MSH + UHN ASP ANTIMICROBIAL STEWARDSHIP PROGRAM

NOSOCOMIAL MENINGITIS

CONSULT ID

PREFACE
- Infectious Diseases consultation strongly recommended for all cases of nosocomial meningitis

EMPIRIC CHOICES
- Vancomycin 15-20 mg/kg iv q12h (with loading dose) **PLUS** one of:
  - ceftazidime 2 g iv q8h (or ceftriaxone 2 g iv q12h if basal skull fracture)
- Adjunctive dexamethasone **NOT** routinely recommended

ROUTE
- Intravenous (may consider p.o. step-down in cases caused by GNB susceptible to quinolones or TMP-SMX)

DURATION
- Duration depends on multiple factors: 1) pathogen, 2) presence and removal of CSF shunt device, 3) presence of brain abscess, 4) presence of skull bone involvement (i.e., osteomyelitis), 5) clinical response to therapy
  - **Meningitis**
    - *S. aureus* – 14 days
    - Coagulase-negative staphylococci (CNST) – 7 days
    - Gram-negative bacilli – 21 days
  - **Shunt infection** – Device removal almost always required for clearance of organisms
    - CNST – 7 days minimum, continue 7 days beyond shunt removal
    - *S. aureus* – 14 days
    - GNB – 21 days

ALTERNATIVES FOR ALLERGIES
- If severe beta-lactam allergy, vancomycin PLUS one of: ceftazidime or anti-pseudomonal quinolone

MOST COMMON ORGANISMS
- *Staphylococcus* species (including MSSA, MRSA and CNST)
- *Pseudomonas aeruginosa*
- Enteric gram-negative organisms (including broad-spectrum beta-lactamase producing organisms)
- *Propioinibacterium acnes*
- Organisms associated with community-associated acute bacterial meningitis far less common

CURRENT RESISTANCE ISSUES
- Local rates of ESBL and AMP-C producing organisms important in determining whether a carbapenem is indicated as initial therapy

IMMUNOCOMPROMISED HOST CONSIDERATION
- Pathogens associated with community-associated bacterial meningitis also a consideration
- Consider addition of *Listeria* coverage (i.e., ampicillin or TMP-SMX) to empiric therapy

ADDITIONAL DIAGNOSTIC AND THERAPEUTIC COMMENTS
- Diagnosis based on clinical setting, CNS imaging, and cerebrospinal fluid (CSF) analysis (e.g., culture and cell counts)
- Organisms often considered to be non-pathogenic can be significant in nosocomial meningitis (e.g., CNST)
- Intra-ventricular antibiotics of unclear benefit and may be considered in cases with persistently positive CSF cultures or inability to remove CNS device

References:

Van de Beek D, Drake JM, & Tunkel AR. *N Engl J Med*. 2010; 362:146-154

Tunkel AR, Hartman BJ, Kaplan SL, Kaufman BA, Roos KL, Scheld WM, & Whitley RJ. Practice Guidelines for the Management of Bacterial Meningitis. *Clinical Infectious Diseases*. 2004;39:1267 -1284