

## ANTIMICROBIAL PROPHYLAXIS IN NASAL SURGERIES

### CIRCUMSTANCES IN WHICH PROPHYLAXIS IS USUALLY RECOMMENDED:

1. Surgery in patients with risk of bacterial endocarditis.
2. Surgery for traumatized or contaminated wounds.
3. Surgical incisions into contaminated areas or across mucosal edges (e.g., mouth, pharynx, tonsils/adenoids<sup>1</sup>, infected nose/sinuses, skull base<sup>2</sup>).
4. Surgery on patients with compromised host defenses: irradiated tissues; steroid therapy; cancer chemotherapy; impaired vascularity; debility.
5. Surgery for prosthetic device implantation.
6. Cerebrospinal fluid exposure, otorrhea or rhinorrhea.
  - a. If surgical or traumatic in the presence of active infection: treat contamination with vancomycin plus ceftazidime + metronidazole<sup>2</sup>.
  - b. b. If traumatic “clean”: careful observation and no antibiotics, but treat at earliest signs/symptoms of acute otitis media or sinusitis with IM ceftriaxone (Rocephin) or oral medications.

### INFECTION PROPHYLAXIS IN SURGERY.

For CLEAN SKIN-ONLY INCISIONS IN HEALTHY PATIENTS<sup>3</sup>,

- Microbiology: *Staph. aureus* (including meth-resistant strains: MRSA), *Staph. Epidermidis*
- Drug choices (if circumstances deem necessity):

Primary:

IV: cefazolin (Ancef, Kefzol)  
1 Gm before anesthesia induction  
OR  
Oral: cephalexin (Keflex)  
500 mg 1 h pre-op

Alternative:

IV: clindamycin (Cleocin)  
600-900 mg (slow drip) before anesthesia  
OR  
Oral: clindamycin (Cleocin)  
150-300 mg 1 h pre-op

- If MRSA suspected or prevalent: TMP/SMX oral, Vancomycin or Tygecycline IV.

FOR CLEAN NASAL SURGERY (rhinoplasty, turbinate/septoplasty),

- Infections are so rare that protective effect of prophylaxis has defied statistical substantiation<sup>3,4</sup> and some authorities have recommended against routine prophylaxis. But some clinicians fear that toxic-shock syndrome<sup>5</sup> is a risk without prophylaxis (although unproven) and that the devastating effect of some infection (even though rare) might argue in favor of prophylaxis.
- Microbiology: *Staph. aureus*, including MRSA.
- Drug choices: cleanse vibrissae and nasal vestibules with antiseptic surgical preparation and impregnate nasal packing with antimicrobial ointments. Antibiotics, if deemed necessary, **are same as for skin.**

For CONTAMINATED NASAL SURGERY (such as acute or chronic sinusitis) or maxillofacial surgery/injury with oral exposure, antimicrobials are therapeutic rather than prophylactic, and they are recommended.

- Microbiology: *Staph. aureus* and mixed aerobes/anaerobes pseudomonas, in sinusitis with polyps
- Drug choices: clindamycin or vancomycin-plus-metronidazole as for oral/pharyngeal surgery. If pseudomonas is suspected, add gentamicin or ceftazidime as for major head and neck surgery above. For intracranial contamination,

EXPOSURE OF THE INTRACRANIAL SPACE, penetration of the dura, and contamination of the cerebrospinal fluid can have devastating consequences. Immediate administration of IV agents (such as those named below) is advisable. The choice of agent depends on the probable contaminating bacteria. Two neurosurgical studies have demonstrated efficacy of irrigation of the surgical site with bacitracin–50,000 units in 200 ml of normal saline. For penetrating intracranial wounds (including gunshot), vancomycin plus either meropenem or ceftazolin/cefepime would cover staph., strep., pseudomonas, etc.

Primary:

IV (slow) vancomycin 5 Gm  
plus ceftriaxone (Rocephin) 1-2 Gm

Alternatives:

Meropenem IV or levofloxacin or  
Ampicillin/Sulbactam plus rifampin

**Section III.G–Selection of Drugs for Intracranial Infections**

<b>DIFFUSION OF ANTIMICROBIALS INTO THE CEREBROSPINAL FLUID</b>		
Excellent with or without inflammation of meninges	Good only with inflammation of meninges	Minimal, nil, or unpredictable
Chloramphenicol Metronidazole Rifampin Sulfonamides Trimethoprim-sulfa	Ampicillin Aztreonam Cefepime Cefotaxime Ceftazidime Ceftriaxone Cefuroxime Ciprofloxacin? Fluconazole, flucytosine Gatifloxacin? Imipenem (seizure risk) Levofloxacin? Meropenem Nafcillin Penicillin G: high doses Piperacillin* Ticarcillin* Timentin	Amikacin Amphotericin B Benzathine penicillin Cefazolin** Cefoxitin Erythro/clarithro/azithromycin Gentamicin Imipenem* Moxifloxacin Polymyxins Tetracyclines Tobramycin Vancomycin: high doses

\*Insufficient for pseudomonas.

\*\*Good only if protein is high; therefore, not predictable.

**References:**

1. Burkart & Steward: Antibiotics...post-tonsillectomy, *Laryngoscope* 2005; 115:997-1002. Dhiwaker: *Otolaryng., Head, Neck Surg.* 2006; 134:357.
2. Kraus, *et al.*: Skull Base Surgery, *Laryngoscope* 2005; 115:1347-1357.
3. Stroman: *Laryngoscope* 2001; 111:2054. Johnson and Yu (ed.): *Infectious Diseases and Antimicrobial Therapy of the Ears, Nose, and Throat*. Philadelphia, W.B. Saunders Co., 1997. See pages 587-619 for comprehensive overview.
4. Robbins, *et al.*: *Laryngoscope* 1988; 98:803. Jackson: *Laryngoscope* 1988; 98:1116. Weimert and Yoder: *Laryngoscope* 1980; 90:667.
5. Breda, *et al.*: Toxic Shock Syndrome in Nasal Surgery, *Laryngoscope* 1987; 97:1388. Also Jacobson: *Arch. Otolaryng.* 1988; 114:326. Gittleman: *Laryngoscope* 1991; 101:733. Abram: *Laryngoscope* 1994; 104:927. Moser: *Otolaryng., Head, Neck Surg.* 1995; 113:632. Younis: *Arch. Otolaryng.* 1996; 122:83.