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HELLP Syndrome – A Biopsychosocial Case Report

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Abstract

This case concerns a 30 year old female patient (SB), G2P1 (2 gravidity, 1 parity), who was admitted to the high dependency unit at Cork University Maternity Hospital in Cork, Ireland at 37 weeks and 1 days' gestation. She was admitted after experiencing a 5 minute tonic-clonic seizure at home with no obvious relieving factors. Relevant positive symptoms included nausea, headache, and right hypochondrial pain. Relevant negative symptoms included denying tongue biting, incontinence, speech or visual disturbances, sensory or mental aura, vomiting, and cyanosis. There were no drugs, trauma, recent illness, or history of previous seizures. On examination, SB was confused and displayed signs consistent with pregnancy. In addition, a focused examination revealed hypertension, hyperreflexia, right hypochondrial pain, and lower limb oedema. The investigations included a urine dipstick, CT scan, and blood tests which showed anaemia, low platelets and proteinuria. The history, examination, and investigations in this case were consistent with a presentation of HELLP (haemolysis, elevated liver enzymes and low platelets) syndrome. In this case report, the biopsychosocial aspects of the patient's recovery are discussed.

Case Background

While at home, the patient (SB) experienced a 5 minute tonic-clonic seizure causing a fall on her right side with a 5 minute recovery time. Her spouse called the ambulance after placing SB into the left lateral decubitus (LLD) position. SB lost consciousness and remembers waking, but feeling confused.

With regards to obstetric history, SB experienced a natural miscarriage at 5 weeks gestation in 2017. She also delivered a 1.77 kg male baby in 2018 by an emergency caesarean section (CS) at 34 weeks due to intrauterine growth restriction. Her baby required transfer to the neonatal intensive care unit for half hour of continuous positive airway pressure and was discharged on day 11 due to poor feeding.

Her current pregnancy was planned with an estimated delivery date of November 18th 2022. At her last antenatal visit, her blood pressure was normal and she did not have proteinuria. However, foetal biometry showed a growth delay of 4 to 5 weeks with an estimated weight of 2056 grams and amniotic fluid index of 7 cm. The patient's blood type was group B rhesus positive and the blood results did not show an active infection. The patient also possessed immunity against HBV, rubella, and varicella. Foetal movements had been felt since 17 weeks and the oral glucose challenge test was normal.

The patient's gynaecological and past medical history was insignificant. The patient's medications included aspirin due to intrauterine growth restriction in her previous pregnancy, and folic acid. She had no known drug allergies. In addition, she was vaccinated against tetanus, diphtheria, pertussis, coronavirus, and influenza during this pregnancy.

The patient's family included a 60 year old father with stable angina and type 2 diabetes, and a 58 year old mother who had no complications in her two previous pregnancies. Both her 25 year old sister and her 4 year old son are alive and well. She had no known family history of neurological, cardiac, obstetric, or gynaecological conditions.

The patient lives with her spouse of 8 years and her son in a two story home about 20 minutes from the hospital. She has been a hairdresser for 5 years and her spouse is a nurse in psychiatry. Her son attends a

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local pre-school. The family is financially stable and non-religious. The patient has several family members living either walking or driving distance from her home who can provide support if necessary.

SB does not consume alcohol or use recreational drugs. She takes 30 minute walks 3-4 times per week and swims once per week. Her diet is healthy with a variety of fruit and vegetables and includes decaffeinated tea and small amounts of chocolate, but no coffee. SB started smoking tobacco at 18 years of age. She stopped smoking prior to her previous pregnancy and restarted for 6 months after the delivery. Finally, SB stopped smoking tobacco again at age 29 prior to her current pregnancy.

On general inspection, the patient was lying uncomfortably with a distended abdomen consistent with gravid uterus. Upon closer inspection, linea nigra, several striae gravidarum and an everted umbilicus were apparent on the abdomen. The symphysio-fundal height was 37 cm, consistent with the pregnancy gestation. Bedside ultrasound showed a longitudinal lie with cephalic presentation. The patient's blood pressure was 160 systolic and 89 diastolic. Cardiotocography showed periodic decelerations with recovery to baseline foetal heart rate of 160, with some accelerations and moderate variability. The neurological examination revealed confusion with a Glasgow Coma Scale score of 14 out of 15 and hyperreflexia of the lower limbs. The abdominal examination revealed right hypochondrial pain and an absence of ascites. The cardiovascular examination revealed bilateral lower limb oedema. All other examinations were normal.

Discussion

SUMMARY:

The biopsychosocial model is a framework developed by George Engel in 1977 which is used clinically, during guideline development and by the World Health Organisation's International Classification of Functioning[1]. The Biopsychosocial model examines the interconnection between biological, psychological, and social aspects of health and disease. Consideration of all three factors allows health care professionals to tailor a care plan and alter the methods used to approach patients with difficult decisions[2].

BIOLOGICAL:

The symptoms experienced by SB including hypertension, seizure activity, increased intracranial pressure (a headache), and right upper quadrant abdominal pain, was consistent with a presentation of HELLP (haemolysis, elevated liver enzymes and low platelets) syndrome (HS)[3]. This condition occurs on the background of pre-eclampsia which is defined as new onset hypertension with a systolic blood pressure (BP) of over 140 or diastolic BP over 90 after 20 weeks' gestation, with the presence of proteinuria[4]. SB was officially diagnosed with HS upon further examination and the completion of additional investigations including a full blood count, liver enzyme panel, liver function tests, and urine analysis. HS is characterized by haemolysis (H), elevated liver enzymes (EL), low platelets (LP), and proteinuria[3]. The patient's blood and urine results were 11.2 g/dL for haemoglobin (reference range: 12.1 to 15.1 g/dL), 69 000 platelets per microliter (reference range: 150,000 to 450,000) and 4+ for proteinuria. This syndrome occurs in approximately 0.5-0.9% of all pregnancies and 10-20% of all pre-eclamptic cases[5].

HS is associated with maternal complications including placental abruption, disseminated intravascular coagulation, hepatic hematomas and rupture, and acute kidney injury[6]. It is also associated with neonatal complications including prematurity, respiratory distress syndrome, and small for gestational age. Regardless of the aetiology, sustained seizures can lead to a significant decrease in oxygen. Therefore, seizures pose a substantial risk to both the life of the woman and her unborn foetus.

HS and post-ictal management first begins with stabilization of the woman[7]. In general, if the syndrome occurs after 34 weeks' gestation, immediate delivery is the first choice of management[5]. As SB was at approximately 37 weeks' gestation, the case management consisted of immediate delivery after stabilization. To reduce the patient's BP, SB was given 10 ml of labetalol at 5mg/mL through an intravenous (IV) line. Labetalol, along with nifedipine and methyldopa, are safe and effective drugs that are often used in acute cases of maternal hypertension[8]. Magnesium sulphate, an anti-seizure prophylaxis medication, was also administered to SB through an IV line at 1 g/hour[9].

Unfortunately, SB suffered from another five minute tonic-clonic seizure while in the triage unit. SB was promptly rolled onto the LLD position and provided with an oxygen mask. Cardiotocography monitoring showed foetal compromise with prolonged decelerations lasting approximately three to four minutes. The dosage of magnesium sulphate was increased to 2 g/hour and SB was immediately prepped for a CS as soon as the seizure subsided and her BP began decreasing.

After the emergency CS, 10 units of oxytocin and 250 micrograms of carboprost tromethamine were administered by IV due to an atonic uterus. These medications are standardly used to treat uterine atony, which poses a major risk for postpartum haemorrhage and maternal mortality[10]. The medications proved effective and there was no substantial haemorrhage. After the CS, SB was transferred to the intensive care unit and discharged after three days of careful surveillance and review due to an episode of postpartum hypertension (156/90 BP). On discharge, SB was provided with a prescription for nifedipine 10 mg PO twice daily, and a follow-up for repeat blood testing and BP check with her general practitioner (GP).

BIOLOGICAL:

HS results in a unique maternal experience stemming from a lack of control and knowledge. Five psychological themes can emerge in HS including (1) premonition of a bad event about to occur, (2) symptoms, (3) betrayal regarding healthcare providers and their own bodies, (4) whirlwind due to the speed at which events unfolded, and (5) loss of the initial joy of motherhood[11]. Emotions experienced can include fear, frustration, anger, and guilt. Therefore, it is important to display empathy, adequately communicate with the patient and the family, and explore the patient's main concerns as time progresses.

After every seizure, the medical personnel would speak with SB and provide her with all the information available regarding her condition. The professionals would communicate clearly, sit or kneel at eye level to the patient and ask if there were any questions at the end of the interaction. These tactics were all necessary to ensure the patient didn't feel anxious, which could lead to additional BP elevation and psychological trauma. SB's spouse was also quickly updated when he arrived.

Women experiencing HS can also develop post-traumatic stress disorder (PTSD)[12]. PTSD symptoms might include nightmares, flashbacks, numbing of responsiveness, hypervigilance, irritability, and difficulty concentrating. Therefore, patients should be followed by their GP for months after the delivery. SB was scheduled for a follow up appointment with her obstetrician during a post-natal appointment in approximately 2 months after the delivery. She would be managed by her GP afterwards.

SOCIAL:

The diagnosis of HS can pose great risks to the physical, mental and psychological aspects of the patient. Family and friends can be a great support to aid in the patient's recovery. A previous systematic review showed that low social support was associated with significant risks of depression, anxiety and self-harm during pregnancy[13]. In some cases, religion can be a support system for the patient[14]. HS was not religious, but had a large group of family and friends living in the area that were willing to offer their time and show their support.

SB's spouse was also very supportive and kind, which limited her feelings of fear and anxiety. SB's spouse expressed a plan to ensure care of his wife and child. He said he already informed their family and friends and had planned a meeting with them for when they arrived home.

The barriers to social support for SB were the precautions implemented due to the COVID-19 pandemic regarding restrictions for visiting hours and visitor numbers. Isolation in the hospital from social support can increase the risk of patient depression and anxiety[15]. Thankfully, SB stayed in the hospital for only a few days and was able to have the constant presence of her spouse. A cot was placed in the patient's room for her spouse. In addition, although their new baby girl was healthy with APGAR scores of 9 at 1 minute and 10 at 5 minutes, she was kept in the neonatal unit until SB was ready for discharge. This provided the parents with easy access to their baby and less stress in their lives with regards to finding neonatal care for the duration of SB's hospital stay. The patient's first child was being well taken care of by SB's parents who lived nearby. This provided additional relief for the patient and promoted psychological recovery.

Conclusion

This case report describes the journey of a pregnant woman through a hospital admission for a complication of pre-eclampsia known as HS. It includes the interconnected biological, psychological, and social aspects that were considered in the treatment and management of this patient. Previous research and knowledge about patient care was used to reduce the negative effects on this patient. This case report demonstrates the importance of tailoring a care plan to the patient based on the factors that would maintain a good prognosis and protect against a worsening condition.

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