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Abstract

Acute Neurological Syndrome of Undetermined Etiology in an Intensive Care Unit in the Interior of Ceará: Differential Diagnosis of Tetanus, Meningoencephalitis, and Alcohol Withdrawal Syndrome—A Case Report

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Introduction: Severe neurological syndromes accompanied by muscle rigidity and generalized spasms pose a major diagnostic challenge in critically ill patients, particularly when potentially fatal conditions have overlapping clinical manifestations. When tetanus, meningoencephalitis, and alcohol withdrawal syndrome present with overlapping features, distinguishing among them becomes particularly challenging in the interior of Brazil, where access to advanced diagnostic methods is limited and management relies on clinical suspicion and empirical treatment. Tetanus results from the action of tetanospasmin on inhibitory interneurons, impairing the release of gamma-aminobutyric acid (GABA) and glycine and causing motor disinhibition, rigidity, and muscle spasms. Because its clinical manifestations resemble those of other neurological syndromes, tetanus may readily be mistaken for central nervous system infections or alcohol withdrawal syndrome, making differential diagnosis challenging. **Objective:** To report a case of severe neurological syndrome of undetermined etiology, with a differential diagnosis of tetanus, meningoencephalitis, and alcohol withdrawal syndrome, in a patient admitted to the intensive care unit of a regional hospital in the interior of Ceará, highlighting diagnostic challenges and multidisciplinary management. **Case Report:** A 51-year-old man with chronic heavy alcohol use, from the interior of Ceará, with no documented tetanus vaccination and no history of recent trauma, was admitted with severe low back pain and muscle spasms after cessation of alcohol consumption. He developed generalized muscle rigidity, dysphagia, refractory fever, sweating, and seizures triggered by tactile and auditory stimuli, raising suspicion of alcohol withdrawal syndrome, meningoencephalitis, and tetanus. He required orotracheal intubation and transfer to the intensive care unit, where he received multimodal sedation, neuromuscular blockade, vasoactive support, anticonvulsants, and antispasmodics, as well as hemodialysis for acute kidney injury. Head computed tomography showed no abnormalities, and cerebrospinal fluid analysis revealed no pleocytosis, reducing the likelihood of a central nervous system infection. However, the definitive etiology remained undetermined. Despite intensive treatment, the patient developed multiple organ dysfunction; palliative care was instituted, and he subsequently died. **Discussion:** This case illustrates the complexity of the differential diagnosis of syndromes characterized by rigidity and muscle spasms in critically ill patients. The absence of recent trauma and vaccination records does not exclude tetanus, although altered mental status and the lack of an identifiable wound reduced its likelihood,

according to the hospital infection control committee's assessment. The investigation ruled out central nervous system infection, and intensive management with sedation, neuromuscular blockade, and ventilatory support was essential, although the prognosis remained guarded because of disease severity and multiorgan dysfunction. **Conclusion:** Neurological syndrome of undetermined etiology in critically ill patients requires a high index of suspicion and a multidisciplinary approach. Tetanus vaccination remains the main preventive measure, and early recognition of the diagnostic possibilities is essential to reduce morbidity and mortality in the interior of Brazil.

Keywords: Alcohol Withdrawal Delirium; Diagnosis, Differential; Muscle Spasticity; Meningoencephalitis; Tetanus; Intensive Care Units.

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