بسم الله الرحمن الرحيم

Shendi University

Faculty of graduate and scientific research

Research about:

Assessment of Nurses Knowledge Regarding Gestational Age Assessment of Neonate In Elmek Nimer University Hospital

A thesis submitted as partial fulfillment requirement of B.s.c in nursing sciences.

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قال تعالى :

﴿ وَلَقَدْ خَلَقْنَا الْإِنسَانَ مِن سُلَالَةٍ مِّن طِينٍ * ثُمَّ جَعَلْنَاهُ نُطْفَةً فِي قَرَارٍ مَّكِينٍ * ثُمَّ خَلَقْنَا النُّطْفَةَ عَلَقَةً فَخَلَقْنَا الْعَلَقَةَ مُضْغَةً فَخَلَقْنَا الْمُضْغَةَ عِظَامًا فَكَسَوْنَا الْعِظَامَ لَحْمًا ثُمَّ أَنشَأْنَاهُ خَلْقًا آخَرَ فَتَبَارَكَ اللَّهُ أَحْسَنُ الْخَالِقِينَ ﴾

صدق الله العظيم

سورة المؤمنون - الآية(12 – 14)

الإهداء

إلي من هو سبب وجودي في هذه الحياة ربنا يد يهو الصحة والعافية

أمي وأبي

إلي رفيق دربي وشريك عمري إلي زوجي العزيز

د. الأمين أبو بكر

إلي من هو أغلي شئ في حياتي ونور عيوني إلي أبنائي

محمد ومنة الله

إلي أمي الثانية التي لن أنسي معروفها بحياتي ربنا يديها الصحة والعافية

خالتي ناديه

إلي توأم روحي وسندي في هذه الحياة

إليك أخي

إلي كل من علمني حرفا أو رقما

جميع أساتذتي

وأخيرا إلي رفقاء دربي في طريق العلم

زملائى وزميلاتى

الشكر والعرفان

قال تعالي (ولئن شكرتم لأزيدنكم) صدق الله العظيم

الحمد لله الذي بنعمته تتم الصالحات والشكر في البدء والختام لله عز وجل سبحانه وتعالي

والشكر أجزله للدكتورة

لمياء الطيب الهادي

التي ساهمت في إنجاز هذا البحث بوقتها ومجهودها المعنوي والمعرفي ربنا يديها الصحة والعافية مع تمنياتي لها بالتوفيق في حياتها الأسرية والعملية وأيضا كل الشكر لأساتذتي بكلية علوم التمريض وأيضا الشكر موصول لتقني التمريض بمستشفى الملك نمر الجامعي

ملخص الدراسة

أجريت هذه الدراسة في مدينة شندي مستشفي المك نمر الجامعي في الفترة ما بين شهر يونيو إلي ديسمبر 2014 لتقييم معرفة تقني التمريض لتقييم عمر الطفل

جمعت معلومات الدراسة بواسطة الإستبيانه وكانت عينة الدراسة تتكون من خمسين (50) تقني تمريض وقد حللت هذه المعلومات إحصائيا بواسطة الكمبيوتر عبر برنامج يسمى (الحزم الإحصائية للعلوم الاجتماعية) وعرضت النتائج في شكل جداول

وأوضحت النتائج أن أكثر من نصف عينة الدراسة لديهم المعرفة الكافية عن تقييم عمر الطفل ومعرفة المشاكل المتعلقة بالعمر وأيضا أوضحت الدراسة أن أكثر من نصف عينة الدراسة لا يقومون بتطبيق هذا التقييم وأن من يقوم بتقييم عمر الطفل في مستشفي المك نمر الجامعي دائما الأطباء

وأخيراً أوصت الدراسة للمسؤولين في المستشفى بإدخال برنامج تعليمي لتقني التمريض لتجديد معلوماتهم وأيضا تدريبهم لرفع مستوي العناية التمريضية والمراقبة المستمرة لأدائهم كما أوصت تقني التمريض بأن يقوموا بعمل تقييم عمر الطفل في خلال اليوم الأول باستخدام أدوات مناسبة وتصنيف الطفل حسب العمر إلي أصغر من العمر الطبيعي ،أكبر من العمر الطبيعي ،مناسب للعمر الطبيعي .

Abstract

This study is done in Shendi town at Elmek Nimer university hospital to assess the knowledge of the nurses regarding gestational age of neonate assessment, The design used for this study was descriptive cross sectional study during period from august 2014 to December 2014 which covered 50 nurses and the data collected by questionaire and analysed by computer using software program SPSS (statistical package of social science) the result showed that more than half of study group knowledgeable about definition ,time & importance of gestational age assessment .

Most of them well knowledgeable about age related problem in newborn and showed that performance of gestational age assessment by nurses is less common and performance of gestational age in Elmek Nimer always by physicion ,This study recommended for leader by installing in-service educational program for Nurse to upgrade the techniques necessary to assess, evaluate and improve the quality of care and to put an emphasis on the training course for the Nurse in order to updating their knowledge with regular supervision on their performance and recommended for nurse by Perform postnatal gestational assessment within 12 hours of age using an appropriate scoring tool such as the New Ballard Score and Classify the neonate as small for gestational age (SGA), appropriate for gestational age (AGA), or large for gestational age (LGA)

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Introduction

According to Alexander and Allen (1996), gestational age must be determined in the first 4 hours after birth so that age-related problems can be identified and appropriate care initiated. The New Ballard Score is the most commonly used tool .It has two elements: external physical characteristics and neuromuscular maturity.

If the findings of neuromuscular maturity are not in line with the findings of the external physical characteristics ,a second assessment should be performed within 24 hours standard estimate of gestational age are dependent on subjective as last menstrual period and ultrasound and the postnatal physical and neurological examination [(1)]

Assessment of External Physical Characteristics

The nurse should begin with resting posture, then skin, lanugo, plantar creases, breast, eye/ear, and then genitalia

Neuromuscular Maturity :

The neuromuscular characteristics to be evaluated include square window, arm recoil, popliteal angle, scarf sign, and heel to ear [(1)]

Gestational Age Relationship :

to Intrauterine Growth

There is a normal range of birth weight for each week of gestation as well as for length, head circumference, and intrauterine weight–length ratio Birth weight is classified as follows:- [(1)]

- **Large for gestational age (LGA)**: Infant's weight falls above the 90th percentile for gestational age
- **Appropriate for gestational age (AGA)**: Infant's weight falls between the 10th and 90th percentile for gestational age
- **Small for gestational age (SGA)**: Infant's weight falls below the 10th percentile for gestational age

The correlation of the infant's measurements for length and head circumference also documents the infant's level of maturity and appropriate classification of LGA, AGA, or SGA

All of these determinations assist caregivers to expect possible physiologic complications, and together with the results of a physical assessment are the basis for preparing an appropriate care plan for the infant[(1)]

Justification

Assessment of nurse's knowledge of gestational age is very important ,for this importance the nurse should be knowledgeable about age related problems and high risk babies , Provide appropriate nursing care to newborn . and also know problems related to birth weight . so the nursing staff they have to know about assessment of gestational age.

Objectives

General Objectives

Assessment of nurses knowledge regarding gestational age assessment of neonate

Specific objectives

- To assess nurses knowledge about age related problems in newborn.
- To assess nurses knowledge about New Ballard score tools .
- To assess nurse knowledge about classification of the infant according to gestational age assessment and birth weight .
- To assess nurse knowledge about other method used for determination of gestational age

Chapter Two

Literature Review

Literature review

Gestational age is determined by an assessment of various physical signs and neuromuscular characteristics) that vary according to fetal age and maturity. Physical criteria are features that mature with advancing fetal age, including increasing firmness of the pinna of the ear; increasing size of the breast tissue; decreasing fine, immature lanugo hair over the back; and decreasing opacity of the skin. Neurologic criteria are features that mature with gestational age, including increasing flexion of the legs, hips, and arms; increasing tone of the flexor muscles of the neck; and decreasing laxity of the joints. These signs are determined during the first day of life and are assigned scores

The cumulative score is correlated with a gestational age, which is usually accurate to within 2 weeks Gestational age assessment permits the detection of abnormal fetal growth patterns, aiding in predicting the neonatal complications of largeness or smallness for gestational age . Infants born at a weight greater than the 90th percentile for their age are considered (LGA). Among the risks associated with being LGA are all the risks of the infant of a diabetic mother and risks associated with post maturity. Infants born at a weight less than the 10th percentile for their age (SGA) and have IUGR. Problems associated with SGA infants include congenital malformations [(2)]

Definition of gestational age:-

This is traditionally calculated as the number of weeks since the first day of an expecting mother's last menstrual period. In evaluating expected development of the baby for a point in pregnancy, this dating method assumes that the mother has a 28-day cycle with ovulation on the 14th day of the menstrual cycle. The average pregnancy with this calculation system lasts about 40 weeks, from the start of the last menstrual period until birth[(3)]

Gestational age is the age of an unborn baby. It is measured in weeks and days. It is most often based on the date of your last menstrual period[(4)]

Importance of gestationl age assessment:

There are many reasons why it is important to know a due date and how far along a pregnancy is. Some reasons are:

- At specific weeks of pregnancy, certain things are expected--for example, hearing the baby's heartbeat for the first time (by your provider with a stethoscope) and feeling the baby move for the first time.

If these things happen when expected, they can be a sign that the baby is doing well

❖ Checking the growth of your uterus and baby can be done accurately only if the baby's age is correctly known.

❖ Some very important tests are done only at certain times in the pregnancy.

❖ It is very important to know your baby's age if there are complications with the pregnancy and the baby needs to be delivered early

❖ If your baby is larger or smaller than expected for its age, then your healthcare provider may recommend additional testing to see if everything is OK with the baby

❖ It is important to know when a baby is overdue so the health of the baby can be watched more carefully [(4)]

Gestational Age Assessment

Gestational age assessment of the newborn is based on the mother's menstrual history, prenatal ultrasonography, and/or neonatal maturational examination. The calculation of gestational age, either by Dubowitz neurological exam or Ballard scale of physical and neuromuscular maturity, assists in predicting potential problems and establishing plan of care based on gestational age

1. Most hospital nurseries have written policies on which neonates should routinely be assessed for gestational age. Gestational age assessment is commonly completed on:
2. Neonates who, based on the maternal menstrual history, are preterm, born before 37 weeks; or postterm, born after 42 weeks by dates
3. Neonates who weigh less than 2500grams or more than 4000grams

4-Neonates of diabetic mothers

The Ballard Maturational Score (BMS) is calculated by assessing the physical and neuromuscular maturity of the neonate. It consists of six evaluation areas for neuromuscular maturity and six items of observed physical maturity . The examination determines weeks of gestation and classifies the neonate as preterm (<37 weeks), term (37–42 weeks), or post term (>42 weeks).

The scores from these exams provide a gestational age that is graphed based on weight, length, and head circumference to determine if the neonate is (AGA), for (SGA), or (LGA)

❖ SGA is a term used for neonates whose weight is below the 10^{th} percentile for gestational age

❖ LGA is a term used for neonates whose weight is above the 90^{th} percentile for gestational age

To determine a newborn's gestational age (the stage of maturity), physical signs and neurologic characteristics are assessed. Typically, gestational age is determined by using a tool such as the

Dubowitz/Ballard or New Ballard Score system . This scoring system provides an objective estimate of gestational age by scoring the specific parameters of physical and neuromuscular maturity.

Points are given for each assessment parameter, with a low score of −1 point or −2 points for extreme immaturity to 4 or 5 points for postmaturity. The scores from each section are added together to correspond to a specific gestational age in weeks[5]

Dubowitz Maturity Scale

Dubowitz and colleagues (1970) devised a gestational rating scale that uses more extensive criteria. All newborns appearing to be immature by Usher's criteria or who are light in weight at birth or early by dates should be assessed by means of these more definitive criteria. Although completing a Dubowitz assessment takes practice, it can yield important results; it can help determine whether a newborn needs immediate high-risk nursery intervention

During the 1970s and again in the 1990s, Ballard modified the Dubowitz scale (Ballard et al., 1991) to an assessment scale that can be completed in 3 to 4 minutes. The assessment consists of two portions: physical maturity and neuromuscular maturity . The first is a series of observations about skin texture, color, lanugo, foot creases, genitalia, ear, and breast maturity. Each designated body part is inspected andgiven a score of 0 to 5. This observational scoring should be done as soon as possible after birth, because skin assessment becomes much less reliable after 24 hours.[6]

component of gestational age assessment:

1. external physical characterstic

2. neuromascular maturity

Assessment of External Physical Characteristics:

The physical maturity section of the examination is done during the first 2 hours after birth. The physical maturity assessment section of the Ballard examination evaluates physical characteristics that appear different at different stages depending on a newborn's gestational maturity. Newborns who are physically mature have higher scores than those who are not. The areas assessed on the physical maturity examination include: [7]

1.Resting Posture:

Although resting posture is a characteristic of neuromuscular maturity, it should be assessed first. The posture the newborn assumes when lying undisturbed is to be assessed. The very preterm infant has no flexion of the extremities, while the full-term infant is full flexed

3. skin texture :

Typically ranges from sticky and transparent to smooth, with varying degrees of peeling and cracking, to parchment-like or leathery with signisignificant cracking and Wrinkling

3. Lanugo :

Soft downy hair on the newborn's body, which is absent in preterm newborns, appears with maturity, and then disappears again with post maturity

4. Plantar creases :

Creases on the soles of the feet, which range from absent to covering the entire foot, depending on maturity (the greater the number of creases, the greater the newborn's maturity)

5. Breast tissue :

The thickness and size of breast tissue and areola (the darkened ring around each nipple), which range from being imperceptible to full and budding

6.Eye/Ear :

The eyelids are fused until 26 to 28 weeks of gestation. The upper pinna begins to curve over at about 33 to 34 weeks of gestation. The curving over continues until it is complete at 39 to 40 weeks of gestation—eyelids can be fused or open and ear cartilage and stiffness determine the degree of maturity (the greater the amount of ear cartilage with stiffness, the greater the newborn's maturity)

7. Genitals :

In males, evidence of testicular descent and appearance of scrotum (which can range from smooth to covered with rugae) determine maturity; in females, appearance and size of clitoris and labia determine maturity (a prominent clitoris with flat labia suggests prematurity, whereas a clitoris covered by labia suggests greater maturity)

Assessment of neuromuscular maturity:

The neuromuscular maturity section typically is completed within 24 hours after birth. Six activities or maneuvers that the newborn performs with various body parts are evaluated to determine the newborn's degree of maturity[7]

1. Posture: How does the newborn hold his or her extremities in relation to the trunk? The greater the degree of flexion, the greater the maturity. For example, extension of arms and legs is scored as 0 point and full flexion of arms and legs is scored as 4 points

2. Square window:How far can the newborn's hands be flexed toward the wrist? The angle is measured and scored from more than 90 degrees to 0 degrees to determine the maturity rating. As the angle decreases, the newborn's maturity increases. For example, an angle of more than 90 degrees is scored as −1 point and an angle of 0 degrees is scored as 4 points

3. Arm recoil: How far do the newborn's arms "spring back" to a flexed position? This measure evaluates the degree of arm flexion and the strength of recoil. The reaction of the arm is then scored from 0 to 4 points based on the degree of flexion as the arms are returned to their normal flexed position. The higher the points assigned, the greater the neuromuscular maturity (for example, recoil less than a 90-degree angle is scored as 4 points

4. **Popliteal angle**:How far will the newborn's knees extend? The angle created when the knee is extended is measured. An angle less than 90 degrees indicates greater maturity. For example, an angle of 180 degrees is scored as −1 point and an angle of less than 90 degrees is scored as 5 points

5. Scarf sign: How far can the elbows be moved across the newborn's chest? An elbow that does not reach midline indicates greater maturity. For example, if the elbow reaches or nears the level of the opposite shoulder, this is scored as −1 point; if the elbow does not cross the proximate axillary line, it is scored as 4 points

6. Heel to ear :How close can the newborn's feet be moved to the ears? This maneuver assesses hip flexibility: the lesser the flexibility, the greater the newborn's maturity. The heel-to-ear assessment is scored in the same manner as the scarf sign

Using the information about gestational age and then considering birthweight, newborns can also be classified as follows:

- ❖ Small for gestational age (SGA)—weight less than the 10th percentile on standard growth charts
- ❖ Appropriate for gestational age (AGA)—weight between 10th and 90th percentiles
- ❖ Large for gestational age (LGA)—weight more than the 90th percentile on standard growth charts

Large for gestational age (LGA):

(LGA) means that a fetus or infant is larger or more developed than normal for the baby's gestational age. LGA refers to a fetus or infant who is larger than expected for the age and gender. It can also mean an infant with a birth weight above the 90th percentile

Common causes of the condition are:

1. Gestational diabetic
2. Prolonged pregnancy

A baby that is large for gestational age has a higher risk of birth injury. There is also a risk of complications of low blood sugar after delivery[8]

In general, LGA is defined as a birth weight greater than the 90th percentile for age. However, it has been suggested that the definition be restricted to infants with birth weights greater than the 97th percentile standard deviations above the mean), as this more accurately describes infants who are at greatest risk for perinatal morbidity and mortality ,Using a national reference based on single live births in the United States, infants born at 40 weeks gestation at the 90th percentile had birth weights greater than 4000 g and those at the 97th percentile greater than 4400g [9.10]

Macrosomia refers to excessive intrauterine growth beyond a specific threshold regardless of gestational age. This condition usually is defined as a birth weight greater than 4000 or 4500 g. The American College of Obstetricians and Gynecologists supports use of the 4500 g threshold for diagnosis of macrosomia because morbidity increases sharply beyond this weight. A grading system for macrosomia has been proposed based on birth weight [11,15]

Symptoms and Complications:-

Symptoms depend on which complications occur. Common complications include the following:

1. Excess amount of red blood cells (polycythemia) : Large-for-gestational-age newborns may have a ruddy complexion because too many red blood cells are produced. As the excess red blood cells are broken down, bilirubin is formed, which, along with poor feeding, results in jaundice
2. Low blood sugar levels (hypoglycemia): In newborns of mothers with diabetes, the oversupply of glucose from the placenta stops abruptly at delivery when the umbilical cord is cut and the continuing rapid production of insulin by the newborn's pancreas leads to low levels of sugar in the blood (hypoglycemia). Often hypoglycemia causes no symptoms. Sometimes, newborns are listless, limp, or jittery. Despite their large size, newborns of mothers with diabetes often do not feed well for the first few days [12]

3. Lung problems: Lung development is delayed in newborns whose mothers have diabetes. When these newborns are delivered by cesarean, they are at risk of developing lung problems. Newborns born prematurely are more likely to have immature lungs and to develop respiratory distress syndrome , even when born only a few weeks before full term
4. Increased risk of birth injuries: Newborns who are large for gestational age are at increased risk of birth injuries such as stretching of the nerves in the shoulder (brachial plexus injuries) and collarbone (clavicle) fractures. Vaginal delivery, especially breech deliveries, may be difficult when the fetus's head is large in comparison with the mother's pelvic measurements, which increases the risk of birth injury. Therefore, such a fetus may have to be delivered by caesarean
5. Infants whose mother has diabetes also have a higher rate of birth defects than other newborns. Large-for-gestational-age newborns born to mothers with diabetes are likely to be significantly overweight later in childhood and as adults, which, along with their genetic predisposition, puts them at risk of developing type 2 diabetes

Treatment:-

To treat hypoglycemia in newborns, glucose given by vein (intravenously) or frequent feedings by mouth or by tube into the stomach are often needed. Treatment of respiratory distress syndrome may require supplemental oxygen through a tube placed in the nose or intense intervention, such as respiratory support with a ventilator. Other complications may also require treatment, such as phototherapy for jaundice [12]

Small for gestational age:-

Not all fetuses that are SGA are pathologically growth restricted and, in fact, may be constitutionally small. If small for gestational age babies have been the subject of intrauterine growth restriction (IUGR), formerly known as intrauterine growth retardation, the term SGA associated with IUGR is used. Intrauterine growth restriction (IUGR) refers to a condition in which a fetus is unable to achieve its genetically determined potential size. This functional definition seeks to identify a population of fetuses at risk for modifiable but otherwise poor outcomes. This definition intentionally excludes fetuses that are small for gestational age (SGA) but are not pathologically small [13]

Diagnosis:-

The condition is determined by birth weight and/or length. A related condition, IUGR, is generally diagnosed by measuring the mother's uterus, with the fundal height being less than it should

be for that stage of the pregnancy. If it is suspected, the mother will usually be sent for an ultrasound to confirm[13]

(SGA) babies are those who are smaller in size than normal for the gestational age , most commonly defined as a weight below the 10th percentile for the gestational age

Causes:

1. a genetic trait of the baby
2. Intrauterine growth restriction

Some factors that may contribute to SGA and/or IUGR include the following:-

Maternal factors:-

1. High blood pressure
2. Chronic kidney disease
3. Advanced diabetes
4. Heart or respiratory disease)
5. Malnutrition, anemia
6. Infection
7. Substance use (alcohol, drugs)
8. Cigarette smoking

Factors involving the uterus and placenta:

1. Decreased blood flow in the uterus and placenta
2. Placental abruption (placenta detaches from the uterus)
3. Placenta previa (placenta attaches low in the uterus)
4. Infection in the tissues around the fetus

Factors related to the developing baby (fetus):

1. Multiple gestation (for example, twins or triplets)
2. Infection
3. Birth defects
4. Chromosomal abnormality

Management:-

Babies with SGA may be physically more mature than their small size indicates. But they may be weak and less able to tolerate large feedings or to stay warm, Treatment of the SGA baby may include:-

1. Temperature controlled beds or incubators
2. Tube feedings (if the baby does not have a strong suck)
3. Checking for hypoglycemia (low blood sugar) through blood test[s]
4. Monitoring of oxygen levels

Babies who are SGA and are also premature may have additional needs including oxygen and mechanical help to breathe [(14)]

Prevention of SGA:-

Prenatal care is important in all pregnancies, and especially to identify problems with fetal growth. Stopping smoking and use of substances such as drugs and alcohol are essential to a healthy pregnancy and can reduce the risk for sudden infant death syndrome (SIDS) and other sleep-related infant deaths. Eating a healthy diet in pregnancy may also help [(14)]

Chapter Three

Methodology

Methodology& material

Study design:-

The design used for this research was descriptive, cross-sectional study, aiming to assess the knowledge and practices of nurses about gestational age assessment

Study area and setting:-

This study was conducted in Elmek Nemir university Hospital which located at Shendi town in River Nile state, This Hospital wear established in 2002 , complementary unit to medicine and health science faculty for patient care , teaching , training and scientific research . it consist of many departments including medicine, pediatric ,surgery, obstetric and gynecology ,renal center cardiac center and oncology center , ICU &CCU.

Period of Study :-

This study was carried out during the period which extends from June 2014 to December 2014.

Study population:-

The study covered all nurses who worked in Elmek Nemir university hospital

Sample size& sampling technique:-

The size of this study was (50 nurses) selected by simple Random sampling

Data collection tool:-

This data was collected by questionaire that was developed by the researcher after a review of literatures to collect data about nurses knowledge about gestational age assessment .this questioner contains (22) questions.

The questionaire contains three (3) parts :-

A- part 1:- was developed to collect data about socio demographic data and contains four (4) questions

B- part 2:- was developed to collect data about nurse knowledge of gestational age assessment and contains ten (10) questions.

C- part 3:- was developed to collect data about nurse performance of gestational age assessment and contains eight (8) questions

Data analysis technique:-

The data was analyzed by computer using software program SPSS (statistical package of social science) and presented in forms of tables and figures

Ethical consideration:-

The study and way of conduction where explain to participant and verbal consent was taken

Chapter Four

Results

Result

Table(1) :Distribution of study group according to their socio demographic data

socio demographic data		frequency	percentage
age	20-30	42	84%
	30-40	8	16%
	total	50	100%
Gender	male	7	14%
	female	43	86%
	total	50	100%
Level of education	diploma	3	6%
	bacloria	41	82%
	master	6	12%
	total	50	100%
Years of experience	1-5	38	76%
	5-10	11	22%
	>10	1	2%
	total	50	100%

This table showed that the majority of nurses are female and their age group distributed between 20-30yr and have albacore certificate and their years of experience of group distributed between 1-5yr

Table (2) :Distribution of study group according to their knowledge about definition of gestational age :

Definition of GA	frequency	percentage
Baby age	13	26%

Maturity	25	
Delivery	12	24%
total	50	100%

In this table the result showed that half of study group knowledgeable about about definition of gestational age

Table (3): Distribution of study group according to their knowledge about importance of gestational age assessment:

importance of gestational age assessment	**frequency**	**percentage**
Except of complication	2	4%
Assist in preparing of care plan	5	10%
Determine fetal birth weight	7	14%
A&B	36	72%
Total	50	100%

In this table the result showed that the majority of nurse (72%) knowledgeable about importance of gestational age assessment

Table (4): Distribution of study group according to their knowledge about time of gestational age assessment

time of gestational age assessment	**frequency**	**percentage**
First day	36	72%
Second day	2	4%
After weeks	12	24%
Total	50	100%

In this table the result showed that the majority of nurse (72%) knowledge able about time of gestational age assessment

Table (5): Distribution of study group according to their knowledge about classification of gestational age assessment:

classification of gestational age assessment	frequency	percentage
AGA	6	12%
LGA	1	2%
All of the above	43	86%
Total	50	100%

In this table the result showed that the majority of nurses(86%) knowledge able about classification of gestational age assessment

Table (6):Distribution of study group according to their knowledge about small for gestational age range :

SGA range	frequency	percentage
Below 10 percent	36	72%
Above 10 percent	8	16%
Between 10-90 percent	6	12%
Total	50	100%

In this table the result showed that more than half of nurse (72%) knowledgeable about small for gestational age range

Table (7): Distribution of study group according to their knowledge about large for gestational age range

LGA range	frequency	percentage
Above 80 percent	15	30%
Above85 percent	11	22%
Above 90 percent	24	48%
Total	50	100%

In this table the result showed that half of nurses poor knowledgeable about large for gestational age range

Table (8): Distribution of study group according to their knowledge about appropriate for gestational age range :

AGA range	frequency	percentage
Between10-90 percent	33	66%
Under 90 percent	5	10%
Above 10 percent	12	24%
Total	50	100%

In this table the result showed that more than half of nurse (66%) knowledgeable about appropriate for gestational age range

Table (9): Distribution of study group according to their knowledge about problems associated with small for gestational age:

problems association with SGA	frequency	percentage

hyper builorobinemia	2	4%
respiratory distress syndromes	12	24%
Hypoglycemia	1	2%
all of the above	35	70%
Total	50	100%

In this table the result showed that more than half of nurse (70%) knowledgeable about problems association with small for gestational age

Table (10): Distribution of study group according to their knowledge about problems associated with large for gestational age :

problems association with LGA	frequency	percentage
Congenital malformation	7	14%
Birth injury	12	24%
All of the above	31	62%
Total	50	100%

In this table the result showed that more than half of study group (62%) knowledgeable about problems association with large for gestational age

Table (11): Distribution of study group according to their knowledge about component of gestational age :

component of gestational age	frequency	percentage
Physical signs	8	16%
Neuromuscular signs	2	4%

physical and neuromuscular	40	80%
Total	50	100%

In this table the result showed that the majority of nurse (80%) knowledgeable about component of gestational age assessment

Table (12): Distribution of study group according to their knowledge about new Ballard score tools

new ballard score tools	frequency	percentage
most common tools	31	62%
Less common tools	15	30%
not common tools	4	8%
Total	50	100%

In this table the result showed that more than half of study group (62%) knowledgeable about new ballard score tools that used in gestational age assessment

Table (13): Distribution of study group according to their knowledge about component of neuromuscular characteristic :

component of neuromuscular characteristic	frequency	percentage
Posture	6	12%
Square window	1	2%
Arm recoil	3	6%
Poplitel angle	1	2%
All of the above	39	78%
Total	50	100%

In this table the result showed that the majority of nurse (78%) knowledgeable about component of neuromuscular characteristic

Table (14): Distribution of study group according to their knowledge about component of physical maturity :

component of physical maturity	Frequency	Percentage
Skin	4	8%
Langue	1	2%
Planter	3	6%
eye \ear	1	2%
all of the above	41	82%
Total	50	100%

In this table the result showed that the majority of nurse (82%) knowledgeable about component of physical maturity

Table (15): Distribution of study group according to their knowledge about physical maturity& neuromuscular characteristic that varying according :

Varying between physical &neuromuscular signs	Frequency	Percentage
fetal age	5	10%
age & maturity	45	90%
Total	50	100%

In this table the result showed that the majority of nurse (90%) knowledgeable about physical maturity& neuromuscular characteristic that varying according to fetal age & maturity

Table (16): Distribution of study group according to their knowledge about other method used to assessment of gestational age:

method	Frequency	Percent
LMP	3	6%
ultra sound	5	10%
fundal height	3	6%
all of the above	39	78%
Total	50	100%

In this table the result showed that the majority of nurse (78%) knowledgeable about other method used to assessment of gestational age

Table (17): Distribution of study group according to their knowledge of gestational age assessment by nurses :

performance of gestational age	Frequency	Percent
Always	11	22%
some time	22	44%
Never	17	34%
Total	50	100%

In this table the result showed that (44%)of nurses sometime applied of GA assessment ,(34%) never applied of GA assessment,(22%)always applied of GA assessment

Table (18):distribution of study group according to their knowledge about application of gestational age assessment:

application of gestational age	Frequency	Percent
Nurse	2	4%
Physician	46	92%
Midwife	2	4%

Total	50	100%

In this table the result showed that the majority of nurse (92%) say that performance of GA assessment by physicion

Figure (1) distribution of study group according to their age :

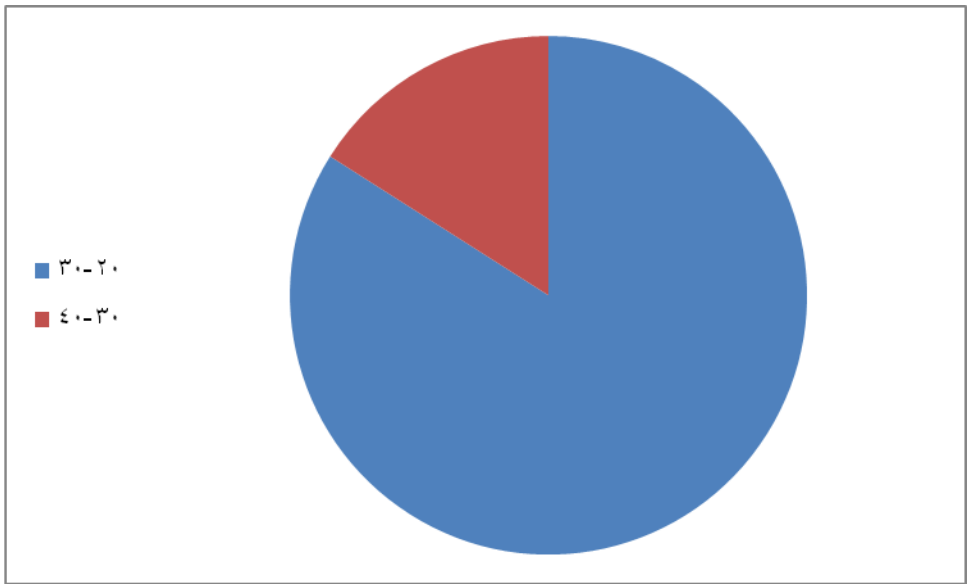


Figure (2) distribution of study group according to their Level of education:

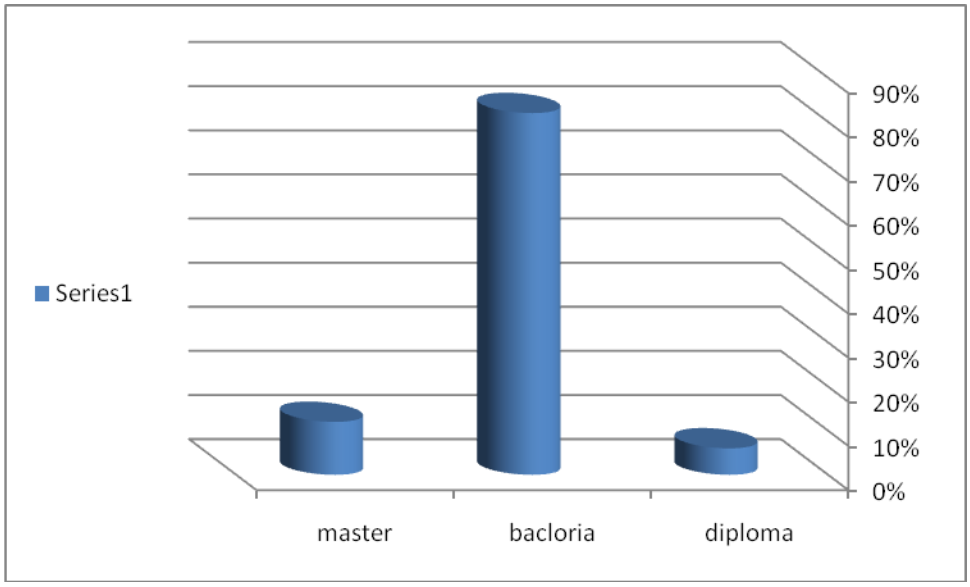


Figure (3) distribution of study group according to their knowledge about Definition of gestational age :

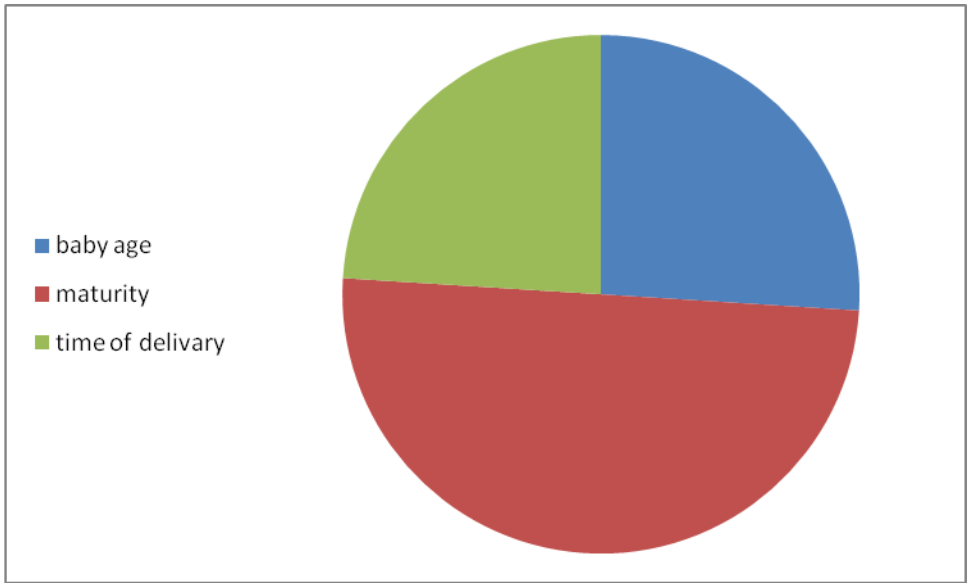


Figure (4) distribution of study group according to their performance about Component of gestational age assessment :

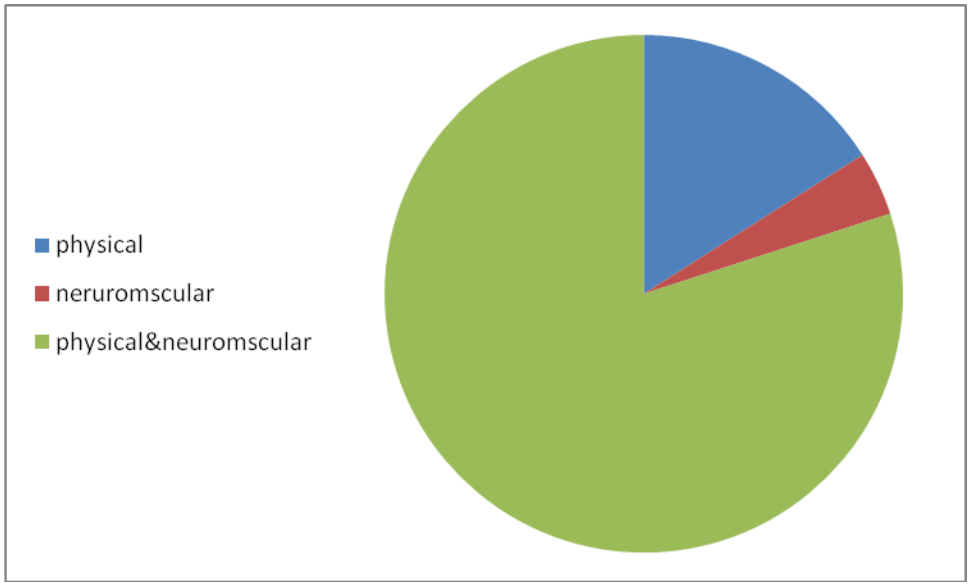
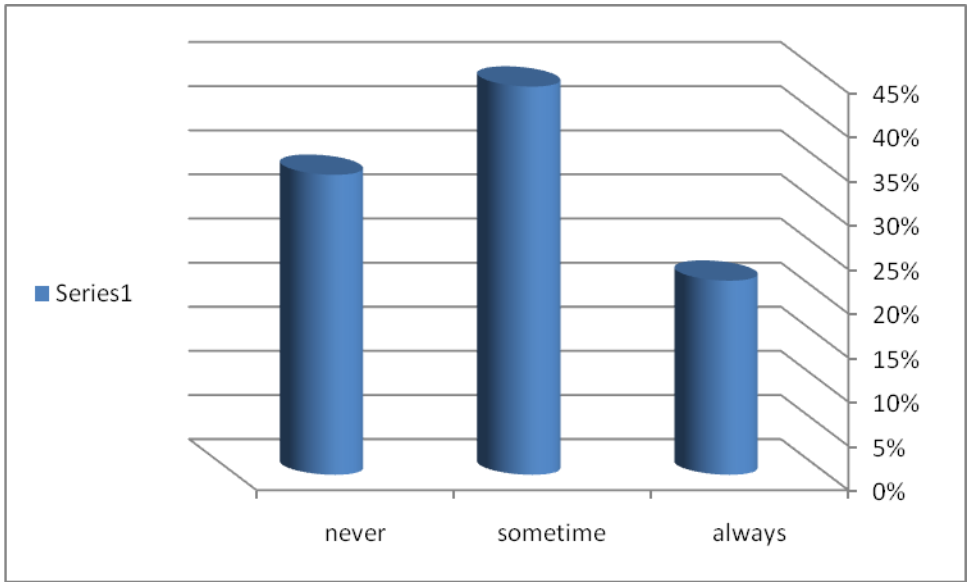


Figure (5) distribution of study group according to their Application of nurse to gestational age assessment



Chapter Five

Discussion
Conclusion
Recommendations

Discussion

The result of this study which is conducted in Elmek Nimer university hospital to assess nurses knowledge regarding gestational age assessment of neonate during the period between June to December and the result of this study showed that:-

The majority of nurse are female and age distributed between 20-30yr, and had a bachloria . this result because the policy of nursing study more loved by female than male and the certificate was bachloria because the policy of the hospital need to proffitional the nurse occupation .

Also the study reveled that more than half of study group knowledgeable about definition, time& importance and classification of gestational age assessment. this result agree with reference (2) which was discussed gestational age assessment are determined during the first day of life ,and reference (5) which was discussed assists in predicting potential problems and establishing plan of care, based on gestational age to determine if the neonate is average for gestational age (AGA), small for gestational age (SGA), or large for gestational age (LGA .

Also the study showed that more than half of study group knowledgeable about range of small &appropriate for gestational age, more than half of study group poor knowledgeable about range of large for gestational age assessment. this result agree with reference (7) which was discussed Small for gestational age (SGA)—weight less than the 10th percentile on standard growth charts , Appropriate for gestational age (AGA)—weight between 10th and 90th percentiles, Large for gestational age (LGA)—weight more than the 90th percentile on standard growth charts .

Also the study showed that more than half of study group knowledgeable about problem associated with small & large for gestational age. this result agree with reference (12) which is discussed Newborns who are large for gestational age are at increased risk of birth injuries ,and agree with reference (2) which was discussed small for gestational age (SGA) and have IUGR. Problems associated with SGA infants include congenital malformations .

Also the study showed that majority of nurse knowledgeable about component of gestational age assessment and more than half of study group knowledgeable about new ballard tool the most commonly tool used of gestational age assessment. this result agree with agree with reference (2) which was discussed Gestational age is determined by an assessment of various physical signs and neuromuscular characteristics , and agree with agree with reference (1) which was discussed The New Ballard Score is the most commonly used tool .

Also the study showed that majority of nurse knowledgeable about component of physical & neuromascular signs and this sign is varity according to fetal age and maturity. this result agree with reference (1) which was discussed The nurse should begin with resting posture, then skin, lanugo, plantar creases, breast, eye/ear, and then genitals and The five remaining neuromuscular characteristics to be evaluated are square window, arm recoil, popliteal angle, scarf sign, and heel to ear , and reference (2) which was discussed physical signs and neuromuscular characteristics that vary according to fetal age and maturity .

Also the study showed that majority of nurse knowledgeable about other method used of gestational age assessment . this result agree with reference (5) which was discussed gestational age assessment of the newborn is based on the mother's menstrual history, prenatal ultra sonography).

Finally the study showed that the application of gestational age assessment by nurse is less commonly and the application of gestational age assessment always by the doctor this result because the leader ship of nurses had not aware them about gestational age assessment as apartment of responsibilities .

Conclusion

The study which is conducted at Elmek Nimer university hospital about assess the knowledge of the nurses regarding gestational age assessment of neonate was concluded that:-

More than half of study group knowledgeable about definition of gestational age assessment, Most of them well knowledgeable about age related problem in newborn. And more than half were knowledgeable about performance of gestational age

Also performance of gestational age by nurses is less commonly and performance of gestational age assessment in Elmek Nimer always by physicion

Recommendation

The study which is conducted at Elmek Nimer university hospital about assess the knowledge of the nurses regarding gestational age assessment of neonate was recommended that:-

A-for leader ship:-

1. installing in-service educational program for Nurse to upgrade the techniques necessary to assess, evaluate and improve the quality of care .
2. put an emphasis to conduct training course for the Nurse in order to updating their knowledge with regular supervision on their performance

B- for nurses :-

1. Perform postnatal gestational assessment within 12 hours of age using an appropriate scoring tool such as the New Ballard Score.
2. Classify the neonate as small for gestational age (SGA), appropriate for gestational age (AGA), or large for gestational age (LGA) .

Chapter Six

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Appendix

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Questionnaire about Assessment of nurses knowledge regarding gestational age Assessment of Neonate in Elmek Nimer university hospital

Part (1).

Demographic data:

1- Age :

a) 20 -30 years ( ) b) 30 – 40 years( ) c) >40 years( )

2. Gender:

a)male ( ) b)female ( )

3- Level of education:

a) Diploma ( ) b) bacloria ( ) c) master ( )

4-yers of experience :

a) 1-5 ( ) b) 5-10 ( ) c)>10 ( )

part (2)

information about nurse knowledge regarding gestational age:

1- he/ she known of gestational age

a)yes ( ) b)no ( )

2- if yes gestational age define as away to determine

a) baby age ( ) b)fetal maturity ( ) c)time of delivery ( )

3- Importance of gestational age include :

a) assist care giver to expect possible physiologic complication ( )

b) assist to preparing an appropriate care plan for the infant ( )

c) to determine fetal birth weight ( )

d)a and b

4- gestational age is done in the:

a)first day of life ( ) b)second day ( ) c)after weeks ( )

5-classification of gestational age include:

a) small for gestational age ( )

b)appropriate for gestational age c)large for gestational age ( )

d)all of the above ( )

6- SGA infant weight range:

a) below the 10 th percentile for GA ( )

b) above 10 th percentile ( )

c)between 90-10th percentile for GA ( )

7- LGA infant weight range:

a) above the 80 th percentile for GA ( )

b)above the 85 th percentile for GA ( )

c)above the 90 percentile for GA ( )

8- AGA infant weight range:

a) between 90-10th percentile for GA ( )

b)under 90 percentile for GA ( )

c)above 10 percentile for GA ( )

9- **problems of infant small for gestational age include:**

a)hyper builirobnemia ( ) b)respiratory distress syndrome ( )

c)hypoglycemia ( ) d)all of the above ( )

10- problems of infant large for gestational age include:

a)congenital malformation( ) b)birth injury ( )

c)all of the above ( )

part (3)

Information about application of nursing to G A assessment :

1- gestational age assessment component include:

a)physical characterstic ( )

b)neuromuscular maturity( )

c) physical and neuromuscular maturity together ( )

2- New Ballard score is:

a)most commonly tool used for GA assessment ( )

b)less commonly tool used for GA assessment ( )

c) not commonly tool used for GA assessment ( )

3-component of neuromuscular maturity include:

a) posture ( ) b)square window ( )

c) arm recoil ( ) d) poplteal angle ( )

e)scarf sign ( ) f) heal to ear ( )

g)all of the above ( )

4-component of physical maturity include:

a)skin ( ) b) lanugo hair ( )

c) planter creases. ( ) d) breast ( )

e)eye/ear ( ) f)genital male ( )

g) genital female ( ) h) all of the above ( )

5- physical sign and neuromuscular characteristics that varying according to:

a)fetal weight ( ) b)fetal age ( )

c)fetal age and maturity ( )

6-other method used to determine GA include:

a)LMP ( ) b) ultra sound ( )

c) fundal height ( ) d)all of the above ( )

7- is he / she applied GA

a)always ( ) b) some time( ) c)never ( )

8- Gestational age in Elmek Nimer applied by the :

a) nurse ( ) b)physician ( ) c)mid wife( )

MATURATIONAL ASSESSMENT OF GESTATIONAL AGE (New Ballard Score)

NAME_____

HOSPITAL NO. _____

RACE_____

DATE/TIME OF BIRTH _____

DATE/TIME OF EXAM _____

AGE WHEN EXAMINED _____

SEX _____

BIRTH WEIGHT _____

LENGTH _____

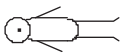
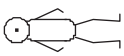
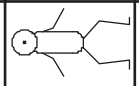
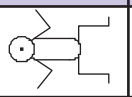
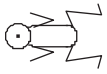
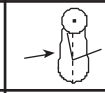
HEAD CIRC. _____

EXAMINER _____

APGAR SCORE: 1 MINUTE _____5 MINUTES _____10 MINUTES_____

NEOMUSCULAR MATURITY

SCORE

NEUROMUSCULAR MATURITY SIGN	-1	0	1	2	3	4	5	RECORD SCORE HERE
POSTURE								
SQUARE WINDOW (Wrist)	 >90°	 90°	 60°	 45°	 30°	 0°		
ARM RECOIL		 180°	 140 –180°	 110 –140°	 90 –110°	 <90°		
POPLITEAL ANGLE	 180°	 160°	 140°	 120°	 100°	 90°	 <90°	
SCARF SIGN								
HEEL TO EAR								

TOTAL NEUROMUSCULAR MATURITY SCORE

SCORE

Neuromuscular _____

Physical _____

Total _____

MATURITY RATING

SCORE	WEEKS
-10	20
5	22
0	24
5	26
10	28
15	30
20	32
25	34
30	36
35	38
40	40
45	42
50	44

GESTATIONAL AGE (weeks)

By dates _____

By ultrasound _____

By exam _____

PHYSICAL MATURITY

SCORE

PHYSICAL MATURITY SIGN	-1	0	1	2	3	4	5	RECORD SCORE HERE
SKIN	sticky friable transparent	gelatinous red translucent	smooth pink visible veins	superficial peeling &/or rash, few veins	cracking pale areas rare veins	parchment deep cracking no vessels	leathery cracked wrinkled	
LANUGO	none	sparse	abundant	thinning	bald areas	mostly bald		
PLANTAR SURFACE	heel-toe 40–50 mm: -1 < 40 mm: -2	>50 mm no crease	faint red marks	anterior transverse crease only	creases ant. 2/3	creases over entire sole		
BREAST	imperceptible	barely perceptible	flat areola no bud	stippled areola 1–2 mm bud	raised areola 3–4 mm bud	full areola 5–10 mm bud		
EYE / EAR	lids fused loosely: -1 tightly: -2	lids open pinna flat stays folded	sl. curved pinna; soft; slow recoil	well-curved pinna; soft but ready recoil	formed & firm instant recoil	thick cartilage ear stiff		
GENITALS (Male)	testes in scrotum flat, smooth	scrotum empty faint rugae	upper canal rare rugae	testes descending few rugae	testes down good rugae	testes pendulous deep rugae		
GENITALS (Female)	clitoris prominent & labia flat	prominent clitoris & small labia minora	prominent clitoris & enlarging minora	majora & minora equally prominent	majora large minora small	majora cover clitoris & mi		
Reference								