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NEAR-DEATH EXPERIENCES IN CASE OF SEVERE OBSTETRICS SHOCK

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Dear editor,

Obstetric shock (OS) is the leading cause of maternal mortality in the world through centuries of obstetrics, and the survival of severe forms of OS carries a significant risk of severe somatic and psychological chronic morbidity due to the consequences of multiorgan failure (Habek 2018). We cite a case of a mother's knowledge of her near-death experience (NDE) with out-of-body experiences, during severe OS and resuscitation as a clinical observation.

The 28 - year - old healthy primiparas developed peracute severe postpartum haemorrhage after spontaneous singleton delivery due to atony of the uterus with disseminated intravascular coagulopathy and severe obstetric hypovolemic shock IV. degree with loss of consciousness. Just before losing consciousness, she said she would die. All resuscitation measures were promptly taken: endotracheal intubation with assisted breathing and oxygenation, intravascular volume replacement with crystalloids, colloids and blood derivatives with inotropic drugs, atropine, adrenaline, dopamine, dobutamine, and manual exploration and compression of the uterus by an anesthesiologist and two gynecologists and three midwives. Another senior consultant was called in who performed hemostatic sutures and uterine tamponade after which the bleeding stopped and the blood loss was estimated at more than 3500 mL which was consistent with a state of severe OS. Treatment was continued at the intensive care unit with respiratory support, intensive therapy and monitoring. Throughout the resuscitation procedure in the delivery room, the mother was unconscious and was not sedated or anesthetized. Her personal and family history was without psychiatric or religious fanatic data. After two days of treatment in the intensive care

unit, in contact with the doctors, she told in detail what happened to her in the delivery room: "I saw a bright light and from above I watched all the events that were very dramatic, but I was not embarrassed. I saw my pale body lying with a tube in its mouth and a doctor blowing an artificial respiration balloon; I had bloody legs spread and the floor was covered in blood. Another doctor came, put on an apron, sat between her legs, vigorously pushed large pieces of gauze into her uterus, and said that a hysterectomy on a dying woman should be avoided as much as possible. He asked what the findings were, and the doctor who inflated the balloon said that she was not coagulating and that she was bleeding, that there was no blood pressure or pulse. Nurses and doctors pumped blood and infusions from plastic bags that hung on a stand. After the bleeding stopped and I was transferred from the delivery room to the ICU transport cart, the whole room was covered with my blood and sheets soaked in blood, and the knowledge of out-of-body experiences disappeared. You are the doctor who saved my life, thank you", telling the doctors, turning to a senior consultant whom she could not see because she had already lost consciousness and was intubated.

Scientific interpretations of the NDE phenomenon have been presented and explained in the literature from various scientific groups, mostly neuroscientists, but theologians, christologists, parapsychologists. Thus, the PubMed database today contains more than 538,500 different papers commenting on and researching the NDE phenomenon. Theological, spiritual theories assume that consciousness can be separated from the neural substrate of the brain, psychological theories interpret that NDE is a dissociative defense mechanism that occurs in times of extreme danger or to reflect memories of birth, and organic NDE theories based on cerebral hypoxia, anoxia and hypercarbia and biochemical alterations of neurotransmitters in the brain (French 2005, Parnia et al. 2007, Charland-Verville et al. 2014, Bourdin et al. 2017, Cassol et al. 2018). NDEs occur according in 17% of those who were in the dying stages from pediatric to geriatric age, people with comorbidities to healthy people, from believers to infidels, various professions and levels of education (Long 2014). Timmerman et al. discuss the biochemistry of NDE and its association with psychedelic phenomenology conditioned by the release of dimethyltryptamine during the dying process, citing Strassman (Timmermann et al 2018, Strassman 2001). There are scale of NDE experiences with 80 variables used to assess the organic or psychological background of NDE (Greyson 1983), and recently the authors demonstrated the development of psychometric validation in the NDE assessment (Martial et al. 2020).

Certainly there have been NDEs in obstetric cases of cardiac arrest, obstetric embolisms, severe forms of obstetric shock, or sudden clinical deaths, but we have not found a similar description in the literature, and we have not personally had contact with such experiences in clinical practice. Our review is a contribution to the obvious existence of this non-delusional phenomenon in the specific case of the association of severe obstetric shock IV. degree with insufficient multiorgans and brain perfusion and NDE. Thus, in fact, the original translation of the word resuscitation, re + anima (repeated return of the soul or spiritual spirit according to the ancient medicine of Hippocrates, especially Galen) will have a realistic interpretation of the described phenomenon in this case.

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NEUROLEPTIC MALIGNANT SYNDROME OR SEROTONIN SYNDROME?

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Dear editor,

Neuroleptic malignant syndrome (NMS) and serotonin syndrome (SS) are rare, life-threatening, drug-induced disorders. Both syndromes share clinical features, such as pyrexia, hypertonia, autonomic instability, and changes in mental state, making differentiation difficult. Differentiation is important as pharmacologic treatment is dependent on the causative agent, such as antipsychotics or antidepressants.

A 66-year-old man with schizoaffective disorder presented to the emergency room for disturbance of consciousness with high fever. He had been treated with risperidone 4 mg/day and paroxetine 20 mg/day for the past several years, but due to agitation and aggression, risperidone was increased to 6 mg/day three days ago. On arrival, the patient was confused with hypertension of 170/90 mmHg, tachycardia of 120/min, and marked sweating. The muscles in his lower legs were rigid and hyperreflexia in the lower extremities was noted. Blood tests showed increased white blood cell count, C-reactive protein, and creatine kinase, but no physical findings suggestive of infection.

Would this case be NMS or SS? The differential diagnosis between NMS and SS is even more difficult in polypharmacy patients who are taking both antipsychotics and antidepressants. I read with great interest the review article on the differentiation between NMS and SS (Debeljak & Kores Plesničar 2021). They noted subtle differences in the clinical manifestations of impaired consciousness and extrapyramidal symptoms between NMS and SS. The NMS is due to excessive blockade of dopamine D2 receptors, while the SS is due to excess serotonin. Not only a decrease in dopamine but also an increase in serotonin modulates the autonomic nervous system, resulting in autonomic instability such as tachycardia, hypertension, excess sweating, and hyperthermia. As for the change in consciousness, however, a decrease in dopamine leads to stupor, while an excess of serotonin leads to agitation. As for motor function, a decrease in dopamine is manifested as lead pipe phenomenon, while an excess of serotonin is manifested by muscle spasms (Figure 1). Extrapyramidal symptoms of SS may show neuromuscular hyperactivity that closely resembles epileptic seizures (Prakash et al. 2019). Thus, this patient was diagnosed with SS based on hyperreflexia of the lower extremities. Paroxetine was discontinued and risperidone was reduced to the original 4 mg/day, resulted in an improvement of consciousness and muscle tone within a few days.

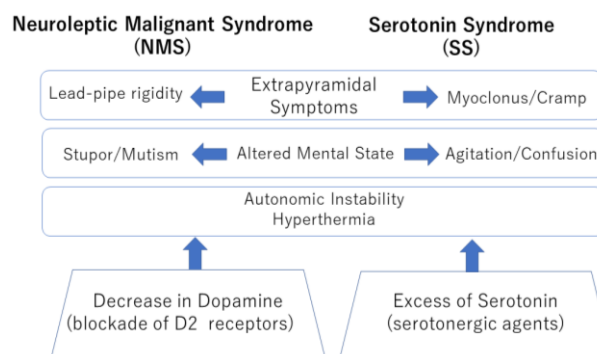


Figure 1. Schematic of similarities and differences between NMS and SS symptoms

This case should be considered NMS based on the prescription pattern of psychotropic drugs, with onset at an increased dose of risperidone. However, features of extrapyramidal symptoms suggested serotonin excess. So why was serotonin excess promoted by increasing doses of risperidone? Risperidone and paroxetine are both mainly metabolized by cytochrome P450 2D6 (CYP2D6) in the liver. Furthermore, paroxetine has the highest inhibitory constant for