

A Premature Baby's Nursing Care Plan*

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Abstract

Introduction: Baby T, is in the 46th day of his life has a 26-year-old mother who has suffered from about hypothyroid and preeclampsia during her pregnancy was born as a preterm baby when he was in 27 weeks' gestation age by CS. **Purpose:** This article aimed to introduce the Nursing care plan. **Materials and Methods:** Place of work: Neonatal Intensive Care Unit/Balcalı Research and Education Hospital in Adana, Turkey. Nursing Care Plan for the clinical period from 23.02.2015 till 11.03.2015. Informed consent was obtained from the baby's family. **Results:** In addition to this, parents have blood incompatibility, therefore, such combinations of diseases impacted baby in the uterus and delivery happened earlier than expected date. His birth weight was 820 gr (0% - 5% percentile), height 34 cm (10% - 25% percentile), head-circumference 24 cm (10% percentile). The following healthcare needs were identified upon assessment; intubation, oxygene and stimulant support, monitorization, taking blood samples. Apical pulse is rapid and irregular within normal range 148 bpm, weight is 1605 gr, body is long, thin, limp with a slight potbelly. Initially suck/swallow reflex was absent/uncoordinated that's why he was taking expressed breastmilk throughout orogastric catheter, it has started also oral giving for the couple of days with the development of sucking and swallowing. Reflexes depend on gestational age; rooting well established by 32 weeks' gestation; coordinated reflexes for sucking, swallowing, and breathing usually established by 32 weeks; first component of Moro's reflex (lateral extension of upper extremities with opening of hands) appears at 28 weeks; second two components (anterior flexion and audible cry) appear at 32 weeks. Dubowitz examination indicates gestational age between 24 and 37 weeks. Consequently, this infant shows, palmar grasp, plantar grasp, moro reflex; the only response is the opening of the hand due to 27 gestational age.

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Apgar score was 4 - 7 (average, need oxygene and stimulant). Respiration was shallow, maintain neutral thermal environment, prevent or reduce risk of potential irregular, diaphragmatic with intermittent breathing 58/min. **Conclusion:** Nursing priorities should be promote optimal respiratory functioning, complications, maintain homeostasis, foster development of healthy family unit.

Keywords

Birth, Newborn, Nursing, Premature

1. Introduction

It is both a developmental and situational crisis in which to: give birth, to join of a new member into the family and to accept the new participant's membership with the cause of any health problem into the hospital. In such a case, the parents find themselves in a confusion without experiencing the happiness of having a child. The birth of a risky baby is a traumatic event for the family and causes the family to live crisis [1].

The first minutes of the newborn came into the world is very important because it is an indicator of the extrauterine adaptation to life. In order to maintain the health of the newborn, the importance of an effective care in the early postpartum period should not be overlooked [1]. The team involved in the birth should carefully evaluate the first minute of the newborn's life and examine the statements indicating that the baby's condition may be compromised. Assessment of these symptoms and appropriate interventions will affect the whole life of the baby [1] [2].

2. Practise Report

Baby T, is in the 46th day of his life has a 26 year old mother who has suffered from about hypothyroid and pre-eclampsia during her pregnancy was born in 07.01.2015 as a preterm baby when he was in 27 weeks' gestation age by CS. In addition to this, parents have blood incompatibility, therefore, such combinations of diseases impacted baby in the uterus and delivery happened earlier than expected date 01.03.2015. His birth weight was 820 gr (0% - 5% percentile), height 34 cm (10% - 25% percentile), head-circumference 24 cm (10% percentile).

The following healthcare needs were identified upon assessment; intubation, oxygene and stimulant support, monitorization, taking blood samples.

Neonatal Assessment Data Base

1) Circulation

Apical pulse is rapid and irregular within normal range 148 bpm.

2) Food/Fluid

Weight less than 2500 (Birth weight: 820 gr, now: 1605 gr).

3) Body long, thin, limp with a slight potbelly

Initially suck/swallow reflex was absent/uncoordinated that's why he was taking expressed breastmilk throughout orogastric catheter, it has started also oral giving for the couple of days with the development of sucking and swallowing.

4) Neurosensory

Head size large in relation to body; sutures are easily movable; fontanelles are open 2×1 cm. Edema of eyelids common. Reflexes depend on gestational age; rooting well established by 32 weeks' gestation; coordinated reflexes for sucking, swallowing, and breathing usually established by 32 wk; first component of Moro's reflex (lateral extension of upper extremities with opening of hands) appears at 28 wk; second two components (anterior flexion and audible cry) appear at 32 wk. Dubowitz examination indicates gestational age between 24 and 37 wk. Consequently, I can say that this infant shows, palmar grasp, plantar grasp, moro reflex; the only response is the opening of the hand due to 27 gestational age.

Infant is responsive to sound and movement. No drooping or paralysis noted in face.

5) Respiration

Apgar score was 4 - 7 (average, need oxygen and stimulant) at birth.

Respiration was shallow, irregular, diaphragmatic with intermittent breathing 58/min.

Grunting, nasal flaring, substernal retractions.

6) Safety

Temperature is stable but still has a risk for hypothermia.

7) Cry is weak

Face is bruised, baby active, skin slightly translucent with olive undertones, head can be considered normocephalic, milia present across nose, eyes and ears level, nostrils equal, sclera bluish-white, ears are symmetrical well-formed, no lesions noted, clavicles straight and intact, nipples unclear but symmetric, umbilical cord dry, no bleeding, buttocks symmetric, sole and buttocks creases present.

8) Sexuality

Male testes descended, rugae absent on scrotum.

9) Elimination

Not observed elimination problem.

3. Diagnostic Studies

Choice of tests and the expected results depend on presenting problems and secondary complications

1) Serum Electrolytes:

-Na: 136 mg/dl it is susceptible to critical fluctuations (The reference range is 131 - 145 mmol/L).

2) Hematologic tests:

-Hb: 15.6 (The reference range is 13.5 - 21.5 g/dL).

-Htc: 38.5 (The reference range is 42% - 60%)

-Plt: 27,000 (Thrombocytopenia may accompany sepsis). (The reference range is 150 - 350 10^3 μ /L).

-Wbc: 9300 (which is usually associated with severe bacterial disease) (The reference range is 9 - 30 10^3 μ /L).

Urinalysis (on second voided specimen): Detects abnormalities, renal injury.

-BUN: 42 (The reference range is 5 - 20 mgr/dl).

-Creatinin:0.77 (The reference range is 0.3 - 1 mgr/dl).

3) Blood type: Infant: A Rh+ Mother: 0 Rh + Father: ARh+ → ABO incompatibility.

4) Blood culture: Identify causative organisms associated with sepsis.

5) Urine-Specific Gravity: 1005 (Ranges between 1.006 and 1.013; elevated with dehydration) , no bacteria

6) Vital values

Temperature: 37.2 C. Pulse: 148/min. Respiration: 58/min. SYS: 72 DIA:38 Mean:51 mmHg. SpO2: 98%.

4. Medications/Plan

1) 12 × 16 cc feeding per a day (120 cc/kg).

2) It will be added 5cc eoprotin per 25 cc expressed breastmilk.

3) It will be added 1/4 cc faltomalt per 4 feeding.

4) D vit 1 × 3 drops p.o (10.00 am).

5) Biogia 1 × 5 drops p.o (10.00 am).

6) Santofer 1 × 1 drop p.o (10.00 am).

7) Netira for eyes, 3 × 1 drops (during 3 days) (10:00 18:00 02:00).

8) P.S. The medication is adjusted by the physician according to the condition of the baby.

5. Nursing Priorities

1) Promote optimal respiratory functioning.

2) Maintain neutral thermal environment.

3) Prevent or reduce risk of potential complications.

4) Maintain homeostasis.

5) Foster development of healthy family unit.

6. Discharge Goals

1) Maintaining physiological and behavioral homeostasis with minimal external support.

2) Weight 4 1/2lb or greater appropriate to age/condition.

3) Complications prevented/resolving or independently managed.

4) Family identifying and using resources appropriately.

- 5) Family demonstrates ability to manage infant care.
 - 6) Plan in place to meet needs after discharge
- See **Table 1** for nursing care plan (**Table 1**).

7. Discussion

Systematic physical assessment includes the assessment of newborns, initial assessment (Apgar scoring), assessment of extrauterine transition periods and gestational age assessment. Objective evaluation of the baby's physical condition at birth can be done with the Apgar scoring system. Apgar score is evaluated at 1th, 5th and 10th minutes. The newborn is assessed in five areas, taking into account heart rate, respiration, muscle tone, response to the stimulus and skin tone. The Apgar score is obtained by summing the scores of 0, 1, 2 given in each field. If the Apgar value is between 8 - 10; the newborn is alive and strong, a normal maintenance is sufficient. If value is between 4 - 7 means baby needs oxygen and warning. Value is below 4 means indicates severe oxygen deficiency and the newborn urgently needs resuscitation [3] [4].

During extrauterine transition period; determination of some irregularities in heart rate, respiration, motor activity, color, mucus production and intestinal activity, diagnosis of gestational age and birth weight are important because these are closely related to perinatal mortality and morbidity. A physical assessment with be very attentive and be systematic is necessary in order to detect normal signs and understand the specific signs of danger in the newborn. Physical evaluation includes assessment of vital findings, taking of body measurements, and physical examination of the from head to foot. A detailed assessment is needed to determine the level of adaptation of the newborn to life and the risk factors that may affect life [4].

The growth and development of the newborn depends on a loving family and a supportive environment. Some newborns may be premature, with a low birth

Table 1. Nursing Care Plan for the clinical period from 23.02.2015 till 11.03.2015 of Baby T [5]-[10].

(a)

NURSING DIAGNOSIS	DESIRED OUTCOMES	ACTIONS/ INTERVENTIONS	EVALUATION
May be related to: Immaturity of respiratuvar center, limited muscular development, decreased energy/fatigue Possibly evidenced by: periods of apnea, nasal flaring, use of accessory muscles, cyanosis, tachycardia RISK FOR INEFFECTIVE BREATHING PATTERN	Neonate will Maintain periodic breathing pattern (apneic periods last 5 - 10 sec, followed by short periods of rapid ventilation),with mucous membranes pink, and heart rate 110 - 160/respiratoryrate 24 - 60.	Assess respiratory rate and breathing pattern. Note presence of apnea and changes in heart rate, muscle tone, and skin color associated with procedures or care. Institute continuous respiratory and cardiac monitoring. Helps in distinguishing normal cyclic periodic breathing pattern from true apneic spells, which are particularly common prior to 30 weeks gestation as we observe Baby T who is 27 gestation weeks, is tend to present apnea attacks. Maintain optimal body temperature because even slight increase or decrease in environmental temperature can lead to apnea. Provide prompt tactile stimulation (e.g., rub infant's back) if apnea occurs. Note presence of cyanosis, bradycardia, or hypotonia. Encourage parental contact.	Goal Met: Baby T has not shown any apnea attacks.

(b)

NURSING DIAGNOSIS	DESIRED OUTCOMES	ACTIONS/INTERVENTIONS	EVALUATION
<p>May be related to: Immature CNS development (temperature regulation center), an inability to shiver or sweat, limited/inability to flex extremities, and frequent medical/nursing manipulations and interventions</p> <p>Possibly Evidenced by: Fluctuation of body temperature below/above normal range Tachypnea/apnea, generalized cyanosis, bradycardia, lethargy (coldstress)Tachycardia, flushed color, lethargy, apnea (hyperthermia) Baby T's axilla temperature 37.2 C skin warm and dry, does not appear uncomfortable RISK FOR INEFFECTIVE THERMOREGULATION</p>	<p>Neonate will Maintain skin/axillary temperature within 97.7°F - 99.1°F (36.5°C - 37.3°C). Be free of signs of cold stress.</p>	<p>Assess temperature frequently. Place infant in warmer, incubator, open bed with radiant warmer, or open crib with appropriate clothing Use heat lamps during procedures. Warm objects coming in contact with infant's body, such as stethoscopes, linens, and clothing. Surround infant with warmed receiving blankets. Cover radiant warmers with plastic wrap, if appropriate. Warm blood products, if administered. Note environmental temperature/monitor temperature-regulating system, radiant warmers, or incubators. (Maintain upper limit at 98.6°F [37°C], depending on infant's size or age.) Monitor infant's temperature when out of warmed environment. Provide parents with information about thermoregulation.</p>	<p>Baby T 's temp. remained between 36.5°C-37.3°C.</p>

(c)

NURSING DIAGNOSIS	DESIRED OUTCOMES	ACTIONS/INTERVENTIONS	EVALUATION
<p>May be related to Inability to coordinate sucking, swallowing, and breathing Inability to initiate or sustain effective suck Prematurity Possibly Evidenced by presence of signs/symptoms establishes an actual diagnosis INEFFECTIVE INFANT FEEDING PATTERN</p>	<p>The neonate will Not lose more than 10% of birth weight within first week of life. Gain 4 - 7 oz (113.5 - 198.5 g) after first week of life. Remain hydrated. Receive adequate supplemental nutrition until able to suckle sufficiently. Establish effective suck-and-swallow reflexes that allow for adequate intake of nutrients. The parents will • Identify factors that interfere with neonate establishing effective feeding pattern. • Express increased confidence in their ability to perform appropriate feeding techniques.</p>	<p>Weigh neonate at the same time each day on the same scale to detect excessive weight loss early. Continuously assess neonate's sucking pattern to monitor for ineffective patterns. Record growth by plotting daily weight and weekly measurements of body length and head circumference. Assess parents' knowledge of feeding techniques to help identify and clear up misconceptions. Assess the need for nutrition. The neonate may temporarily require alternative means of obtaining adequate fluids and calories. Teach parents to place the neonate in the upright position during feeding to prevent aspiration. For breast-feeding, ensure that the neonate's tongue is properly positioned under the mother's nipple to promote adequate sucking.</p>	<p>Baby T was able to consume 12 X 16 cc formula with breastmilk per a day. Initially he was taking by orogastric catheter after a couple of weeks we started giving oral, he could tolerate. He has been gaining weigh 20 - 30 gr for each day.</p>

(d)

NURSING DIAGNOSIS	DESIRED OUTCOMES	ACTIONS/INTERVENTIONS	EVALUATION
<p>May be related to Thin skin, fragile capillaries near the skin surface (prematurity) Inability to change positions to relieve pressure points, use of restraints (protecting invasive lines/tubes) Possibly Evidenced by presence of signs/symptoms establishes an actual diagnosis RISK FOR IMPAIRED SKIN INTEGRITY</p>	<p>The neonate will Maintain intact skin Be free of dermal injury.</p>	<p>Inspect skin every shift. Describe and document skin condition, and report changes. These measures provide evidence of the effectiveness of the skin care regimen. Provide mouth care using saline or glycerin swabs. Apply petroleum jelly to lips. Bathe infant using sterile water and mild soap. Wash only grossly soiled body parts. Minimize manipulation of infant's skin [After 4 days, skin develops some bactericidal properties because of acid pH. Frequent bathing using alkaline soaps or moisturizers may raise skin pH, compromising normal flora and natural defense mechanisms that protect against invading pathogens.] Change electrodes only when necessary.</p>	<p>Baby T experienced no skin breakdown and maintained adequate skin circulation.</p>

(e)

NURSING DIAGNOSIS	DESIRED OUTCOMES	ACTIONS/INTERVENTIONS	EVALUATION
<p>Risk factors may include Prematurity (immaturity of CNS system, hypoxia), environmental overstimulation, invasive/painful procedures and therapies, separation from parent(s) Possibly Evidenced by Elimination Neurocognition Nutrition Physical regulation Role/relationships Sensation/perception Sleep/rest (Refer to comprehensive assessment parameters.) RISK FOR DISORGANISED INFANT BEHAVIOR</p>	<p>The neonate will Exhibit organized behaviors that allow the achievement of optimal potential for growth and development asevidenced by modulation of physiological, motor, state, and attentional-interactive functioning. The parents will</p> <ul style="list-style-type: none"> • Identify factors that place infant at risk for behavioral disturbance. • Identify potential signs of behavioral disturbance in infant. • Identify appropriate ways to interact with infant. • Identify their reactions to infant (including ways of coping with occasional frustration and anger). • Express positive feelings about their ability to care for infant. <p>Identify resources for help with infant.</p>	<p>Determine infant's chronological and developmental age; note length of gestation. Assess individual behaviors using appropriate tool (e.g., assessment of Preterm Infant Behavior Scale).</p> <p>Create womblike atmosphere whenever possible by putting incubator for extended periods, playing recorded placental or maternal heart sounds, and surrounding infant with rolled blankets or manufactured "nesting" device. ** (It has provided as possible as yet it has no using of maternal sounds in our hospital.)</p> <p>Reposition infant using rolled diapers placed at the back and front, if infant is in lateral position, or at sides, if infant can tolerate a prone position.</p> <p>Change infant's position periodically to provide kinesthetic stimulation.</p> <p>Neuromuscularly immature infant is unable to reposition self or move about in the incubator.</p> <p>Use containment measures when handling/moving infant and avoid sudden postural changes.</p> <p>Provide gentle stroking and caressing, especially at feeding time, introducing textures (tongue blade, washcloth), as appropriate. [Provides tactile stimulation, which is associated with weight gains and is especially critical when infant is 40 weeks after conception or more. Note: Slow, sure movements provide stimulation while reducing motor disorganization</p> <p>Talk or quietly sing to infant, call infant by name play soft music in nursery, or play a tape of parent(s) voice.</p> <p>Interact with infant at face level (en face interaction), allowing eye contact.</p> <p>Encourage periodic skin-to-skin contact, as appropriate (<i>i.e.</i>, mother holds diaper-clad infant upright between her bare breasts). [Research suggest kangaroo-care technique not only provides closeness, strengthening mother-infant attachment, but also reduces periodic breathing and promotes deep sleep].</p> <p>Plan activities to allow periods of sleep. Prevent loud noises, limit conversation near bedside, respond to alarms quickly; and reduce light intermittently by covering incubator with towel shielding infant's eyes, or lowering room lighting.</p> <p>Weigh infant daily. Note feeding frequency and intake and frequency of stools. [Vagal stimulation produced by appropriate tactile and kinesthetic stimulation promotes weight gain increases peristalsis and expulsion of waste products reduces gastric retention, and increases feeding activity].</p> <p>Provide parents with information about infant's behavioral cues and responses to stressors.</p>	<p>Baby T was able to exhibit organised behaviors, not observed any problem Explained to parents that certain risk factors might interfere with the infant's ability to achieve optimal development [Educating the parents would help them understand their role in interpreting the infant's behavioral cues and providing appropriate stimulation].</p>

(f)

NURSING DIAGNOSIS	DESIRED OUTCOMES	ACTIONS/INTERVENTIONS	EVALUATION
Risk factors may include Immature immune response, fragile skin, invasive procedures (prematurity) Possibly Evidenced by presence of signs/symptoms establishes an actual diagnosis such as clinical blood tests or observing redness, swallowing, sensitivity over the area of invasive ways RISK FOR INFECTION	The neonate will Be free of (systemic or local) signs of infection, for example temperature instability, lethargy, respiratory distress, purulent drainage/secretions Parents will Verbalize measures to decrease infection in her newborn by end of shift	Determine gestational age of fetus, using Dubowitz criteria. [Delivery prior to 28 - 30 weeks' gestation increases infant's susceptibility to infection, because of reduced ability of WBCs to destroy bacteria, reduced transfer of IgG (IgG is transported across the placenta primarily in the third trimester) Institute aseptic precautions, especially handwashing, around infant. Teach parents about infectious process, including routes, pathogens, environment and host factors. Include specific aspects of prevention: • Wash hands often, especially before handling infant or after changing her diaper • Do not allow sick friends or family to interact with infant Perform care of umbilical cord. Provide breast milk for feeding, if available since breast milk contains IgA, macrophages, lymphocytes, and neutrophils, which provide some protection from infection	Baby T's situation had a crucial risk concerning infection due to being 27 weeks' gestation age but remained free from infection.

weight or with a defect. "When the weak and powerless newborns open their eyes to the world, the nurse is one of their best friends." In assessing the baby's condition, the baby nurse has a special role. The nurse evaluates of the adequacy and inadequacy of baby's functions with be systematic. The nurse also provides useful information about whether or not to take the treatment, decide whether to stay in a health center or next to the family [1].

Having the problem of the health of the newborn can cause the family to live in grief. Parents experience fear and anxiety when they face this sad end. As a result, intervention with professional care in a timely manner will make it easier for the couple to find new strategies and solutions that will help them cope with the crisis.

8. Conclusions

Nursing priorities should be promote optimal respiratory functioning, maintain neutral thermal environment, prevent or reduce risk of potential complications, maintain homeostasis, foster development of healthy family unit [5] [6] [7] [8].

Starting to early feeding, especially with breast milk, is crucial for the infants. It is also crucial for those who are not breastfeeding, rather whose needs are maintained by a healthcare team. These specially trained people are the newborn nurses who have a key responsibility on infant feeding as a result of their dense interactions with the infants and mothers from the beginning. To be able to fulfill this role, nurses need to know enteral feeding techniques and the nursing care of the enterally fed infants [11].

As a matter of fact, newborn nursing is a special branch, requiring experience and special training. Thus, a postgraduate nursing education on the current topic is highly recommended [11].

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