

**THE CORRELATION BETWEEN GESTATIONAL AGE AND THE INCIDENCE OF
PHYSIOLOGICAL NEONATES JAUNDICE IN
RSUD DR. MOHAMAD SOEWANDHI SURABAYA.**

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Abstract

Neonates jaundice that occurs in newborns can be physiological and pathological. The phenomenon that occurs is that many babies are born less than months and have physiologic neonates jaundice. The purpose of this research is to analyze the correlation between gestational age and the incidence of physiological neonates jaundice in RSUD Dr. Moh Soewandhie Surabaya. The research design was observational analytic study with cross sectional approach with variable of gestational age and the incidence of physiological neonates jaundice. The population of this study amounted to 40 neonates used nonprobability sampling technique with purposive sampling approach in June- August 2016 at Dr. Moh. Soewandhi Hospital Surabaya. This research used questionnaire and observation sheet instrument with Spearman Rho statistic test with significance test $\rho = 0,05$. The result of research with Spearman Rho test showed that $\rho = 0,001$ which means there is gestational age related to the incidence of physiological neonates jaundice in RSUD Dr. Moh Soewandhie Hospital Surabaya. The implication of this research is the gestational age related to the incidence of physiological neonates jaundice in RSUD Dr. Moh Soewandhie Hospital Surabaya to be able to improve Ante Natal Care Service and mother awareness improvement for Ante Natal Care during pregnancy to reduce physiological neonates jaundice.

Keywords : Gestational Age, Physiological neonates jaundice

Background

Jaundice is one of the conditions resembling liver disease found in newborns due to the occurrence of hyperbilirubinemia (Manurung, 2011). Hyperbilirubinemia is a state of increased bilirubin levels in the extra vascular tissue so that the conjunctiva, skin and mucosa are yellow. This situation has great potential to occur due to jaundice which is a brain damage due to implantation of indirect bilirubin in the brain (Maryanti, Sujianti & Budiarti, 2011). Newborns have a risk of both physiological jaundice and pathological jaundice. Physiological jaundice is jaundice that develops on the second and third days and disappears in the first week not later than the first 10 days after birth with an indirect level not exceeding 10 mg / dL in neonate and

morbidity of 12.5 mg / dL in neonates less than months (Maryanti, Sujianti & Budiarti, 2011). The physiological ikhterus incident occurring in RSUD Dr. Moh Soewandhie hospital Surabaya showed that 40% of newborns suffer from physiological jaundice especially in premature infants .

The World Health Report (2005), states that the infant mortality rate in Indonesia is still high, at 20 per 1000 live births, or it can be said 10 babies die every 1 hour after birth. RISKESDAS (2007), the cause of neonates death 0-6 days was 37% respiratory disturbance, 34% prematurity, 12% sepsis, 7% hypothermia, 6% jaundice, and 1% congenital abnormality. The incidence of neonates jaundice in the United States was found to be 65%, in Malaysia 75%, while in

Surabaya in 2000 30% and 13% in 2002 (Indarso F, 2005 in Maryunani & Nurhayati, 2009). Meanwhile in Jakarta reported 32.19% of babies born suffering from jaundice. It is estimated that 60% of infants are fairly mature and 80% of infants less than months have jaundice or hyperbilirubinemia within the first week of life. There were 30% less monthly labor. While based on the 97 births were found the incidence of 45 babies suffering from jaundice. Based on the type of jaundice are 32 babies have physiological jaundice and 13 babies have pathological jaundice.

Newborn babies, especially birth less months, there is red blood cell changes in the womb into red blood cells outside the content in large quantities so that the production of indirect bilirubin to be high. In newborn infants less months, the ability of UDPGT (Uridyl Di-Phosphat Glucuronyl Tranferase) in the liver to be able to convert all indirek bilirubin into bilirubin direk not maximal (Maryunani & Nurhayati, 2009), In addition, newborn intestine is also still clean, Bacteria that can alter the direct bilirubin in order to be disposed and the movement or motility is not maximal so that the direct bilirubin can be reabsorbed through the intestine and into the liver again. Lesser-term infant intestine contains glucoronyl transferase enzyme capable of altering bilirubin and can reabsorb bilirubin into the blood so that it further accumulates the bilirubin in the body, consequently the pigment will be stored in the skin so that the baby's skin becomes yellow. High levels of indirect bilirubin can be harmful because it can enter and penetrate the brain barrier causing kernicterus and death (Maryunani & Nurhayati, 2009).

American Academy of Pediatrics (2004), issued a practical strategy in the prevention and treatment of newborn hyperbilirubinemia (<35 weeks or more) in order to reduce the incidence of severe neonates hyperbilirubinemia and bilirubin encephalopathy as well as minimize unfavorable risks such as maternal anxiety,

Breastfeeding or unnecessary therapy. Prevention is emphasized on breastfeeding as soon as possible, often breastfeeding to decrease enterohepatic shunt, support the stability of normal flora bacteria, and stimulate small intestine activity (Kosim, et al, 2012). Prevention of early neonates jaundice can be done since the pregnancy, with a good and regular supervision of pregnancy so as to prevent early infection of the fetus. In addition, should be born since the birth of a baby is usually dried in the morning sun at around 7-8 am every day for 15 minutes with the clothes open so that the whole body can be exposed to the sun. Based on this background, the researcher is interested to examine the correlation between pregnancy age and physiological neonates jaundice in RSUD Dr. Moh Soewandhie Hospital Surabaya.

The purpose of this research to analyze the correlation between Gestasional Age and the Incidence of Physiological Neonates Jaundice in Dr. Moh Soewandhie Hospital Surabaya.

Literature review

Hyperbilirubinemia is a state of elevated bilirubin levels in extra vascular tissue so that the conjunctiva, skin and mucosa will be yellow. This situation has great potential to occur due to jaundice which is a brain damage due to adhesions of indirect bilirubin in the brain. (Maryanti, Sujianti & Budiarti, 2011). Maryunani and Nurhayati (2009) described that neonates jaundice is a condition in the newborn where total serum bilirubin levels of more than 10 mg / dL at term and 15mg / dL in underweight infants result in jaundice of the skin, sclera, mucosa and urine . Significant Hiperbilirubinemia within the first 36 hours is usually due to an increase in bilirubin prophylaxis, since in this period hepatic clearance rarely produces more bilirubin 10 mg / dL (Kosim, et al, 2012).

Causes of hyperbilirubinemia include (Maryunani & Nurhayati, 2009.1) Destruction of red blood cells (red

blood cell hemolysis). For example: rhesus blood type abnormalities and ABO (incompatibility), G6PD deficiency, sepsis.2) Disturbed bilirubin metabolism. For example: premature, cepalenehepar below matang, hiperprotein / albumin.3) Disturbed bilirubin excretion.

Marmi (2002) mentions that the causes of hyperbilirubinemia are :1) Hemolysis as in incompatibilities that occur when there is infinity of infant blood group in rhesus and ABO classification.2) Closed bleeding, such as birth trauma.3)Binders of bilirubin with impaired proteins such as metabolic disorders found in hypoxic or acidotic infants.4) G6PD deficiency (Glucose 6 Phosphat Dehydrogenase).5) Breast milk jaundice caused by the release of pregnan 3 (alpha), 20 (betha), diol (steroid).6)Lack of enzyme glucoranyl transferase, so that indirek bilirubin levels increase. 7) Congenital abnormalities.8) Hypoxia, dehydration and acidosis, hypoglycemia, polycythemia.9. Infection.10) Breast milk and breast feeding are not adequat.

The old and damaged red blood cells will be broken down into bilirubin, which by the liver will be metabolized and discharged through the feces. In the intestine there are also many bacteria that are able to change the bilirubin so easily removed with feses. This happens normally in adults. In newborns, the number of bilirubin pematabolisme bacteria is still not covering so that still found bilirubin is still circulating in the body is not removed with feces. Similarly, in the baby's intestine enzyme glukoronil tranferase that is able to change bilirubin and absorb back bilirubin into the blood so that further exacerbate the accumulation of bilirubin in the body. As a result the pigment will be stored under the skin, so the baby's skin becomes yellow

Methods

The research design was observational analytic study with cross sectional approach with variable of

gestational age and the incidence of physiological neonates jaundice. The population of this study amounted to 40 neonates used nonprobability sampling technique with purposive sampling approach. This research have done at June-August 2016 in RSU Dr. Moh. Soewandhi Hospital Surabaya and it used questionnaire and observation sheet instrument with Spearman Rho statistic test with significance test $\rho = 0,05$.

Result

Table distribution of child status in neonates ward Dr. Moh. Soewandhi hospital Surabaya, June-August 2016 (N = 40)

Child status	f	%
1	9	22,5
2	18	45
>3	13	32,5
Total	40	100

The table describe that child status who 2 are 18 neonates (45%).

Table distribution of breastfeeding status in neonates ward Dr. Moh. Soewandhi hospital Surabaya, June-August 2016 (N = 40)

Breastfeeding Status	f	%
Breastfeeding	22	55
Breastfeeding + Formula	9	22,5
Formula	9	22,5
Total	40	100

The table describe that breastfeeding status who full breastfeeding are 22 neonates (55%).

Table distribution of Colostrum given in neonates ward Dr. Moh. Soewandhi hospital Surabaya, June-August 2016 (N = 40)

Colostrum given	f	%
Colostrum given	31	77,5
Colostrum not given	9	22,5

Colostrum given	f	%
Colostrum given	31	77,5
Colostrum not given	9	22,5
Total	40	100

The table describe that colostrum given status are colostrum given, 31 neonates (77,5%).

Table distribution of gestational age in neonates ward Dr. Moh. Soewandhi hospital Surabaya, June-August 2016 (N = 40)

Gestational Age	f	%
Mature	31	77,5
Premature	9	22,5
Total	40	100

The table describe that the gestational age are mature, 31 newborn (77,5 %).

Table distribution of neonates jaundice in neonates ward Dr. Moh. Soewandhi hospital Surabaya, June-August 2016 (N = 40)

Neonates Jaundice status	f	%
Normal	24	60
Physiological Neonates Jaundice	16	40
Total	40	100

The table describe that the neonates jaundice status who normal are 24 neonates (60%).

Table distribution of the correlation between gestational age and the physiological neonates jaundice in neonates ward Dr. Moh. Soewandhi hospital Surabaya, June-August 2016 (N = 40)

Gestational Age	Neonates Jaundice				Total	
	Normal		Neonates Jaundice			
	f	%	f	%	f	(%)
Mature	24	77,5	7	22,5	31	100
Premature	0	0	9	100	9	100
Total	24	77,5	16	22,5	40	100

Hasil Uji Statistik Spearman $Rho = 0,001$

The table describe that the gestational age related to the incidence of physiological neonates jaundice in RSUD Dr. Moh Soewandhie Hospital Surabaya.

Discussion

The results showed that the gestational age of 40 respondents, 9 respondents among whom pregnancy less than 22.5% of pregnancy. Cross-tabulation data between the sequence of children and gestational age indicate that 9 respondents with under-term births, 30% of whom are first-child pregnancies. Maryunani and Nurhayati (2009) describe that maturity of mothers in their pregnancy care can be influenced by previous pregnancy experience. The first child's pregnancy provides the first experience for a pregnant woman in her pregnancy care. These conditions make mothers experience anxiety and knowledge and experience that is not adequate in addressing problems in pregnancy that can lead to birth less months. Researchers assume that the family as the most decisive support system in the care of pregnant women. A mother who has been confirmed pregnant will usually express the desire to live with the mother and her extended family on the grounds that there are nursing. In its development, many values and myths surrounding pregnancy are shared by one family in the care of pregnant women, for example that there are some pregnant women who experience bleeding as during menstruation and do not need to see a doctor to make sure the fetus is safe, but they believe that the condition is a baby (baby innate in the womb). Incorrect myths embedded by a particular tribe may cause the family to be insensitive to problems that arise in the family members who are pregnant so that the incidence of month-long birth may increase. These conditions can be avoided if pregnant women and families are often exposed to the correct information about pregnancy by following a regular Ante Natal Care . Fahlilani, Ernawati, dan Susanti (2015) mention that pregnant woman need correct information from the nurse about her pregnancy.

Research that has been done on neonates in Dr. Moh Soewandhie Hospital Surabaya gave results showing that neonates who did not experience jaundice as many as 24 neonates (77.5%) and neonates with physiological jaundice as much as 16 neonates (22.5%). Jaundice may occur in the neonates due to increased levels of bilirubin in the extra vascular tissue so that the conjunctiva, skin and mucosa will be yellow (Nurasiah, 2012). Maryunani and Nurhayati (2009) mentioned the factors that affect the occurrence of jaundice breast feeding associated with breast milk. The results of cross-tabulation between breastfeeding and physiologic fetal events showed that as many as 22 neonates were exclusively breastfed, 15 neonates (68%) did not have physiologic jaundice while the remaining formula and breast milk or formula were 18 neonates, 9 (50%) had physiological jaundice. Nurbaeti (2013), inadequate breast milk intake causes a decrease in blood protein and blood glucose levels in the newborn so that the bilirubin transport and conjugation process can not proceed well, besides the bilirubin excretion process through the feces is also hampered by intestinal peristaltic or intestinal mortality decreased Resulting in enterohepatic circulation of bilirubin resulting in increased bilirubin in the blood.

Indirect bilirubin levels in neonates consuming breast milk and formula milk or infant formula alone are likely to increase so that neonates develop physiologic neonates stress, whereas breast-fed infants and increased progestive bilirubin may be offset by increased bacteria in the digestive system that function to secrete indirect bilirubin inside the body. The increase will occur very high but the decline will also be faster, this is due to the body's adjustment to bacteria in the digestive tract.

The results showed that as many as 8 mothers who gave birth to the first child, 5 of whom could not breastfeed on the first day of birth due to the nipple entering, breast milk has not come out and the baby is not sucking adequately, the condition causes the baby to give breast milk and formula milk or Milk

formula only. Breast milk production is strongly influenced by maternal food, psychic factors and baby sucking. Psychology of the mother who is always in a state of distress, sadness, lack of confidence and various forms of emotional tension will decrease the volume of breast milk or even milk production will not occur. (Putra, 2012). The first experience of breastfeeding causes mothers to experience more severe anxiety compared to mothers who have given birth to a second child and so on the condition of the baby if not drinking soon after birth (Simkin, 2008). Researchers assumed that mothers whose milk did not come out adequately because of anxiety about the condition of the baby caused the mother to choose to give formula milk or a combination of milk and formula, causing the neonate to be born into the first child more not get exclusive breastfeeding so that the possibility of more physiological neonates jaundice high.

The results showed that neonates who were born as many months as 31 neonates, 24 of them did not experience jaundice and the rest of 7 neonates had physiologic jaundice, and 9 neonates born under months, 100% had physiological neonates. Sukarni (2013) mentioned that the factors that cause jaundice are the age of infants and low birth weight babies. Underweight gestational age <37 weeks causes low Birth Weight Infant formation in infants LBW is not perfect, causing indirect bilirubin conjugation into bilirubin direct imperfect (Sukarni, 2013). Manurung (2012) mentions jaundice is one of the most frequent emergencies in 80% of low birth weight babies. Infants born less than months experiencing Low Birth Weight and the formation of liver that is not mature so that the possibility of suffering a greater physiological ikhterus Newborn neonates will experience various adaptation processes such as breaking red blood cells that will affect the production of indirek bilirubin to be high and the adjustment of nutrients provided With digestive function. These two causes add to the risk of a baby born less moon will have a greater likelihood to become a physiologic neonates jaundice and maybe there are other

abnormalities that can become pathological jaundice.

Results of the study were statistically tested using Spearman Rho test obtained significance value $\rho = 0.001$ with significance level ($\rho = 0.05$) we can conclude that H_0 is rejected and H_1 accepted, which means that there is the gestational age related to the incidence of physiological neonates jaundice in RSUD Dr. Moh Soewandhie Hospital Surabaya. Jaundice is a state resembling liver disease found in newborns due to the occurrence of neonates jaundice is one of urgency that often occurs in newborns, as much as 25-50% in term infants and 80% in low birth weight babies (Goddess, 2012). Age Pregnancy maternal preterm have a greater risk in the event of ikhterus neonates physiological because of low birth weight and the formation of the liver is not perfect, the process of adaptation of the neonate such as red blood cell solution and adjustment of nutrients so that the disposal of bilirubin disturbed and neonate may experience ikhterus physiological if the birth does not lead to pathological conditions such as atresia billier and other pathological conditions.

Conclusion

The gestational age related to the incidence of physiological neonates jaundice

Suggestion

This research can be used as a reference for Hospital to improve Ante Natal Care service and neonates ward can provide hospitalization between mother and neonate so that exclusive breastfeeding process can be optimized

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