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Complex neurological infections require team care

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A team approach is vital to the successful diagnosis and treatment of complex neurological infections related to placement of devices in the brain, or as a result of neurosurgery or head trauma. This is among the recommendations in the first comprehensive guidelines on healthcare-associated ventriculitis and meningitis, which are being released by the Infectious Diseases Society of America (IDSA) and published in the journal *Clinical Infectious Diseases*.

"These complicated infections affect the central nervous system and can lead to death and permanent disability if not recognized and managed appropriately," said Allan R. Tunkel, MD, PhD, lead author of the guidelines and professor of medicine and associate dean for medical education at Warren Alpert Medical School of Brown University, Providence, R.I. "While other guidelines have addressed infections in specific circumstances, these provide more comprehensive guidance to physicians of various specialties who care for these complex patients."

The guidelines provide parameters regarding when clinicians should consider the possibility of ventriculitis (inflammation of the ventricles in the brain) or meningitis (inflammation of the lining of the brain or spinal cord) in patients who have cerebrospinal fluid shunts and drains (devices placed in the brain to relieve pressure due to fluid buildup), intrathecal drug pumps (for administration of pain medicine or other drugs into the spinal canal), deep brain stimulation hardware (medical devices that provide electrostimulation in the brain to treat Parkinson's disease or other neurological symptoms) or who have undergone neurosurgery or

suffered from head trauma. Due to the complexity of these infections, they need to be managed by a multidisciplinary team most often featuring infectious diseases (ID) specialists, neurologists, neurosurgeons and neurocritical care specialists, Dr. Tunkel said.

The guidelines help clinicians determine when to suspect ventriculitis or meningitis and start patients on appropriate antimicrobial therapy while awaiting culture results to confirm the infection and organism causing it. Vancomycin typically is the recommended antimicrobial agent of choice while clinicians await culture results, due to its success at combating the staphylococcus bacteria (a common cause of these types of infections); another antimicrobial agent is also added to treat other potential organisms. Additionally, the guidelines recommend when a device should be removed and replaced.

The guidelines also delve into various ways these infections may be prevented, such asusing prophylactic antibiotics during placement of the devices, as well as employing "practice bundles," specific steps neurosurgeons should take when placing shunts and drains.

"Specialists must work together to ensure proper management of these patients, which is critically important to improving outcome," said Dr. Tunkel. "These guidelines offer currently available evidence for treating these infections, but physicians need to use individual judgement based on how patients are responding to therapy."

More information: Allan R. Tunkel et al. 2017 Infectious Diseases Society of America's Clinical Practice Guidelines for Healthcare-Associated Ventriculitis and Meningitis*, *Clinical Infectious Diseases* (2017). DOI: 10.1093/cid/ciw861

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