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Swathi Chidambaram, BS, M. Nathan Nair, MD MPH, Shyam Sundar Krishnan, MD, Ling Cai, Ph.D. M.A, Weiling Gu, BS, Madabushi Chakravarthy Vasudevan, MD



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Postoperative Central Nervous System Infection (PCNSI) After Neurosurgery in a Modernized, Resource-Limited Tertiary Neurosurgical Center in South Asia

Swathi Chidambaram BS¹; M. Nathan Nair MD MPH²; Shyam Sundar Krishnan MD³; Ling Cai Ph.D. M.A⁴; Weiling Gu BS⁴; Madabushi Chakravarthy Vasudevan MD³

1. Georgetown University School of Medicine, Washington DC 20007, USA.
2. Department of Neurosurgery, Georgetown University Medical Center, Washington DC 20007, USA
3. Post Graduate Institute of Neurological Surgery, Dr. A. Lakshmiipathi Neurosurgical Centre, Voluntary Health Services Hospital, Chennai, Tamil Nadu, India
4. Department of Biostatistics, Bioinformatics and Biomathematics Georgetown University Medical Center, Washington DC 20057, USA

Abstract:

Background: Postoperative central nervous system infections (PCNSI) are rare but serious complications after neurosurgery. This study examined the prevalence and causative pathogens of PCNSIs at a modernized, resource-limited neurosurgical center in South Asia.

Methods: This was a retrospective analysis of the medical records of all 363 neurosurgical cases operated between June 1, 2012 and June 30, 2013 of a neurosurgical center in South Asia. Data from all operative neurosurgical cases during the thirteen-month period were included in the study.

Results: The results indicated 71 of the 363 surgical cases had low CSF glucose or CSF leukocytosis in their CSF analysis. These 71 cases were categorized as PCNSIs. The PCNSIs with positive CSF cultures (9.86%) all had gram-negative bacteria with *P. aeruginosa* (n=5), *E. coli* (n=1), or *K. pneumoniae* (n=1). The data suggests a higher rate of death ($p=0.031$), a higher rate of CSF leak ($p<0.001$) and a higher rate of cranial procedures ($p<0.001$) among the infected patients and a higher rate of CSF leak among the patients with culture-positive infections ($p=0.038$).

Conclusions: The study summarizes the prevalence, causative organism of PCNSIs, and antibiotic usage for all of the neurosurgical cases over a thirteen-month period in a modernized yet resource-limited neurosurgical center located in South Asia. The results from this study highlight the PCNSI landscape in an area of the world that is often underreported in the neurosurgical literature due to the paucity of clinical, neurosurgical research currently being undertaken here. This study shows an increasing prevalence of gram-negative organisms in CSF cultures from PCNSIs, which supports a trend in the recent literature of increasing gram-negative bacillary meningitis.

Abbreviations: PCNSIs, Post-Operative Central Nervous System Infections; GNBM, Gram Negative Bacillary Meningitis

Key Words: Post-operative complications, Infection, Meningitis, Resource-limited, Cost Analysis

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