Fungal Meningitis Outbreak after Epidural Anesthesia in Mexico

- Public health officials are investigating a multinational fungal meningitis outbreak linked to procedures under epidural anesthesia in Mexico at: Riverside Surgical Center and Clinica K-3.
- Over 200 U.S. residents were exposed, and several already died from meningitis.
- ***Fusarium solani*** species complex was detected by U.S. and Mexico laboratories.
- **An LP is recommended for all exposed patients, even those without symptoms,** because: (1) >40% *Fusarium* fungal meningitis fatality rate; and (2) infection may have mild or no symptoms at first. Early antifungals can improve morbidity and mortality.

Testing at-risk patients

1. **Verify patient** received epidural anesthesia from January 1, 2023 to May 13, 2023 at Riverside Surgical Center or Clinica in K-3, in Matamoros, Mexico.
2. **Perform fungal meningitis CSF diagnostic testing**
   - Even if asymptomatic, patients should receive an initial LP (unless contraindicated, e.g., puncture site skin infection, brain mass causing increased intracranial pressure).
   - CSF testing should include beta-d-glucan (Fungitell®), a fungal infection marker positive in multiple patients; recommended testing is available in the Interim Recommendations.
   - Normal LP results: WBC count <5 cells/mm^3 (account for RBC presence by subtracting 1 WBC for every 500 RBCs).
   - Abnormal LP results: >5 WBCs/mm^3 (subtract 1 WBC for every 500 RBCs).
3. **Normal initial LP results**
   - Consider repeat LP 2 weeks after the initial LP.
   - If new or worsening meningitis symptoms within 30 days of initial LP, patient should immediately go to the ED for reevaluation, including an urgent repeat LP.
4. **Abnormal LP results**
   a. **Dual antifungal therapy** with IV liposomal amphotericin B (AmBisome®) and voriconazole a minimum of 2 weeks. At least 3 months antifungal therapy recommended, but > 6 months needed for severe cases.
   b. Check serum voriconazole trough level (target 4–5 mcg/ml) day 5 of voriconazole (and at least weekly thereafter)
   c. **MRI with and without contrast** for meningeal enhancement, vasculitis, stenosis, hemorrhage, and/or ischemia.
   d. If available, **consult infectious disease specialist, pharmacist, and/or neurologist** to help management and patient follow-up due to:
      - Antifungal therapy side effects and voriconazole therapeutic drug monitoring.
      - Potential complications of fungal meningitis include elevated intracranial pressure, CNS vasculitis, brain edema, strokes, and intracranial hemorrhage.
   e. Adjust treatment, monitor for symptoms, and manage complications; clinicians should anticipate the need for outpatient antimicrobial therapy and close outpatient follow-up.
5. **Discharge** depends on: (1) clinical improvement; (2) CSF profile improvement (decreased beta-D-glucan levels suggest treatment is working); (3) ability to ensure close outpatient monitoring and follow-up (serum voriconazole levels, kidney and liver function).

Communications and resources

- Notify and update local or state public health officials on suspected cases, including HAI coordinators at HAI/AR Programs: Recipient Health Departments and Funding website.
- State and local health departments and the Centers for Disease Control (CDC) (FungalOutbreaks@cdc.gov), are available to assist with case reporting and guidance.
- Updated information at CDC website describing fungal meningitis outbreak.