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Letter to the Editor / Editöre Mektup

Psychiatric Presentation of Hypoxic Ischemic Encephalopathy Occurring After a Violent Suicide Attempt: a Case of Hanging

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Dear Editor,

Suicide is an important public health problem. According to the World Health Organization's 2017 update on Preventing Suicide, it is reported that worldwide around 800,000 people die every year due to suicide (1). There are three important entities related to suicide: completed suicide, suicide attempt, and suicidal thought. While all suicide attempts are important, it is known that some factors increase the risk of the incident actually resulting in death. The use of pesticides, firearms, or vehicle exhaust gas and hanging are among the most common suicide methods resulting in death and thus called violent methods (2). Here, we report a male patient who developed hypoxic ischemic encephalopathy (HIE) following an suicide attempt by hanging, manifesting with psychiatric symptoms.

A 20-year-old male from Adiyaman (Region of Eastern Anatolia, Turkey) presented with a one-week history of confusion and delusive talking at an intensive care unit in Adiyaman University's Training and Research Hospital and was referred to the psychiatry unit. He had been admitted to the same hospital's emergency department after a suicide attempt by hanging fourteen days before the current consultation and was hospitalized in an intensive care department. He was studying for a university exam while living with his aunt. According to his family, there was no history of any psychiatric disorder. There had been no one present in the house during the suicide attempt; the person who first noticed the incident was his aunt. The ambulance had come to the scene within 15 minutes. His first vital findings were as follows: blood pressure 130/80mmHg, heart rate 92 beats/minute with regular rhythm, and temperature 37.6°C.

Results of standard blood tests (creatinine, urea, thyroid, and liver function) and urinalysis were within normal limits. His thyroid stimulating hormone and electrocardiogram were normal as well. Potassium level was 3.2mmol/l (3.5-5.5mmol/l) and white blood cell (WBC) count was 10.900/mm^3 (4.300-10.300/mm^3). According to blood gas analysis, pH was 7.220 (7.35-7.45), pCO_2 39.0mmHg (35-45mmHg), and pO_2 61.5mmHg (83-108mmHg). Head computed tomography (CT) scan and diffusion-weighted magnetic resonance imaging (MRI) results were normal. He was lethargic in neurologic examination. Neurology and neurosurgery did not consider a specific diagnosis and suggested supportive treatment. Half an hour after the first intervention, blood gas analysis was reported as pH 7.422, pCO_2 33.9mmHg, and pO_2 173mmHg. After supportive treatment, blood analysis on the second day showed no significant change except for WBC (12.980/mm^3). C-reactive protein was 23.1mg/dL (0-0.8mg/dL), procalcitonin was 1.3ng/mL (0-0.12ng/mL) and sedimentation rate was 32mm/h (2-20mm/h). No infection source was identified by blood and urine cultures. These values were thought to be related to the traumatic event. The WBC count declined on the third day (7.890/mm^3). In the blood gas analysis of the tenth day, pH was 7.430, pCO_2 38.7mmHg, and pO_2 88mmHg. The patient's lethargic state became confusional after ten days. When the vital findings stabilized, the patient was assessed by psychiatry. In the psychiatric mental state examination, the patient was not oriented, cooperation was not complete. His voice tone was diminished and there were blocks in his speech. The patient thought he was a soldier who was in a battle. He coud not remember anything from the past. He was talking to himself and laughing. He was agitated. The need for sleep decreased. The patient was hospitalized in our psychiatry inpatient clinic with pre-diagnosis of major depressive disorder, delusional disorder, brief psychotic disorder, substance-induced psychosis, and dissociative amnesia according to Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5). In his follow-up, olanzapine 5mg/day was administered. He had no sleep problems. Cranial CT and diffusion-weighted MRI were repeated and the patient was referred to a neurology specialist. According to clinical signs and imaging results, the patient was diagnosed with hypoxic ischemic encephalopathy with organic amnesic syndrome. Antipsychotic treatment continued. At the end of one week, he was no longer talking to himself. He was not talking about military service and war. He was not agitated. Occasionally, he had an imbalance in walking and blurred vision. He had no appetite or sleeping problems. He did not remember anything from the last days, especially the day of the event. He had no suicidal thoughts. He was discharged at the end of three weeks. In his three months of follow-up, no psychiatric symptoms were identified. Interviews with the patient's family, friends, and teachers did not clarify the situation before the patient's suicide attempt. Written informed consent to publish his data was received from the patient.

HIE is an acquired metabolic encephalopathy, resulting in the occlusion or decline of oxygenated blood flow to the brain. The most common causes of this condition are a decrease in cerebral blood flow due to heart attack, ventricular arrhythmia, blood loss, drowning in water, carbon monoxide poisoning, Guillain-Barré syndrome, amyotrophic lateral sclerosis, hyperthermia, or hypercapnia (3). Rarely, hanging can also result in HIE (4). Individuals who survive a suicide attempt by hanging may show a range of problems, including neuropsychological, neuropsychiatric, pulmonary, and even language deficits. Wazeer et al. (4) presented a patient with speech deficit following a suicide attempt by hanging. If the HIE cannot be diagnosed or is diagnosed late, it can be confused with psychiatric syndromes. In this condition, the treatment of the patients may be delayed or they may receive unnecessary medication. This case report suggests that physicians should be aware that a suicide attempt by hanging may present with HIE, and differential diagnosis of HIE should include psychiatric syndromes such as psychotic disorders.

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