

## Multidisciplinary Teams in Central Nervous System Infection

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### Commentary

Central nervous system (CNS) infection is one of the most common diseases of the nervous system which is also one of the most fatal diseases worldwide. According to the World Health Organization, in 2004, 700,000 people were infected with meningitis and nearly half of them died of this disease [1]. CNS infection could be caused by various pathogenic microorganism, including viruses, bacteria, fungi, parasites, mycobacterium tuberculosis and so on [2].

Under normal circumstances, the blood-brain barrier (BBB) protects the central nervous against infection. However, the immune defense function of BBB declines with aging, increasing morbidity of AIDS, diabetes, cardiovascular disease and immune compromising treatment in transplant medicine, autoimmune disorders and cancer. In combination with a rise in international travel, this growing group of high-risk patients has expanded the quantity and spectrum of infections of the nervous system [3].

CNS infected patients may present different symptoms, including headache, fever, altered mental status, and behavior changes. Severe inflammation may cause edema of the brain, and eventually, increased intracranial pressure [4]. However, the clinic traits of different CNS infection are so similar that it is difficult for doctors to make precise diagnosis. In most cases, abnormal imaging findings alone is not sufficient for radiologist to make right diagnosis, and there are always some nervous system infections that doctors cannot diagnose even with plenty relevant laboratory results. Fortunately, steady progress has been made to facilitate the diagnosis and managements of the central nervous infections.

Multidisciplinary teams (MDT) are a group of people from different health-care disciplines. They meet together at a given time to discuss a given patient and contribute independently to the diagnostic and treatment decisions about the patient [5]. This multidisciplinary team care approach now is recommended for many types of cancer, for example, breast cancer [6], gastric cancer [7], lung cancer [8]. And patients receiving treatments managed by such a team present better survival outcomes. MDT treatment is also applied in a variety of non-cancer diseases, including Parkinson's disease [9] diabetes [10], and has obtained good curative effects.

The composition of the team varies depending on the disease type and can include surgeons, diagnostic and therapeutic radiologists, histopathologists, medical and clinical oncologists, nurse specialists, and palliative-care physicians [11]. In MDT, different departments of the health-care no longer work alone but corporate together to identify and meet the demand of patients. The best quality and good continuity of patient care are provided together by key professionals with all the necessary knowledge, skills, and experience. MDT working would

thereby ensure high-quality diagnosis, evidence-based decision making, optimum treatment planning, and delivery of care [11].

Since the infections of CNS is so complicated, it needs the cooperation between different departments, especially when the disciplines in the hospital are divided into many departments. The treatment of a single unit cannot solve all the problems of the patient alone. Through multi-disciplinary cooperation, doctors can work together to make excellent treatments for patients. Even if the disease is complex and variable, experts can manage it through MDT.

Also, except complicated clinic traits, patients with neuroinfectious diseases usually need extensive diagnostic evaluations, long-term antimicrobial therapy, long time treatment, lengthy hospitalizations, prolonged rehabilitation, and thereby are faced with heavy financial burdens. Therefore, the application of multidisciplinary collaboration in the treatment of CNS infection is required and will have positive results.

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