THE ROLE OF THE MIDWIFE IN PUERPERIUM CARE OF WOMEN WITH HELLP SYNDROME, CONSIDERING THE IMPACT OF THE DISEASE ON THE MOTHER-CHILD RELATIONSHIP

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ABSTRACT

HELLP syndrome is a disease whose symptoms include haemolysis, elevated liver enzymes, and significantly reduced platelet counts. Usually, this pathology is a severe complication of pre-eclampsia, and it reveals itself between the 27th and 37th weeks of pregnancy or during the first 48 hours of postpartum puerperium. It is a relatively rare condition, diagnosed in fewer than 1% of pregnant women. Clinical manifestations are nonspecific, variable, and mainly dependent on the circulatory system. In many cases, this pregnancy complication results in the mother and child being separated, causing the disruption of lactation initiation and relationship building. Consequently, the newborn may have difficulty adapting to ectopic conditions. The aim of our 'case study' is to present characteristics of HELLP syndrome and the difficulties posed for relationship building. The nursing process was developed using the ICNP® method.
Key words: HELLP syndrome, postpartum, pre-eclampsia, relationship.

INTRODUCTION

HELLP syndrome, a disease that manifests during pregnancy or postpartum, has been referred to as such since Louis Weinstein created the acronym 'HELLP' in 1982, which is based on the disease's characteristic symptoms: H – haemolysis, EL – elevated liver enzymes, and LP – low platelets [1, 2]. HELLP syndrome is rare, with an incidence of 0.2% to 0.8% of all pregnancies, but in 70-80% of cases it is correlated with hypertension [3, 4]. Currently, the complication is treated as an independent disease entity, due to the absence of proteinuria and hypertension in 15-20% of women, as during pre-eclampsia [2]. The highest risk of disease manifestation occurs during the third trimester of pregnancy. Ninety per cent of affected women struggle with malaise, pain felt in the upper right quadrant of the abdomen caused by stretching of the fibroid capsule and impaired blood flow, and gastrointestinal symptoms such as nausea and vomiting [3, 5]; 33-68% of patients complain of headache; 10-20% of patients experience impaired vision; and 5% become jaundiced [4, 6]. The timing of the onset of symptoms does not affect these test results. Women diagnosed with HELLP syndrome during postpartum are at higher risk for complications, i.e. pulmonary oedema, disseminated intravascular coagulation (DIC), adult respiratory distress syndrome (ARDS), cerebral oedema, convulsion, hepatic haematoma, or renal failure [4, 5]. The aetiology of HELLP syndrome is not precisely defined, but possible causes include a genetic background of inflammatory, immunological, or metabolic disorders [1, 3]. In affected women, the consequence of elevated liver enzymes can be subhepatic haematoma and rupture of the organ, with a maternal mortality rate of 50%. This occurs due to the limited patency of the liver's blood vessels, leading to hypoxia and necrosis [7, 8]. Risk factors for the disease are a history of HELLP syndrome, hypertension, proteinuria, many births, maternal age > 25 years, or being Caucasian [4, 6]. HELLP syndrome symptoms manifest in a specific order. The first is thrombocytopaenia, followed by an increase in alanine aminotransferase (ALT) and aspartate aminotransferase (AST) activity, while the last element is intravascular haemolysis. The increase in ALT and ASP activity that is characteristic of HELLP syndrome is due

to hepatocyte injury [2]. Two classifications are used to diagnose HELLP syndrome: Tennessee (a 2-class system) and Mississippi (a 3-class system). They differ in the laboratory parameters applied. To date, there are relatively few studies to assess which set of classification criteria is more favourable for the course of treatment [9]. The Mississippi division into 3 classes is based on differences in patients' platelet counts, and the AST, ALT, and lactate dehydrogenase (LDH) parameters do not affect class assignment. Alternatively, the Tennessee classification divides HELLP syndrome into 2 categories: either partial (having 1 or 2 abnormalities) or full (having all 3 abnormalities) [2, 4]. Managing the diagnosis of HELLP syndrome is dependent on the pregnancy stage and the condition of the mother and child. It is recommended that the pregnancy be completed beyond 34 weeks of pregnancy (Hbd). Between 27 and 34 Hbd, it is necessary to stabilize the patient by the administration of corticosteroids to stimulate foetal lung maturation and prevent RDS, and then terminate the pregnancy after 48 h. Earlier than 27 Hbd, if the conditions of the mother and baby are stabilized, a wait-and-see approach is adopted [10]. Once blood pressure is lowered, the American College of Obstetricians and Gynecologists (ACOG) recommends administering drugs such as IV labetalol, IV hydralazine, or PO nifedipine [11]. In the prevention of convulsions, IM magnesium sulphate is administered, which reduces the risk of eclampsia developing by 59%. Simultaneous use of magnesium sulphate and nifedipine is not advisable, due to the induction of excessive hypotension [10]. Platelet cell concentrate (PPC) transfusion is necessary. In cases of coagulation disorders, fresh frozen plasma or cryoprecipitate should be transfused [12]. One of the first developmental stimuli for a newborn baby is uninterrupted "skin-to-skin contact" (SSC). HELLP syndrome either prohibits or restricts SSC. As confirmed by many research findings, thanks to colonization by the mother's skin's physiological flora, SSC positively affects the baby's health by lengthening breastfeeding, improving the suckling process, helping adaptation to ectopic conditions, serving as an analgesic, and reducing the risk of infection [13, 14]. A deficit of touch and tenderness in the newborn, which is a stimulus for the development of the brain and the entire nervous system, in the long term, has been proven to cause weight loss regardless of proper nutrition, and lower scores in intelligence tests [14, 15]. Social and emotional development rely on early sensitization to external stimuli. Touch teaches the child about its own body and has a positive effect on motor coordination and muscle tone [15]. Limiting direct contact between mother and child after birth is associated with delayed initiation of natural feeding. Consequently, the child's digestive system can become colonized by unfavourable bacteria from the hospital environment. Breast milk is a natural synbiotic containing probiotics (*Bifidobacterium*, *Lactobacillus*) and prebiotics (oligosaccharides) [16, 17]. In the absence of SSC, women can experience problems developing parental competence and accepting their new role, thus distorting the emotional ties between mother and child [13, 15]. SSC is a stress reducer and a reward for the work put into childbirth [14, 18]. A mother who has early physical contact with her baby learns her baby's needs faster than otherwise, and this stimulates the formation of emotional ties between mother and baby [15]. Research has proven that women who have experienced SSC are more likely to breastfeed longer, continuing for as long as 4-6 months, and babies can experience fewer problems sleeping alone [19, 20].

The aim of this study was to formulate a postpartum care plan for patients with HELLP syndrome considering separation of mother and child, and the impact of the disease on the mother-child relationship, using the International Classification for Nursing Practice (ICNP®) guidelines.

MATERIAL AND METHODS

The study uses the qualitative research method of the 'study case', including a description of the patient's obstetric and clinical condition, for in-depth analysis and evaluation. Informed consent was obtained from the patient prior to their participation in the study. The study techniques used included medical interview, observation of the patient, analysis of the patient's medical records, and measurement of basic vital signs. The C-Hobic clinical outcomes of nursing care were also used to describe the case [21]. The ADL scale was used in the study because of the need to assess the mother's self-care ability and efficiency considering the severity of her clinical condition, as well as aspects that may have presented difficulties in caring for the child. The study was conducted in the Maternity Unit of a tertiary care hospital in one of the centres in northern Poland. When creating the care plan, reference terminology was used, formulating diagnoses and interventions according to the ISO 18104:2004 standard [22]. On this basis, care plans were created using a web-based tool available on the International Council of Nurses website [23] and the ICNP® dictionary in Polish [24].

CASE STUDY

A 36-year-old woman during her first birth in 39+0 weeks of gestation was admitted to the delivery room due to PROM (preterm rapture of membranes), high blood pressure (200/115 mmHg), and headache. The patient had a history of chronic disease: Hashimoto thyroiditis, thrombocytopaenia (110 000/mm^3),

and $GDMG_1$ (gestational diabetes mellites G_1). It was necessary to connect an intravenous infusion with oxytocin, due to the lack of effective contractions. After a few hours, due to foetal bradycardia FHR (foetal heart rate) ±80 beats/minute, it was decided to complete labour with a vacuum. The newborn was taken to the neonatal ward for observation. After the birth, $MgSO_4$ 1 g/h IV and dihydralazine mesylate IV 6.25 mg was administered to the mother due to elevated blood pressure and headache. After 12 hours, excessive sleepiness and decreased activity with the newborn were observed. The woman's vital parameters were checked: blood pressure (BP) 180/100 mmHg, heart rate (HR) 73 beats/min. The patient received methyldopa 1 × 250 mg. On the following day, the mother's skin showed increased pallor. The newborn was lethargic and did not have a changed nappy. The mother's blood pressure and blood glucose levels were measured: 141/105 mmHg and 85 mg/dl, respectively. Laboratory tests were ordered, and the results indicated PLT – 44 000/mm^3, AST – 1324 IU/l, ALT – 541 IU/l, LDH – 1674 U/l, and total bilirubin – 1.72 mg/dl. Based on the clinical picture and laboratory results, HELLP syndrome with pre-eclampsia was diagnosed. Close monitoring of the mother's vital signs was recommended, and treatment was implemented (Table 1).

The uterus contracted normally, and bleeding was normal. A urinary catheter was inserted to control diuresis. The flowing urine was clear, but the general urine examination showed features of urinary tract infection. Further blood laboratory tests were ordered, with the following results: CRP – 89 mg/l, PLT – 22 000/mm^3, AST – 296 IU/l, ALT – 370 IU/l, LDH – 1404 U/l. Increased thirst was observed. The patient manifested deficits in self-care, grooming, and hygiene activities. On the second postpartum day, methyldopa 500 mg 4 times per day was added to the treatment. The patient was instructed on how to arouse lactation, with mediocre results. Drowsiness and fatigue were still present. A blood pressure check showed a value of 90/50 mmHg. ECG, neurological examination, and further laboratory tests were performed, which showed a trend toward normalization of liver parameters and inflammation: PLT – 144 000/mm^3, AST – 107 IU/l, ALT – 184 IU/l, LDH – 619 U/l, CRP – 67 mg/l. On the 4th postpartum day, the woman was assisted by the midwife to go to the toilet to attempt a bowel movement. The attempt was unsuccessful. The patient reported a headache and impaired vision. Her general condition parameters were as follows: BP 100/80 mmHg, HR 60 beats/minute, saturation 98%. A brain MRI was ordered. Low-molecular-weight heparin 40 mg IV and nitrendipine 10 mg PO were added to the treatment. On the 5th postpartum day deterioration of well-being was observed. Magnesium sulfuric 20% in an infusion pump at a flow rate of 5 ml/h was connected. MRI examination showed hydrocephalus without compression and PRESS syndrome. On the 6th postpartum day, the newborn was discharged from the hospital. The woman reported weakness while standing upright and suffered 2 nose bleeds. Laboratory test results were as follows: PLT – 196 000/mm^3, AST – 61 IU/l, ALT – 140 IU/l, LDH – 442 U/l, CRP – 15 mg/l. Normalization of blood parameters was achieved. The patient was admitted to the Neurology Ward. After 4 days and improvement in her well-being, she was discharged from the hospital.

CARE PLAN

During the design of the nursing process, the C-HOBIC scale was used to assess deficits in the patient's functioning and knowledge. Planned activities to improve the patient's condition and situation were created based on ICNP® classifications (Table 2).

Table 1. Implemented treatment

Medication	Dose	Dosage (per day)	Route of administration
Hepa-Merz	3000 mg	3	PO
Lactulosum Hasco	30 ml	3	PO
ProbioDr.	1 caps.	2	PO
Optilyte (PWE)	500 ml	4	IV
Furosemidum	20 mg	2	IV
Furosemide Kabi	20 mg	3	IV
Dexaven	8 mg	3	IV
Cefuroximum	1500 mg	3	IV
IPCP	1 j.		IV
PCC	2 j.		IV

IPCP – irradiated poor-leukocyte concentrate platelets, PCC – platelet cell concentrate, PO – per os, IV – intravenous

Table 2. Assessment of functional status (ADL) for the continuous comprehensive care and long-term care of the patient

C-HOBIC	HOBIC code	Diagnosis according to ICNP®
Bed mobility	0	Able to move in bed – 10029240
Transfer	0	Able to transfer – 10028322
Walk in the room	1	Impaired walking – 10001046
Walk in the corridor	2	Impaired walking – 10001046
Walk in the ward	2	Impaired walking – 10001046
Walk outside the ward	2	Impaired walking – 10001046
Dressing	0	Able to dress – 10028211
Eating	0	Able to feed self – 10028253
Toilet use	4	Ability to toilet self – 10000197
Personal hygiene	2	Ability to perform hygiene – 10000184

Functional assessment generated 3 diagnoses:
Diagnosis 1: Impaired mobility [10001219]
Interventions (IC):
- Arranging transport of device [10030493],
- Assisting with walking using device [10036520] (+ term from axis M: wheelchair [10021052]),
- Advancing mobility [10036452],
- Demonstrating falls prevention [10040248],
- Evaluating psychosocial response to instruction about exercise [10022688].

Outcome: Impaired mobility [10001219].
Diagnosis 2: Impaired self toileting [10000994]
Interventions (IC):
- Assisting with toileting [10023531],
- Catheterising urinary bladder [10030884],
- Teaching about postpartum care [10045385].

Outcome: Impaired self toileting [10000994].
Diagnosis 3: Self care deficit [10023410]
Interventions (IC):
- Assisting with hygiene [10030821],
- Implementing postpartum care [10045371],
- Implementing comfort care [10039705].

Outcome: Able to perform hygiene [10028708].
Other diagnoses:
Diagnosis 4: Communication barrier [10022332]
Interventions (IC):
- Identifying obstruction to communication [10009683],
- Assessing ability to communicate by talking [10030515].

Outcome: Impaired verbal communication [10025104].
Diagnosis 5: Pain [10023130] (+ term from axis L: head [10008688])/impaired vision [10022748]
Interventions (IC):
- Monitoring pain [10038929],
- Nurse controlled analgesia [10039798],
- Collaborating with physician [10023565].

Outcome: Reduced pain [10027917].
Diagnosis 6: Effective response to therapy [10036423]
Interventions (IC):
- Blood therapy [10039311],
- Monitoring blood pressure [10032052],
- Monitoring medication adherence [10043878],
- Monitoring blood oxygen saturation using pulse oximeter [10032047],
- Monitoring blood glucose [10032034],
- Anticoagulation therapy [10039284],
- Observing altered perception [10013517],
- Assessing symptom control [10026161],
- Collecting specimen [10004588] (+ term from axis F: blood [10003319]),
- Medication handling [10040708],
- Reporting status to interprofessional team [10042645],
- Contracting for adherence [10024349],
- Collaborating with physician [10023565].

Outcome: Effective response to therapy [10036423]
Diagnosis 7: Urinary tract infection [10029915]
Interventions (IC):
- Monitoring signs and symptoms of infection [10012203],
- Monitoring fluid output [10035319],
- Teaching about urinary catheter care [10045257],
- Urinary catheter care [10033277].

Outcome: No infection [10028945].
Diagnosis 8: Difficulty performing breastfeeding [10001098]
Interventions (IC):
- Initiating breastfeeding [10039428],
- Evaluating breastfeeding plan [10039557],
- Referring to breastfeeding support group [10039492],
- Teaching about breast care during postpartum period [10032885],
- Teaching about feeding technique [10045411],
- Teaching about breastfeeding [10036835],
- Postpartum breastfeeding assessment [10039395].

Outcome: Knowledge of infant feeding [10045756].
Diagnosis 9: Depressed mood during postpartum period [10029771]
Interventions (IC):
- Identifying psychological status [10044241],
- Teaching about health seeking behaviour [10032956],
- Assessing mood [10038938],
- Assessing emotional support [10030589],
- Promoting effective family communication [10036066],
- Facilitating ability to communicate needs [10038196].

Outcome: Decreased depressed mood [10027901].
Diagnosis 10: Risk for impaired parent-child attachment [10027203]
Interventions (IC):
- Teaching about caregiver-child attachment [10036842],
- Promoting caregiver role [10036218],
- Promoting skin-to-skin technique [10035361],
- Teaching infant massage [10032973],
- Promoting caregiver-child attachment [10035342].

Outcome: Impaired caregiver-child attachment [10027219].

SUMMARY

HELLP syndrome is a serious but rare disease. Recognizing the first symptoms of HELLP syndrome requires the midwife to think analytically and understand their background. Despite the rare occurrence

and nonspecific signs of the disease, it is important that medical staff do not underestimate the patients' complaints. The priority is to stabilize the patient and provide holistic care for the newborn. A nursing process based on the ICNP® method addresses the range of problems that can occur in the patient. The actions taken by the midwives had positive results.

The administered treatment resulted in an increase in platelets, a decrease in liver enzymes, and a cessation of haemolysis. Educating the patient about breastfeeding made it possible to sustain lactation. The patient was recovering and was able to care for her baby after discharge from the hospital.

Disclosure

The authors declare no conflict of interest.

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