



## Identification of Risk Factors caused neonatal Sepsis of Premature Neonatus in Adam Malik General Hospital Center

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### Abstract :

Until now, neonatal sepsis remains a major cause of mortality and morbidity of newborns. In developing countries, most of neonates treated with problems related to the infection. Giving TPN and utilizing unaseptic catheter will cause bacterial contamination in neonates. Neonatal sepsis is an infection that occurs in infants in the first 28 days after birth. Neonatorum Sepsis is categorized as early-onset sepsis (early onset) and late onset sepsis (late onset). This research aims to know the process of TPN and utilizing catheters as the biggest factor causing neonatal sepsis in premature neonates at the Haji Adam Malik General Hospital. This study is observational research which has been done on hospitalized respective, in Division of Perinatology General Hospital Haji Adam Malik in November 2014 – April 2015.

**Keywords:** neonatal sepsis, preterm neonates, risk factors.

### Introduction

Neonatal sepsis is one of infectious diseases in newborns is a major problem that cannot be solved until today. Neonatorum Sepsis can be categorized as early and late onset, 85% of newborns with early infection is present within 24 hours, 5% is present in 24-48 hours, and a smaller percentage of patients present in 48 -72 hours. Sepsis occurs less than 1% of newborns but is the cause of 30% of deaths in newborns <sup>[1]</sup>. A bacterial infection five times more common in newborns who weigh less than 2.75 kg and 2 times more common in boys <sup>[2]</sup>.

Incidence rate of neonatal sepsis in developed countries ranged between 3-5 per 1,000 live births by CFR 10.3%. WHO (2007) reported the Case Fatality Rate (CFR) in the case of neonatal sepsis in the world is still high by 40%. Incidence rate of neonatal sepsis in Bangladesh in 2004 was 20-30 per 1,000 live births and CFR varies from 15-25% <sup>[3]</sup>. Currently neonatal sepsis causes about 1.6 million deaths each year in developing countries. In 2003 incidence rate of neonatal sepsis in developed countries is quite high between 1.8 to 18 per 1,000 live births by CFR 12-68%. Malaysia in 2007 had incidence of neonatal sepsis rate between 5-10 per 1,000 live births by CFR 23-52% <sup>[4]</sup>.

Incidence of neonatal sepsis rate in Indonesia has not been widely reported. It ranged in some referral hospitals in Indonesia in 2005 ranged from 1.5 to 3.72% with a CFR ranging from 37-80% <sup>[5]</sup>. Data from CiptoMangunkusumo Hospital said that from January to September 2005 Incidence of neonatal sepsis CFR was between 13.68% to 14.18% <sup>[6]</sup>. Based on observations conducted to Dr H. Adam Malik, the number of patients with neonatal sepsis November 2014 - April 2015 was 20 patients.

## Experimental

This study is observational and prospective basis to determine the risk factors of neonatal sepsis in premature neonates in total parenteral nutrition administration and catheter hospitalized Division of Perinatology General Hospital Haji Adam Malik in November 2014 - April 2015.

## Result and Discussion

The percentage of patients based on characteristics of the baby (gender and birth weight) can be seen in the table below.

**Table 1. Percentage of Neonatal Risk Factors**

No.	Variable	Value	Percentage (%)
<b>I</b>	<b>Baby Factors</b>		
1.	Sex		
	a. Male	15	75
	b. Female	5	25
2.	Birth weight		
	a. < 1500 gram	8	40
	b. 1500 – 1999 gram	4	20
	c. 2000 – 2500 gram	8	40

Based on Table 1 it can be seen that the highest percentage of patients with neonatal sepsis by gender is 75 by male. This is based on research conducted in the Philippines, the sex ratio of the occurrence of neonatal sepsis between men and women is 2: 1. A hypothesis to explain the difference is the factors that regulate the synthesis of immunoglobulin may be on the X chromosome, because it is the presence of two chromosomes to produce greater genetic diversity of women's immunological defenses <sup>[7]</sup>.

The percentage of patients with neonatal sepsis by newborn weight is the most widely birth weight <1500 g and 2000 to 2500 grams is 40%. LBW infants with high risk of infection or neonatal sepsis due to the maturation of LBW infants rudimentary organs then LBW infants often experience complications and ends with death <sup>[5]</sup>. this is based on research conducted in dr. Sutomo Hospital which found that one of the risk factors for neonatal sepsis is LBW (p = 0.001) <sup>[8]</sup>.

**Table 2. Percentage of Mother Neonatal Risk Factors**

No.	Mother Factors	Value	Percentage (%)
1.	Maternal age		
	a. < 20 years old	2	10
	b. 20 – 35 years old	15	75
	c. > 35 years old	3	15
2.	Gestational Age		
	a. < 28 weeks	4	20
	b. 28 – 32 weeks	13	65
	c. 33 – 36 weeks	3	15

From Table 2, it shows that maternal age 20-35 years (75%) is more than the maternal age <20 years (10%) and the maternal age > 35 years (15%). This is consistent with research Rotua, (2010) at the Hospital Dr. Moewardi Surakarta stating that maternal age 26-30 years more than the mother's age <25 years. Research in Dr. Pirngadi Medan, also stated that the maternal age 20-35 years more than age <20 years and > 35 years <sup>[9]</sup>.

The percentage of pregnancy, especially less than 37 weeks affecting the incidence of sepsis. This is due to the transport of passive immunoglobulin beginning on gestation 8-12 weeks to cross the placenta, enter the fetal circulation in gestational age 30-40 weeks, so that babies born <37 weeks (preterm) have immune system is still immature to fight infection so easy to contract infection or sepsis <sup>[10]</sup>.

Percentage place of birth neonates showed that the neonates born outside Dr H. Adam Malik more (90%) compared with the birth in Dr H. Adam Malik (10%). Research in hospital, Dr. Pirngadi with retrospective method with a sample of 108 patients who were born outside of the hospital as much as 63.9%. Infections that occur after birth is generally associated with nosocomial infections that come from the environment <sup>[9]</sup>.

Percentage of labor history more normal (65%) compared with sectio (35%). Research in 2005-2006 with retrospective method and number of samples 351 neonates results obtained 58.8% were born normal <sup>[2]</sup>. Research in 2010-2011 with retrospective method and number of samples 108 neonates results obtained 57.4% were born normal <sup>[10]</sup>. According to the theory, babies born to the action (cesarean section) risk of neonatal sepsis. Infection can be obtained from the environment outside the mother's womb, such as tools contaminated birth attendants <sup>[11]</sup>.

Percentage of amniotic status more without KPD is 80% comparing to the Percentage of amniotic status with KPD is 20%. KPD is the rupture of the membranes before any signs of labor. KPD is a risk factor for neonatal sepsis, this could be caused KPD can increase pregnancy complications in the mother and infant infections <sup>[12]</sup>.

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## **Conclusion**

The percentage of neonatal sepsis in Dr H. Adam Malik General Hospital in November 2014- April 2015 by sex is male (75%). The percentage of neonatal sepsis in Dr H. Adam Malik in November 2014- April 2015 by neonatal birth weight is <1500 g and 2000 to 2500 grams is about 40%. The percentage of neonatal sepsis in Dr H. Adam Malik in November 2014- April 2015 based neonatal maternal age is the age of 20-35 years is about 75%. The percentage of neonatal sepsis in Dr H. Adam Malik in November 2014- April 2015 based on maternal gestational age neonates are gestational age 28-32 weeks is about 65%. The percentage of neonatal sepsis in Dr H. Adam Malik in November 2014- April 2015 based on place of birth the newborn is beyond Dr H. Adam Malik is about 90%. The percentage of neonatal sepsis in Dr H. Adam Malik in November 2014- April 2015 by way of neonates born with a normal is about 65%. The percentage of neonatal sepsis in Dr H. Adam Malik in November 2014- April 2015 based on the status of membranes without premature rupture is about 80%.

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