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ORIGINAL

Nursing care in patients with cesarean section due to premature rupture of membranes in the obstetrics and gynecology service of a Lima hospital, 2022

Cuidados de enfermería en paciente con cesárea por ruptura prematura de membranas del servicio de gineco obstetricia de un hospital de Lima, 2022

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ABSTRACT

Premature rupture of membranes (PROM) is defined as the loss of continuity of the amniotic membranes with transvaginal amniotic fluid leakage, which occurs before the start of labor, where cesarean section is the surgical medical treatment with the purpose of avoid complications of neonatal maternal morbidity and mortality. The objective of the study was to manage the nursing care process for a patient with a cesarean section due to PROM. Under a qualitative approach, single case type and methodology, the nursing care process was applied, in which the five stages of the PAE were applied where the assessment was carried out applying Maryori Gordon's functional patterns assessment guide, three diagnoses were prioritized. nursing: acute pain, risk of surgical wound infection and anxiety, using the NANDA taxonomy. In planning, a care plan was developed considering the NOC, NIC Taxonomy and in the execution stage, interventions were carried out for each nursing diagnosis and the evaluation was carried out through the differentiation of the final and baseline target score, achieving change score +2, +2, +2. It is concluded that the PAE allows you to provide specialized care in a comprehensive and quality manner throughout the recovery process.

Keywords: Nursing Care Process; Post-Cesarean Section; Premature Rupture of Membranes.

RESUMEN

La ruptura prematura de membranas (RPM) se define como la pérdida de la continuidad de las membranas amnióticas con salida de líquido amniótico transvaginal, que se presenta antes del inicio del trabajo de parto, donde la cesárea es el tratamiento médico quirúrgico con la finalidad de evitar complicaciones de morbimortalidad materna neonatal. El estudio tuvo como objetivo gestionar el proceso de cuidados de enfermería a una paciente con cesárea por RPM. Bajo un enfoque cualitativo, tipo caso único y de metodología el proceso de atención de enfermería, en la que se aplicó las cinco etapas del PAE donde la valoración fue realizada aplicando la guía de valoración de los patrones funcionales de Maryori Gordon, se priorizaron tres diagnósticos de enfermería: dolor agudo, riesgo de infección de la herida quirúrgica y ansiedad, utilizando la taxonomía NANDA. En la planificación se elaboró un plan de cuidados teniendo en cuenta la Taxonomía NOC, NIC y en la etapa de ejecución se realizaron las intervenciones para cada diagnóstico de enfermería y la evaluación se realizó a través de la diferenciación de la puntuación diana final y basal logrando puntuación de cambio +2, +2, +2. Se concluye el PAE permite proporcionar cuidados especializados de forma integral y de calidad en todo el proceso de su recuperación.

Palabras clave: Proceso de Atención de Enfermería; Poscesárea; Ruptura Prematura de Membranas.

INTRODUCTION

Premature membrane rupture (PROM) is defined as the loss of continuity of amniotic membranes with transvaginal amniotic fluid leakage that occurs before the onset of labor (Fajardo-Mancia & Henriquez-Pereira, 2020).

Currently, it is one of the main reasons for infectious morbidity in the mother and neonate due to clinical, epidemiological, and nutritional factors (Borja et al., 2019).

According to the WHO, PROM occurs between 8 and 10 % of all pregnancies, and 60 to 95 % correspond to pregnancies; the most infrequent are preterm PROM, with 2 to 4 % of all pregnancies (Marquina-Reynaga, 2018). At the South American level, it is recorded that one in eight births is preterm, with PROM as the leading cause (Marquina-Reynaga, 2018). In the case of Latin America, it is estimated that the incidence of PROM ranges from 5,7 % to 8,9 %, higher in Peru at 13,6 %. (Velaña-Sinchiguano and Pico-Naranjo, 2018).

In Peru, PROM occurs in 4 % to 18 % of all deliveries. ESSALUD reports an annual frequency of 7 % of preterm deliveries; in MINSA, out of 1523 deliveries, 15,7 % were detected, i.e., one case of PROM for every six deliveries; in specialized institutes, the incidence is 10,1 % of deliveries (Meléndez-Falcón, 2021a). (Meléndez-Falcón, 2021a).

PROM is the spontaneous rupture of the chorioamnionitis membranes that occurs before the onset of labor. In gestation, after 22 weeks, it is considered when it lasts more than 24 hours. There are two categories: a term that occurs after 37 weeks of gestation and preterm before 37 weeks of gestation (Vásquez-Coello et al., 2021).

PROM refers to the rupture of the membranes before the onset of labor; if this happens before 37 weeks of gestational age, it is called preterm premature rupture of membranes (PROM). (Monge, 2017). PROM is defined as the loss of continuity of the chorioamnionitis membranes occurs with amniotic fluid leakage lasting more than one hour prior to the onset of labor (Amaya et al., 2015).

The causes of PROM are varied, with the following risk factors: cervical incompetence, use of cerclage, tobacco use, history of preterm delivery, and/or rupture of membranes in previous pregnancies (Meléndez-Falcón, 2021b). Also, it varies with gestational age; if the rupture occurs at a lower gestational age, it is associated with infection of the chorion, and otherwise, it is associated with decreased collagen content in the membranes; this may also be secondary to some microorganisms that produce collagenases, mucinases and proteases (Velaña-Sinchiguano & Pico-Naranjo, 2018).(Velaña-Sinchiguano & Pico-Naranjo, 2018).

Risk factors for PROM include genital tract infections, intrauterine infections (bacterial vaginitis, trichomonas, gonorrhea, chlamydia), antepartum hemorrhage, multiple pregnancies, polyhydramnios, cervical isthmic incompetence, low vitamin C and E supplements, substance abuse, smoking, nutritional status, low socioeconomic status, and sexual intercourse (Orias Vásquez, 2020).

Likewise, PROM presents a physiological weakening of the membranes caused by the decrease in their resistance caused by the poor deposit of collagen II and edematization due to the deposit of fibrinoid material. This causes a thinning of the trophoblastic and decidual layers; the decidual cells produce hormones (prostaglandins E2 and F2) to initiate (induce) labor, favoring contractions. (Orias Vásquez, 2020).

The clinical picture of PROM is supported by the presence of signs and symptoms, clinical history, and diagnostic tests such as spectroscopy: visualization of amniotic fluid outflow by Valsalva maneuver, atrazine test: based on differentiating the pH of amniotic fluid that is alkaline with other secretions (vaginal) and urine; fern test positive to the amniotic fluid, finding a pattern of arborization in the slide when dried to the environment by sodium chloride; ultrasound scans detect whether there is oligohydramnios or hydramnios, the normal value of amniotic fluid is 3,7 cm (Vásquez-Coello et al., 2021).

The treatment of PROM depends on fetal maturity; in term PROM greater than 37 weeks of gestation, labor is induced, and in preterm PROM before 37 weeks of gestation, the treatment is with antibiotics and corticosteroids for pulmonary maturity, and finally, in PROM with less than 23 weeks of gestation is considered non-viable pregnancy.(Orias Vásquez, 2020); also includes the inhibition of contractions, the use of antibiotics to prevent infections, and the injection of glucocorticoids to promote pulmonary maturation. However, approximately 90 % of pregnant women deliver within one week (Meléndez-Falcón, 2021c).

The nursing care process (PAE) is important because it allows us to apply the scientific method in each stage and provide specialized care to the patient and family. This methodology allows us to provide care to patients systematically, logically, orderly, and with favorable results. Therefore, performing a complete, objective, and accurate nursing assessment is of utmost importance since it is the basis for identifying the relevant nursing diagnoses. The EAP comprises five stages: assessment, diagnosis, planning, execution, and evaluation, as well as interrelated, feedback, and successive (Miranda-Limachi et al., 2019).

The nursing professional specialist in gynecometrics is part of the multidisciplinary health team. She is highly trained to care for post-cesarean patients since she has the necessary knowledge to provide comprehensive care by guiding, teaching, and providing timely solutions to help achieve the patient's recovery and preserve life. (Valarezo, 2018).

METHOD

The study uses a qualitative approach, a single clinical case study type, and the nursing care process (PAE), a scientific method for identifying the patient's health problems, supported and justified with scientific evidence. Therefore, it is necessary that research is developed to contribute to the fundamentals and provide quality and warmth in care. (Castro and Simian, 2018).

The study subject was a 35-year-old woman, selected at the convenience of the researchers, with a medical diagnosis of postoperative cesarean section due to PROM of 48 hours, with a gestation period of 32 4/7 weeks, with a urinary tract infection under treatment, and an elderly mother. The study was carried out in a hospital in Callao (Lima). Information was collected through interview, observation, and physical examination; it was then organized using a guide based on Marjory Gordon's functional pattern assessment framework, identifying nine altered nursing diagnoses, prioritizing three diagnoses: Acute pain, risk of infection, and anxiety, based on the NANDA Taxonomy 2021 - 2023 and the care planning was developed based on the NOC and NIC taxonomy, with which the corresponding care was elaborated in the execution stage, allowing the evaluation of the results according to the differentiation of the basal target score with the final score.

NURSING CARE PROCESS

Valuation

General Data

- Name: C. C. P.
- Age: 35 years old
- Service: gynecology hospitalization
- Medical diagnosis: Post-operated three-hour cesarean section due to 48-hour PROM, with gestation of 32 4/7 weeks, urinary tract infection, aged, with an inter-gestational period of 8 years.
- Days of hospitalization: First day
- Valuation date: 04/10/2022
- Hours of operation: 12 hours

Reason for admission

The patient is received from the recovery room with three hours of immediate postoperative period for cesarean section, transferred on a stretcher by the nurse and nursing technician, the patient is awake, oriented in time, space and person; pale facies, ventilating spontaneously, moaning, referring pain in the operative area, asking about the health of her baby, hospitalized with immediate poscesarean medical diagnosis for premature rupture of membranes of 48 hours and urinary tract infection (UTI).

Assessment according to Functional Health Patterns

Functional Pattern I: Perception - Control of Health. She denies any relevant history of diseases. She presents a surgical history of a cesarean section 8 years ago and an obstetric history of RPM of 48 hours. She denies blood transfusions, drug or food allergies, does not consume drugs, alcohol, or tobacco, and has good hygiene. She received only one dose of the tetanus vaccine. She did not have COVID-19 disease and has two SRs COVID-19 vaccinations, with a current COVID-19 antigen test result that is not reactive.

Functional pattern II: Nutritional metabolic. Current weight of 68 kg, height 1,62 cm, with a normal gestational BMI of 25,95 kg/m2, with a body temperature of 37,0° C, usual glucose dosage of 82 mg/dl, with results of preoperative hemoglobin lab results: 10,4 g/dL considered mild anemia grade I, and postoperative hemoglobin of 8,56 g/dL considered moderate anemia grade II. Presents warm, pale, intact skin, with signs of dehydration due to the skin and oral mucosa not being very moist, good oral hygiene, and complete dentition.

Patient on postoperative gastric rest, no nausea or vomiting, soft, depressible, globular, and painful abdomen; presence of suprapubic operative wound (Pfannenstiel laparotomy); covered with clean and dry dressings; no weight loss in recent months; maintaining his appetite.

Functional pattern III: Elimination. Patient has not passed stool for 4 days, presents permeable bladder catheter with clear urine and leukocytes of 29 per field, considered pathological.

Functional Pattern IV: Activity - Exercise. *Respiratory activity:* Patient presents 20 breaths per minute, ventilating spontaneously without alterations, with an oxygen saturation of 98 %, no cough, no secretions, no respiratory sounds. *Circulatory Activity*: 102 heartbeats per minute, blood pressure: 90/50 mmHg, with tendency to hypotension, no edema in upper and lower limbs, peripheral catheter located in right upper limb, receiving parenteral fluids, sodium chloride 9 per 1000 plus oxytocin 30 IU at a drip of 45 drops per minute. *Activity Self-care capacity:* Remains at absolute rest for three hours post-cesarean, preserved limb mobility, decreased muscle strength and weakness.

Functional pattern V: Rest - sleep. Patient did not fall asleep for three hours due to the presence of pain in the operative area and concern for the health of her newborn, during the interview the patient reported that

she slept at intervals and did not get a restful rest, she denied the use of drugs to sleep.

Functional pattern VI: Perceptive - Cognitive. On observation oriented in time, space and person, with a Glasgow scale of 15 points, no abnormalities of hearing, vision, speech and language. Patient reports pain in the operative wound with a pain scale (VAS) of 7 points, pain expression facies and complaining attitude.

Functional Pattern VII: Self-perception - Self-concept. Patient refers: "that she was not ready to have her baby, after such a long time, but I waited for it with great enthusiasm", she is anxious and fearful, worried about her current state of health and that of her baby.

Functional pattern VIII: Role-relationships. Patient is a housewife, 5th grade of high school, married, lives with her husband and her son, with a nuclear family structure, has the support of family and friends, does not report domestic violence and has not presented suicide attempts.

Functional pattern IX: Sexuality/Reproduction. Refers to menarche at 12 years of age. Onset of sexual activity: 20 years old, with three sexual partners, using contraceptive methods such as condoms and intrauterine device (IUD). Obstetric history: gestations (2), abortions (0), vaginal deliveries (0), cesarean section (1). The gestation was 32,4/7 weeks and six prenatal controls. Last menstrual period: January 3, 2022, with probable due date: November 10, 2022.

Postoperative cesarean section due to amniotic fluid leakage (PROM) for 48 hours; physical examination showed soft breasts, free of signs of inflammation, with formed nipples, no palpable lumps, scarce colostrum secretion, and uterus contracted at the scar level. The umbilical cord, presence of hematic lochia without foul odor in moderate quantity, approximately 100 ccs on uterine massage, genitalia without alterations, no edema. Female newborn with Apgar of 8' 8'.

Functional Pattern X: Adaptation - Situation and Stress Tolerance. The patient reports being worried about her baby's health; it is her second baby after 8 years, and she has not seen him since the operating room; she and her husband are agitated about the baby's health; she also says that all her family supports them constantly. She denies taking anxiolytics and antidepressants.

Functional Pattern XI: Values - Beliefs. Catholic, non-practicing.

Nursing Diagnosis

First Diagnosis

- Diagnostic label: Acute Pain (00132)
- Related factor: Physical injury agent secondary to operative wounds, injuries.
- Defining characteristics: verbal report of pain according to VAS scale: 7 points, pain expression facies and complaining attitude.
- Diagnostic statement: Acute pain related to physical injury agent secondary to surgical wound, pain evidenced by verbal report of pain according to VAS scale: 7 points, pain expression facies and complaining attitude.

Second Diagnosis

- Diagnostic Label: Risk of Surgical Wound Infection (00266)
- Associated condition: Surgical procedure and invasive procedures
- Diagnostic Statement: Risk of surgical wound infection evidenced by surgical procedure and invasive procedures.

Third Diagnosis

- Diagnostic label: Anxiety (00146)
- Related factor: Unknown health status of the newborn.
- Defining characteristics: Expression of concern for the health of her newborn (premature).
- Diagnostic statement: Anxiety as evidenced by expression concern for her newborn's health.

Planning

First Diagnosis. Acute pain.

Nursing Outcomes. NOC [2102] Pain level.

Indicators

- Referred pain.
- Facial expression of pain.
- Grimaces of pain.

Nursing Interventions. NIC [1410] Acute pain management.

Activities

- Perform a comprehensive assessment of pain: location, duration and intensity.
- Identify pain intensity during movement during recovery activities.
- Monitor pain using a valid measurement tool.
- Review the medical indications of the prescribed analgesic, dosage and frequency.
- Administer metamizole 2 gr EV every 8 hours and tramadol 50 mg SC PRN severe pain
- Evaluate the efficacy of analgesics at regular intervals after each administration.

Second Diagnosis. Risk of surgical wound infection.
Nursing Outcomes. NOC [1908] Risk Detection.

Indicators

- Recognize signs and symptoms that indicate risks.
- Identify potential health risks.

Nursing interventions. NIC [6550] Protection against infection.

Activities

- Observe for signs and symptoms of systemic and localized infection.
- Observe the patient's vulnerability to infection.
- Monitor white blood cell count and white blood cell formula
- Inspect the condition of the surgical wound
- Follow the ten rules of proper management of management
- Administer intravenous antibiotic medication: Clindamycin 900 mg every 8 hours and gentamicin 160 mg every 24 hours.

Third Diagnosis. Anxiety.
Nursing Outcomes. NOC [1302] Coping with problems.

Indicators

- Verbalizes acceptance of the situation.
- He reports decrease in negative feelings.
- Uses effective coping strategies.

Nursing Interventions. NIC [5270] Emotional support.

Activities

- Help the patient recognize feelings such as anxiety, fear or sadness.
- Encourage the patient express feelings of anxiety, fear or sadness.
- Stay with the patient and provide feelings of security.
- Making empathic or supportive statements.
- Facilitate the patient's use of prayer.

Execution

Table 1. Execution of the diagnostic intervention: acute pain

Intervention: Acute pain management	
Time	**Activities**
8:00 AM	An exhaustive pain assessment is performed: location, duration and intensity.
8:30 AM	The intensity pain is identified in the process of movements during activities recovery
9:00 AM	Pain is monitored using a valid measurement tool (VAS scale).
9:10 AM	The frequency and intensity of pain is determined before analgesic is administered to the patient.
9:20 AM	The medical indications of the prescribed analgesic, dosage and frequency are reviewed. Administered: metamizol 2 gr EV c/8 hours and tramadol 50 mg SC PRN severe pain.
12:00 PM	The efficacy of analgesics is evaluated at regular intervals after each administration

Note: Based on the Nursing Intervention Classification (NIC). (Butcher, et al.,2018a).

Table 2. Execution of the diagnostic procedure: risk of surgical wound infection	
Intervention: Protection against infections	
Time	**Activities**
8:00 AM	Signs and symptoms of systemic and localized infection are observed.
9:00 AM	Vital functions are monitored
12:00 PM	The patient's vulnerability to infections is observed.
13:00 PM	Leukocyte count and leukocyte formula are monitored.
14:00 PM	The condition of the surgical wound is inspected.
15:00 PM	The ten rules of proper drug administration are followed
16:00 PM	Intravenous catheter placement and patency is verified.
17:00 PM	Sterility of the intravenous system is maintained.
18:00 PM	Intravenous medication is given: Clindamycin 900 mg every 8 hours and gentamicin 160 mg every 24 hours.
Note: Prepared from the Nursing Interventions Classification (NIC). (Butcher, et al.,2018b).	

Table 3. Implementation of diagnostic intervention: anxiety	
Intervention: Emotional support	
Time	**Activities**
08:00 AM	The patient is helped to recognize feelings such as anxiety, fear or sadness.
09:00 AM	The patient is encouraged to express feelings of anxiety, fear or sadness.
09:30 AM	Staying with the patient and providing feelings of security during periods of heightened anxiety.
10:00 AM	Empathetic or supportive statements are made
14:00 PM	Facilitates the patient's use of prayer
Note: Prepared from the Nursing Interventions Classification (NIC) (Butcher, et al.,2018c).	

Evaluation

Result: Pain level

Table 4. Baseline score and final score outcome: level of pain		
Indicators	**Baseline score**	**Final score**
Referred pain	2	4
Facial expressions of pain	2	5
Grimaces of pain	3	5
Note: Prepared from the Nursing Outcomes Classification (NOC) (Moorhead et.al; 2018a).		

Table 4 shows that the mode of the selected pain level outcome indicators for the acute pain diagnosis before the nursing interventions was 2 (substantial), after the application of the interventions, the mode was 5 (none), evidenced by decrease in VAS pain scale from 7/10 to 2/10, decrease in pain facies, achieving a change score of +2.

Result: Risk Detection

Table 5. Baseline and final score of outcome indicators: risk detection		
Indicators	**Score basal**	**Score end**
Recognizes signs and symptoms that indicate risks	2	4
Identifies potential health risks	2	4
Note: Developed from the Nursing Outcomes Classification (NOC) (Moorhead et.al; 2018b).		

Table 5 shows that the mode of the selected risk detection outcome indicators for the diagnosis risk of infection before nursing interventions was 2 (rarely demonstrated), after the application of nursing interventions, the

mode was 4 (frequently demonstrated), evidenced by no signs of infection in the operative wound, peripheral catheter insertion site, as well as body temperature within the normal range. The change score was +2.

Result: Coping with Problems

Table 6. Baseline and final score of outcome indicators: coping with problems

Indicators	Baseline score	Final score
Verbalizes acceptance of the situation	2	4
Refers decrease in negative feelings	3	4
Uses effective coping strategies	2	4

Note: Prepared from the Nursing Outcomes Classification (NOC) (Moorhead et.al; 2018c).

Table 6 shows that the mode of the selected problem coping outcome indicators for the diagnosis of anxiety, the baseline score before nursing interventions was 2 (rarely demonstrated), after the application nursing interventions the mode 4 (frequently demonstrated), evidenced by acceptance of their situation, refer better favorable feeling and expresses favorable feelings, achieving a change score of +2.

RESULTS

The assessment was carried out by collecting data from the patient as the primary source and the clinical history as a secondary source. The physical examination was used as a means of data collection, and then the information was organized using Marjory Gordon's functional health patterns assessment guide.

For the diagnosis, an analysis of significant data according to NANDA (2021-2023) was performed. Nine nursing diagnoses were identified, of which three were prioritized: acute pain, risk of surgical wound infection, and anxiety.

The planning phase considered the NOC and NIC taxonomies so that the nursing diagnoses and interventions are consistent with the results.

For the execution stage, interventions are carried out promptly and efficiently during the care provided.

Finally, the evaluation phase allowed comparing the baseline score with the final score, achieving for each outcome the change score of +2, +2 and +2.

DISCUSSION

Acute Pain

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue injury (Perez & Perez, 2018).

The above definition agrees with other authors in referring to acute pain as an unpleasant sensory and emotional experience occasioned by actual or potential tissue damage or described in terms of such damage, of sudden or slow onset, of any intensity from mild to severe with an anticipated or predictable end, lasting less than three months (Herdman et al., 2021a).

Postoperative pain is caused by multiple lesions in the anatomical structure, comprising an acute and noxious discomfort that lasts from 1 to 7 days, and its intensity can vary from nonexistent to unbearable; this will depend on a variety of factors, such as biological injurious agents (infection, ischemia, cancer, etc.), physical injurious agents (abscess, amputation, burn, cut, surgical processes, etc.) and chemical injurious agents (Herdman et al., 2021b).

Surgical pain is produced by the manipulations involved in the surgical procedure when allogenic substances that cause pain are released from the organism and when there is trauma. A signal is sent to the central nervous system through the spinal cord, causing repercussions at the cardiovascular, gastrointestinal, and nervous system levels (Carvalho et al., 2017a).

According to the American Society of Anesthesiologists (ASA), postoperative pain is pain that is present in the patient due to the disease, surgical procedure, and its complications, or a combination of both. It is fundamentally characterized as acute, time-limited, predictable, and avoidable pain. (Pérez-Guerrero et al., 2017)

According to the visual analog pain scale (VAS), pain is classified as mild pain (less than 3), moderate pain (between 4 to 7), and severe pain (greater than 8). (Vicente Herrero et al., 2018)

Postoperative pain occurs as a result of a surgical procedure; 90 % of patients present with postoperative pain, and approximately 60 % suffer moderate to severe pain in their first 24 hours post-surgery (Huayanay et al., 2023).

In our study, the patient presents pain on a VAS scale of 7 points, with defining characteristics of facial expression of pain and complaining attitude due to having undergone a surgical procedure such as cesarean

section, which is a surgical intervention that produces postoperative pain that comes from the injury to the abdominal wall for the extraction of the fetus and uterine involution (intussusception). (Carvalho et al., 2017b).

Acute pain is related to physical injury as a consequence of the surgical intervention that results in an aseptic wound, which requires essential nursing care oriented to pain management with pharmacological techniques (Aguilar, 2022).

Surgical pain is caused by the manipulations involved in the surgical act when allogenic substances are released from the organism. When there is trauma, a signal is emitted to the central nervous system through the spinal cord, causing repercussions at the cardiovascular, gastrointestinal, and nervous system levels (Carvalho et al., 2017c).

The nursing intervention for acute pain management was considered, and the following activities were performed: Assessment of pain intensity according to the VAS scale: To evaluate the analog scale, a 10-centimeter line is used. At one end, the phrase "no pain" is used, and at the other end, the worst pain imaginable is used. The signal made by the patient between the two extremes indicates the magnitude of the pain. This instrument is valid, reliable, and understandable.

The patient must have motor and visual coordination. A value lower than 4 is mild-moderate VAS, from 4 to 6 is moderate-severe, and a value higher than 6 is severe pain. Pain provokes a sympathetic stimulus that can be associated with arterial hypertension, tachycardia, sweating, and tearing. (Vicente et al., 2018).

Another intervention is to monitor vital functions such as heart rate, respiratory rate, and blood pressure. Vital signs indicate the patient's health; their variation changes physiological functioning. Changes in vital signs such as tachycardia, hypertension, and increased respiration often indicate acute pain and discomfort. Vital signs represent a quick and effective method of identifying problems; therefore, a frequency in their measurement is established (Potter, 2019).

Another care was to administer metamizole two grams, intravenous every eight hours, a drug that inhibits the action of cyclooxygenase, consequently, the synthesis of prostaglandins; this action explains its analgesic and antipyretic properties; however, the patient under study presented a VAS of seven points so tramadol 100 mg subcutaneous was administered, a non-steroidal anti-inflammatory agent that binds to gamma opioid receptors in the central nervous system and acts on the perception of severe pain. (Vademecum, 2018).

Surgical Wound Infection Risk

The risk of surgical wound infection is defined as being susceptible to an invasion of pathogenic organisms at the surgical site, which may compromise health, according to (Herdman et al., 2021)

At the beginning of an infectious process, an entrance door is needed so that the microorganisms can enter the tissues; this can occur through an invasive surgical procedure, which is a surgical incision.

An infection can develop depending on the germ's degree of virulence, local response, and host immune response (Romero Alvarado, 2017).

Risk factors such as PROM, emergency cesarean section, and number of vaginal tracts in a patient undergoing cesarean section make predict possible complications, and prevention during previous procedures is important. (Chávez Marín, 2019).

Within the nursing intervention, the following activities were considered: Protection against infections, with the following activities:

Observe signs and symptoms of systemic and localized infection: operative wound infections usually occur after 48 hours, and local signs of pain, edema, heat, erythematous skin change, and purulent drainage are observed. Some may develop fever (Chávez Marín, 2019).

Another intervention was to monitor vital functions: they indicated that infection increases temperature and cardiac output due to increased metabolism and vasodilation (Guyton et al., 2021). Also, signs and symptoms indicating wound infection include tachycardia, increased temperature, and pain palpation. (Smeltzer et al., 2019).

Infection occurs from the fifth day of discharge, hence the importance of teaching the patient about wound care (local temperature rise, incisional pain, and wound oozing). (Smeltzer et al., 2019)

The patient's vital functions were monitored periodically, which allowed the quick and effective detection of any alteration and avoided further complications (Potter, 2019).

Another intervention is to monitor operative wound dressings: early recognition of slow healing or the development of complications can prevent a serious situation (Briseño et al., 2019). Operative wound dressings should be removed by 24 hours after cesarean section, evaluate signs of infection in the wound for increased pain, redness, discharge, and dehiscence, suggest loose clothing and cotton, and clean and dry the wound gently. Among other infection-preventive activities are dressings, dressing changes,

observation of skin changes, and vital functions on an ongoing basis. Wound healing is performed to diminish or eradicate the proliferation of microorganisms and skin recovery.

Another activity is to monitor the patient's white blood cell count: the hemogram is one of the most

widely used diagnostic tests that allow determining with a high degree of reliability, speed, and a low cost the main hematological parameters in peripheral blood, providing valuable information about the three thematic series (red blood cells, white blood cells, and platelets), which allows detecting morphological alterations that indicate infection (Huerta Aragonés & Cela de Julián, 2018).

The WHO recommends strategies to reduce maternal infections through prophylaxis and appropriate antibiotic treatment, as well as establishing an international standard for cesarean deliveries, which should only be 15 % of registered deliveries; however, this figure has been increasing in recent years (WHO, 2019).

Clinical hand washing before and after each procedure favors the elimination of pathogenic microorganisms; the antiseptic solution used must comply with the bactericidal or bacteriostatic principle. (Potter, 2019)

The insertion of a urinary catheter in patients undergoing cesarean section facilitates the entry of germs into the urinary tract; to reduce the risk of infection, the bladder should be kept empty and removed immediately in the postoperative period (Huamán et al., 2019).

On the other hand, another risk of infection is invasive devices such as peripheral catheters, which are directly in the bloodstream, where gram-positive bacteria are of greater affection in patients (Garay, 2017).

Peripheral catheter recanalization every three days or according to protocol decreases the direct risk of pathogens entering the bloodstream and phlebitis (Brunner et al., 1994).

Another care is administering antibiotics, according to medical prescription, clindamycin 900 mg every 8 hours and gentamicin 160 mg every 24 hours.; they are widely used in these cases as they are bactericides used as a prophylactic means of infections, of mandatory use in the postoperative period due to rupture of the main protective layer, the skin (Vademecum, 2018). The use of antibiotics is mandatory in patients with risk factors such as puerperal endometritis, the most frequent ones being premature rupture of membranes, prolonged labor, repetitive vaginal examinations, anemia, and obesity (Huamán et al., 2019).

Anxiety

Anxiety is defined as a feeling of apprehension, uneasiness, exhaustion, insecurity, and fear, which occurs in anticipation of a threat, where anxiety reactions vary from patient to patient and from phase to phase in the sufferer's behavior (Potter, 2019).

Another definition mentions that anxiety is an emotional response to a diffuse threat in which the individual anticipates an unspecific imminent danger, catastrophe, or misfortune, and usually the origin of the anxiety is often unspecific or unknown to the person in anticipation of imminent danger and allows the person to take action to cope with the threat (Herdman et al., 2021).

Anxiety levels may remain elevated in the immediate postoperative period due to pain, the hospital environment, feeling unable to control circumstances, fear of the effect of surgery, fear of complications, loss inability to care for oneself, fatigue, spiritual distress, altered roles and responsibilities, poor coping and altered body image (Brunner et al., 2017).

Faced with an external event such as surgery, anxiety impacts psychically as well as physically because there is concern about independence, pain, physical conditions, recovery, separation from members, hospitalization, and hospital stay. Likewise, it is accompanied by physiological symptoms that may persist after surgery, such as elevated blood pressure, tachycardia, arrhythmia, and dyspnea, affecting the recovery of the postoperative patient. (Torres, 2018).

The anxiety that is generated in the mother in the puerperium stage occurs because anatomical and physiological changes occur because they feel lonely after childbirth since the attention is focused on the newborn (Cunningham et al., 2018).

Anxiety causes an increase in sympathetic nervous system activity, altering cardiovascular symptoms, causing hypertension, elevated heart rate, shortness of breath, palpitations, and tachypnea. Therefore, nursing intervention focuses on identifying and decreasing the level of anxiety and improving coping with it. (Butcher et al., 2018).

One of the defining characteristics of anxiety is the expression of concern for the health of their newborn (premature), a very stressful situation for the patient since it means facing an unexpected reality in which their expectations about the experience of pregnancy and normal childbirth are lost. In addition, they will have to face not only the initial separation.

Of their child, but also the loss of their maternal role, as care will be assumed in the neonatal unit; for all these reasons, during the puerperium, these women will be especially vulnerable to mental health problems. They will be more at risk of suffering high levels of anxiety, depression, and even post-traumatic stress symptoms (Salut et al., 2018).

The unknown situation of the newborn's health is related to the birth of a baby with some pathology and/or prematurity; it is a painful and stressful situation that can affect the emotional state of the mother, increasing her feeling of uncertainty and worry. Indeed, anguish and fear of death appear as a constant threat to the baby. On the other hand, several studies agree that the hospitalization of a critically ill newborn causes a high

degree of anxiety; the most significant challenge for mothers is to adapt to this circumstance to avoid altering the mother-child bond (Sanguesa, 2020).

Nursing Intervention: Emotional Support was considered, and the following activities were implemented:

It is important to emphasize that family and healthcare staff support helps manage the stressor event and/or anxious state during the patient's postoperative process. Emotional support, through active listening and timely information about the treatment and her disease process, reduces levels of anxiety, fear, and pain perception (Moorhead et al., 2018d).

Likewise, creating an environment of trust between the nurse and the patient. Generating an atmosphere of empathy where trust prevails will be significant in providing adequate care to the patient, considering that trust has to be a reciprocal process between the nurse and the patient (Vargas et al., 2020).

On the other hand, the patient is encouraged to express their feelings, perceptions, and fears, as that is very positive, through facial, vocal, non-linguistic, and postural expressions, helping them to improve their mood (Clares, 2018).

Another intervention is to facilitate the use of prayer, which is part of spiritual care that involves an interpersonal relationship between the nurse and the patient, which seeks to provide comfort and relief and admits personal spiritual practices such as praying, reading sacred literature, or receiving a spiritual leader (Torrecilla and Malagón, 2023).

CONCLUSIONS

The Nursing Care Process (PAE) allowed for the identification of the real and potential needs of post-operative cesarean section patients with premature membrane rupture. For this, a specialized, individualized, and comprehensive care plan was developed for the prompt recovery of the health problem. Thus, it is an excellent methodology for providing care in a systematic, logical, and orderly manner with favorable results.

It is important that the nursing professional has knowledge of the pathologies involved in the care he/she provides; this knowledge empowers the professional and allows him/her to act immediately and timely when the need arises. In health problems with a risk of complication, care should be based on permanent monitoring and prevention to avoid situations that put health at risk.

It is concluded that to obtain nursing results and interventions, the correct identification of nursing diagnoses is fundamental, as well as the nursing professional's management of the NANDA-NOC-NIC interrelationship, which will allow the use of a unified language that facilitates nursing work.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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