Stenotrophomonas maltophilia meningitis

Treatment

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Case series

The clinical characteristics of six Stenotrophomonas maltophilia ABM cases, collected during a study period of nine years (2001-2009) were included. In the related literature, 13 S. maltophilia ABM cases were reported, and their clinical data were also collected.

The 19 S. maltophilia ABM cases included 11 men and 8 women, aged 28-70 years. Of these 19 cases, 89.5% (17/19) had underlying neurosurgical (NS) conditions as the preceding event. Before the development of S. maltophilia ABM, 52.6% (10/19) of them had long stays in hospital and 63.2% (12/19) had undergone antibiotic treatment. Among the implicated S. maltophilia cases, three strains were found to have a resistance to sulfamethoxazole-trimethoprim (SMZ-TMP). Two of our five cases had resistant strains to levofloxacin. Among the antibiotics chosen for treatment, SMZ-TMP was the most common followed by quinolone (ciprofloxacin, levofloxacin, moxifloxacin). The therapeutic results showed 2 cases expired while the other 17 cases survived.

S. maltophilia ABM usually develops in patients with a preceding neurosurgical condition, a long hospital stay and antibiotic use. SMZ-TMP and quinolones, especially the ciprofloxacin, are the major antibiotic used. This study also shows the emergence of clinical S. maltophilia strains which are not susceptible to SMZ-TMP and quinolones and this development may pose a more serious threat in the near future because treatment options may become depleted and limited despite the mortality rate of this specific group of ABM not being high at this time [1].

Case reports

A young female patient with history of multiple shunt revisions in the past, came with shunt dysfunction and exposure of the ventriculoperitoneal shunt tube in the neck. The abdominal end of the shunt tube was seen migrating into the bowel during shunt revision. The cerebrospinal fluid analysis showed evidence of Stenotrophomonas maltophilia growth. This is the first reported case of Stenotrophomonas maltophilia meningitis associated with ventriculoperitoneal shunt migration into the bowel. [2].

A patient who developed C. utilis and S. maltophilia after undergoing neurosurgery and received effective nosocomial meningitis treatment. Multiple neurosurgeries were required for a 16-year-old girl due to complications. For probable nosocomial meningitis, she was treated with cefepime with vancomycin. Meropenem and liposomal amphotericin B were prescribed after her seizure and positive CSF culture for Candida utilis. Consequently, S. maltophilia was discovered in the CSF, and

ceftazidime and trimethoprim-sulfamethoxazole were prescribed. The patient has been hemodynamically stable for the past two months, and consecutive CSF cultures have been negative. To the best of our knowledge, this is the first case of C. utilis and S. maltophilia co-infection that has been successfully handled. [3].

Two cases of S. maltophilia meningitis following neurosurgical procedures. The first patient was a 60-year-old female. She was admitted to the hospital with a left basal ganglia bleed and underwent placement of an external ventricular drain for the treatment of hydrocephalus. She developed S. maltophilia meningitis 20 days after surgery. She was successfully treated with a combination of trimethoprim-sulfamethoxazole and intravenous colistin and the removal of the drain. She successfully underwent a ventriculoperitoneal (VP) shunt placement at the therapeutic midway point. The second patient was a 35-year-old male with a history of intracranial aneurysm bleeding. He had undergone a craniotomy and placement of a ventriculoperitoneal shunt two years previously. His shunt was replaced twice due to blockage. The last replacement had occurred 15 days prior to the development of meningitis. He was treated with a combination of trimethoprim-sulfamethoxazole and ceftazidime (as well as undergoing another shunt replacement) and experienced an excellent recovery. S. maltophilia is a rare but important cause of nosocomial meningitis. It is strongly associated with prior hospitalization and neurosurgical intervention, which is also found in our case series. The management of S. maltophilia meningitis is a therapeutic challenge due to its high resistance to multiple antibiotics. Optimal therapy is based on antimicrobial sensitivity, and the trimethoprim-sulfamethoxazole-based combination has been shown to be successful. The duration of therapy is debatable, but like most gram-negative meningitis infections, therapy lasting up to three weeks appears to be adequate. [4].

Stenotrophomonas maltophilia CSF infection in infants after neurosurgery [5].

A 4-year-old boy who developed meningitis associated with this organism, after several neurosurgical procedures and previous treatment with a broad-spectrum antibiotic. He was treated successfully with a combination of trimethoprim-sulfamethoxazole, ceftazidime and levofloxacin. Stenotrophomonas maltophilia should be considered as a potential cause of meningitis, especially among severely debilitated or immunosuppressed patients. Antimicrobial therapy is complicated by the high resistance of the organism to multiple antibiotics. [6].

A case of a six months old, male child who developed meningitis caused by Stenotrophomonas maltophilia, after he underwent a neurosurgical procedure. [7].

A 30-year-old male patient who developed meningitis associated with this organism after several neurosurgical procedures. A review of the literature revealed only 15 previous reports. Most cases were associated with neurosurgical procedures. Antimicrobial therapy is complicated by multiple drug

resistance of the organism, and trimethoprim-sulfamethoxazole is the recommended agent for treatment. [8].

A case of generalized infection by S. maltophilia, including meningitis, bacteremia and respiratory tract infection, in a patient who had undergone multiple neurosurgical procedures and who was treated with trimethoprim-sulphamethoxazole [9].

Two cases of meningitis caused by Stenotrophomonas maltophilia in cancer patients following placement of an Ommaya reservoir for treatment of meningeal carcinomatosis. In addition, they review eight other cases of S. maltophilia that have been reported to date. Stenotrophomonas maltophilia meningitis is often associated with neurosurgical procedures; however, spontaneous infection may also occur, mainly in neonates. The disease's clinical presentation is similar to that of other forms of meningitis caused by Gram-negative bacilli. The overall mortality rate of this disease is 20% and is limited to neonates with spontaneous meningitis in whom effective antibiotic therapy is delayed. Meningitis caused by S. maltophilia in the modern era should be considered in immunocompromised hosts with significant central nervous system disease who have undergone neurosurgical procedures and who do not readily respond to broad-spectrum antimicrobial coverage. [10].

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