common practice to prescribe prophylactic oral antibiotics for all patients with nasal packing for epistaxis, and 28 (74%) patients were prescribed antibiotics, 20 of whom had nasal packing in place for 48 hours or less. After the first cycle, a new treatment algorithm was implemented in which only patients with anterior nasal packing for greater than or equal to 48 hours, or those with another indication for antibiotics, received oral amoxicillin-clavulanic acid or clarithromycin. In accordance with this algorithm, 19 patients were enrolled in the second cycle, between June 14, 2011, and August 17, 2011, of whom only 3 (15.8%) were prescribed antibiotics.

All patients were contacted for a follow-up telephone interview 6 weeks after hospital discharge to assess for infectious symptoms or recurrent epistaxis requiring hospital readmission. There were no statistically significant differences in the rates of infectious nasal symptoms, rebleeding, or readmission rates between the 2 groups. There were 2 cases of sinusitis reported, 1 from each of the study cycles.

THE BOTTOM LINE

The current body of evidence on the effect of antibiotics in anterior nasal packing does not, unfortunately, include any methodologically rigorous studies. The evidence instead consists of small retrospective, observational and nonrandomized, prospective studies of admitted patients, rather than patients being discharged from the ED. Despite these limitations, none of the identified studies reported any cases of toxic shock syndrome or otitis media when antibiotics were withheld from patients with packing in place for less than 24 to 48 hours. The incidence of sinusitis was similarly low, occurring in only 1 study: 1 case in the group preferentially prescribed antibiotics and 1 in the group in which antibiotics were prescribed less often. There have additionally been no cases of toxic shock syndrome from anterior nasal packing reported in the medical literature. Although there is no compelling evidence to refute the utility of prophylactic antibiotics in nasal packing for epistaxis, there is also no evidence that withholding antibiotics causes harm. Given the potential risks associated with antibiotic administration, including anaphylaxis, Stevens-Johnson syndrome, rash, gastrointestinal upset, and *Clostridium difficile* infection, it is plausible that the risks of antibiotic administration would outweigh the benefits when all complications were considered. It may therefore be reasonable to withhold antibiotics in otherwise healthy patients, though consideration should be given to those with immune compromise or valvular heart disease. Future studies should attempt to prospectively evaluate the use of prophylactic antibiotics in a cohort of ED patients with anterior nasal packing to verify or refute these conclusions.

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