PRETERM BIRTH AND THE AFFECTING FACTORS IN DR. SOETOMO HOSPITAL, SURABAYA, INDONESIA

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ABSTRAK

Bayi prematur merupakan faktor kematian bayi di Indonesia. Selain kematian yang menyebabkan, jika bayi terus hidup itu akan didera oleh berbagai penyakit penyerta, seperti kelainan dan infeksi. Bayi prematur diyakini memiliki banyak masalah dalam hidupnya seperti masalah pernapasan, kecerdasan rendah, gangguan perilaku dan emosional, sampai terjadinya autisme. Biaya yang dikeluarkan oleh keluarga untuk merawat bayi prematur juga tidak kecil. Hingga saat ini, kejadian relatif kelahiran prematur tidak mengubah dalm 40 tahun terakhir. Dengan mempertimbangkan hal ini, apalagi ditambah dengan tingginya insiden terus kelahiran prematur di Indonesia, maka perlu diadakan dan jumlah penelitian tentang faktor yang mempengaruhi kelahiran prematur terjadi. Mengetahui kejadian dan faktor-faktor yang mempengaruhi kelahiran prematur di rumah sakit Dr.Soetomo selama bulan Januari sampai Maret 2011. Penelitian ini dilakukan dengan cara mencari jumlah kelahiran prematur dan catatan medis ibu untuk mencatat nomor yang tertera pada bayi buku lahir di kamar bersalin RS Dr.Soetomo selama Januari-Maret 2011. Kemudian meminta data rekam medis, dicatat oleh variabel-variabel yang telah ditentukan, proses dan menganalisis data. Faktor-faktor yang dianggap memiliki pengaruh yang signifikan terhadap kejadian persalinan prematur meliputi: usia terlalu muda (<20 tahun) atau yang terlalu tua (> 35 tahun), paritas kelompok multiparous multiparous dan grande, pendidikan kurang (kurang dari menerima gelar perguruan tinggi), kehamilan ganda dan hidramnion, riwayat kehamilan sebelumnya termasuk dalam sejarah buruk kebidanan, ketuban pecah dini, dan eklampsia/preeklamsia. Ada banyak faktor yang mempengaruhi terjadinya persalinan prematur. Tidak ada faktor dominan yang pasti akan mengakibatkan persalinan prematur. Hasil dari penelitian ini adalah kurang akurat, karena parous peneliti tidak membandingkan dengan populasi keseluruhan ibu yang melahirkan. Bila dibandingkan dengan populasi secara keseluruhan, hasil yang paling mungkin akan berbeda, sehingga hasilnya akan lebih baik dan akurat. ***(FMI 2012;48:131-136)***

Kata kunci: *kelahiran prematur, faktor risiko, kematian bayi*

ABSTRACT

Premature infants is a factor of infant mortality in Indonesia. In addition to causing deaths, if the baby continues to live it will be smitten by a variety of morbidities, such as abnormalities and infections. Premature infants are believed to have many an issue in his life such as breathing problems, low intelligence, behavioral and emotional disorders, until the occurrence of autism. Costs spent by families to care for premature babies also not small. Until now, the relative incidence of premature delivery did not change preformance last 40 years. By considering this, especially coupled with the continued high incidence of premature deliveries in Indonesia, we need to hold and the amount of research on factors influencing premature birth occurs. Knowing the incidence and factors that influence preterm birth in Dr.Soetomo hospital during January to March 2011. The research was done by finding the number of preterm birth and maternal medical records to record the number listed in the book babies born in the maternity room Dr. Soetomo Hospital during January to March 2011. Then ask for medical records data, recorded by the variables that have been determined, process and analyze data. Factors that are considered to have significant influence on the incidence of preterm labor include: age is too young (< 20 years) or who are too old (> 35 years), parity multiparous and grande multiparous group, less education (less than received his college), multiple pregnancy and hydramnios, previous obstetric history included in the bad obstetric history, premature rupture of membranes, and eclampsia/preeclampsia. There are many factors that influence the occurrence of preterm labor. There is no dominant factor that will inevitably lead to preterm labor. The results of this study is less accurate, because the researchers did not compare with the overall population of mothers who gave birth . When compared with the overall population, most likely results would be different, so the results will be better and accurate. ***(FMI 2012;48:131-136)***

Keywords: *preterm birth, risk factor, infant mortality*

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INTRODUCTION

Until now, mothers and infant mortality rate in Indonesia is not much decreased. When compared with neighboring countries in ASEAN, Indonesia still ranks at the bottom. Though currently used as a standard for the level of health in a country or region is the number of maternal and infant mortality. The higher the numbers of maternal and infant mortality in a country, the lower the health status of the country. The infant mortality rate is still high due to preterm delivery (Sulaiman, 2010)

In obstetric services, the problem of premature babies is an interesting problem to address due to premature babies is now a factor of infant mortality in Indonesia. Preterm birth is dangerous because it potentially increases infant mortality by 65-75%, generally associated with low birth weight (LBW). LBW can be caused by premature birth and fetal growth is inhibited. Both should be avoided because of the negative impact. In addition to causing death, when the baby is still alive will be plagued by various morbidities, such as disorders and infections. Another aspect to consider is the perinatal mortality rate, the infant mortality began 20 weeks gestation to 28 days postpartum were still high (Berghella 2010) The high perinatal mortality rate is dominated by premature babies as much as 70%, and the incidence of birth premature in the world is still quite high ranging from 10-20% (Simamora 2009)

Premature babies have a chance of survival and a lower intelligence scores than infants who are born with a normal birth weight. Complications-complications that occur in premature infants include short-term complications such as respiratory distress syndrome, newborn baby often ends in death and long-term complications such as blindness, deafness, paralysis and mental retardation. Besides, the problem of perinatal morbidity and mortality, premature baby care requires sophisticated and expensive medical technology, for example Incentive Neonatal Care Unit (NICU), which certainly would be an economic burden families and the nation as a whole (Simamora 2009)

In Indonesia there is no integrated effort to reduce the incidence of preterm labor with the aim of reducing the number of perinatal deaths. Efforts that have been made at this time is to take care of premature infants with the risk of high costs and still have high morbidity and mortality rate. To note, in the United States the average cost of caring for premature babies require about USD 75,000 or the equivalent of 675 million rupiahs (Sulaiman, 2010). Premature babies in 1997 in Western Europe is 5%, California 7.4%, India 34%, Australia 7%, and 10% in Malaysia. Indonesia itself has not had a national incidence of premature babies, only infants with low birth weight (LBW). Incidence of low birth weight premature infants may reflect roughly, that nationwide in the hospital was 27.9% (Simamora 2009)

Until now the incidence of preterm delivery was relatively unchanged in the last 40 years, whereas prevention efforts continue to be made through a variety of ways. In general, prevention of preterm labor can be done through the efforts of three types, namely primary prevention, secondary prevention and tertiary prevention. Primary prevention is prevention through approaches on risk factors for preterm labor, which often constitute a risk factor for preterm labor incidence is smoking, taking drugs and alcohol, as well as secondary nutrition. Preventive factor that is at the stage of clinical symptoms is not apparent, but the process is pathological already running, prevention at this stage may impede or stop the pathological process that does not grow. Tertiary prevention is the prevention of preterm labor when the clinical symptoms are already apparent obtained. This phase is intended to prolong the pregnancy for the purpose of providing an opportunity to improve the quality of delivery of the fetus and prepare adequate (Sulaiman, 2010).

Taking into account the above, and given that the incidence of premature in Indonesia is still high, it is necessary to research on the incidence of premature infants and the factors that influence the rate of preterm birth. This research used samples of hospital patients at Dr Soetomo Hospital who gave birth to a premature baby. This research is expected to be useful for clinicians, not only to treat patients, but primarily as a promotive and preventive form of advice, suggestions, and counseling to patients who will or are pregnant so that the incidence of preterm birth can be minimized. The purpose of this study was to determine the factors that most influence on preterm birth and describes the influence factor of preterm births.

MATERIALS AND METHODS

This research is a descriptive observational study of a population that is somewhere about the nature or specific factors. The design of the study is retrospective. This research is a kind of research that emphasizes the observation of certain variables at a predetermined time.

The population in this study was all mothers who gave birth at the Dr. Soetomo Hospital. The samples were all mothers who gave birth to premature babies at Dr. Soetomo Hospital Surabaya during the time period from January to March 2011. The technique used is the taking of the medical records of mothers who gave birth to a

premature baby in Dr. Soetomo Hospital during January-March, 2011.

First of all, this study was done by noting medical record number of mothers who gave birth to premature babies found in baby books Dr. Soetomo Hospital born in the delivery room during January to March 2011. The number of babies born prematurely is the number of babies born weight <2500 grams but also 1000 grams and gestational age <37 weeks and 28 weeks. Research is continuing to see and record the information required in accordance with the variable that has been determined in medical record data. Then do the data tabulation and analysis of research on the effect of variable rate of preterm birth in Dr. Soetomo Hospital during January to March 2011. The study was conducted at Dr. Soetomo Hospital. Data analysis was performed by counting the number of preterm labor and then observed the effect of the variables that have been determined to preterm birth rate in Dr. Soetomo Hospital during January to March 2011 based on data obtained from the medical records of patients. Then the data obtained were processed and analyzed with computer assistance.

RESULTS

This research was conducted in September to December 2011. The data was collected by noting the things that is important to know the status of the patient medical record. Initially, the researchers noted the patient medical record numbers, medical record numbers taken from the register book parturition in the delivery room floor IRD 2 RS. Dr Soetomo. From it, the researchers noted the mother's medical record number who met the study criteria, ie 28-37 weeks gestation and infants BB 1000-2500 grams. Two of the criteria that are the benchmark of premature babies at the Dr. Soetomo Hospital. Furthermore, researchers propose medical record numbers to the field of medical records to look for data. From existing medical records, researchers analyzed (about 50 medical records). Variables were sought in the medical record include: age, education, occupation, parity, spacing pregnancies, pregnancy anemia status, maternal height and weight, socioeconomic circumstances, ante natal, previous obstetric history, presence of infection, multiple pregnancy and hydramnios , uterine malformations, maternal systemic disease, premature rupture of membranes, fetal abnormalities, as well as pre-eclampsia/eclampsia. Next will display the data thus obtained and grouped in tabular format. The following table illustrates the frequency of age of mothers who gave birth to a premature baby.

Table 1. Frequency of age of mothers who gave birth to a premature baby

No.	Age (years)	Frequency	Percentage
1.	<20	5	10.42%
2	20-25	13	27.08%
3	25-30	10	20.83%
4	30-35	10	20.83%
5	>35	10	20.83%

From the table above it was found that the largest age range of the mothers who gave birth to a premature baby is 20-25. While the age range of 25-30, 30-35, and> 35 respectively as much of 10 patients. The age range of the least was <20 years. Mothers who gave birth to a premature baby at this age only amounted to 5 people.

Table 2. Frequency of parity of mothers who gave birth to a premature baby

No.	Parity	Frequency	Percentage
1.	Nulliparous	25	52.08%
2.	Primiparous	13	27.08%
3.	Multiparous	9	18.75%
4	Grande Multiparous	1	2.08%

From the table above it was found that the highest frequency of mothers who gave birth to a premature baby is nulliparous group (not delivered) as many as 25 patients. Followed by 13 primiparous group of patients, as many as 8 multiparous patient and multiparous grande only 1 patient.

Table 3. Frequency of the educational status of the mothers who gave birth to a premature baby

No.	Education Status	Frequency	Percentage
1.	Elementary	1	2.08%
2.	Junior High	2	4.17%
3.	Senior High	25	52.08%
4.	High Education	3	6.25%
5.	Not mentioned	17	35.42%

From the table, the highest obtained educational status of the mothers who gave birth to a premature baby is a high school by 25 patients. Other levels of education, namely primary, secondary, and PT in patients found in very small quantities. But in this study, because it uses data from medical records there are many patients who are not mentioned in the record of medical education status.

Table 4. Frequency of previous obstetric history of mothers who gave birth to a premature baby

No.	Previous Obstetric History	Frequency	Percentage
1.	Normal	16	33.33%
2.	BOH (Bad Obstetric History)	9	18.75%
3.	First pregnancy	23	47.92%

From the table it can be seen that most of the previous obstetric history of mothers who gave birth to a premature baby is normal (16 patients had a normal obstetric history and 23 patients with a first pregnancy so it does not have a previous obstetric history). There were 9 patients who had a poor obstetric history, meaning that these patients had given birth prematurely and abortion.

Table 5. Frequency of occurrence of multiple pregnancy and hydramnios in mothers who gave birth to a premature baby

No.	Multiple pregnancy and hydramnion	Frequency	Percentage
1.	Single	42	87.5%
2.	Multiple	3	6.25%
3.	Hydramnion	3	6.25%

From the table it can be seen that most of the mothers who gave birth to a premature baby is a single birth. There were 3 patients with multiple births (twins or triplets) and 3 patients with hydramnios.

Table 6. Frequency of premature rupture of membranes in mothers who gave birth to a premature baby

No.	Premature rupture of membrane	Frequency	Percentage
1.	Premature rupture (+)	10	20.83%
2.	Premature rupture (-)	38	79.17%

From the table above is obtained quite a lot of mothers who experienced premature rupture of membranes (20.83%), which could lead to premature labor, although still the vast majority (79.1%) of mothers did not experience premature rupture of membranes.

Table 7. Frequency of pre-eclampsia/eclampsia in mothers who gave birth to a premature baby

No.	Preeclampsia/eclampsia	Frequency	Percentage
1.	Normal	34	70,83%
2.	Severe Preeclampsia	11	22,92%
3.	Mild Preeclampsia	3	6,25%

From the above data it was found that the majority of patients (34 patients) did not develop preeclampsia/ eclampsia. Patients who experience severe preeclampsia (PEB) a total of 11 people and 3 other patients experienced mild preeclampsia.

DISCUSSION

The study included 48 mothers who gave birth to premature babies in Dr. Soetomo Hospital during the period January to March 2011 with the criteria of 28-37 weeks gestational age and fetal birth weight between 1000-2500 grams. Quite a lot of variables used in this study include: maternal age, parity, education, employment, the status of anemia of pregnancy, ante natal, pregnancy spacing, previous obstetric history, maternal infection, ante-partum haemorrhage, multiple pregnancy and hydramnios, abnormalities the shape of the uterus, systemic disease in the mother, premature rupture of membranes, fetal abnormalities, as well as pre-eclampsia/eclampsia. All of these variables are considered to have an influence on the incidence of preterm labor.

When viewed from the age, the age of the mothers who had the highest preterm birth was at the age of 20-25 years and the lowest was at age <20 years. Based on data in the literature and scientific sources were searched and researchers in the medical field theory also mentioned that the preterm birth rate will be high at the age below 20 years and above 35 years, while the lowest occurred in the 26-35 year age (Sistiarani 2008). This could be due to this study, the researchers did not compare it with the population of mothers who gave birth as a whole. Allegedly mothers who give birth in Dr Soetomo Hospital more had an age range of 20-35 years. So that in the table the results, more mothers who gave birth prematurely in that age range. However, if only in comparison to the overall population who give birth and sought the percentage, the percentage is likely outcome will be higher in mothers who gave birth at age <20 years or> 35 years.

Parity is the number of births ever experienced by the mother before pregnancy or childbirth. Parity is mentioned to have a significant association with the incidence of preterm birth. When compared to nulliparous and primiparous mothers groups, mothers groups and grande multiparous have 4-5 times greater risk (Anggriani 2007). In this study, the incidence of preterm birth actually occurred in the nulliparousous group (52.08%) followed by primiparous (27.08%). The number of mothers and multiparous groups grande multiparous mothers who delivered prematurely 9 (<20%). The study, which is not in accordance with the literature there is also because researchers did not compare it to the population as a whole giving birth. Just as in the case of maternal age above, mothers who gave birth in Dr. Soetomo Hospital lot more allegedly derived from a class of nulliparous and primiparous, so of course the number of mothers who gave birth to premature babies tends to come from this group. The result is the percentage is believed to be different if only in comparison to the overall population of mothers who gave birth in Dr. Soetomo Hospital.

Judging from the education factor, it can be concluded that the majority (52.08%) of mothers who gave birth to a premature baby is still limited to high school. Very few (6 25%) were educated to college. However, there are still many (34.42%) is not mentioned in the medical record. Indeed, educational factors influence the mother's knowledge about the dangers of high-risk pregnancy, loss of consciousness to receive antenatal care, thus ultimately also affect the incidence of preterm labor.

Housewife (75%) experienced preterm labor in this study. It is not known for certain jobs done by these mothers in addition to regular job as a housewife as cooking, washing, taking care of children, etc. The work associated with the incidence of premature due to the incidence of work-related stress, mental stress, and also the work that all of the heavy lifting was associated with the incidence of premature (Amiruddin 2006). In this study, if only housewives that do the work mediocre may have no effect on the incidence of premature, but if the housewife is experiencing stress, mental pressure because of other issues that may arise, this could affect her pregnancy .

To determine the effect of anemia status on the incidence of premature delivery seems to be rather difficult because there were 39 patients whose records are not mentioned the medical Hb levels. Of the 9 patients who mentioned there are four Hb levels, anemia patients positive and 5 negative anemia patients. Although a small amount, but that does not mean anemia also has little effect on the incidence of preterm labor. This is due to anemic mothers who gave birth at the hospital allegedly did little number. So if the calculated percentage will have meaning and influence. Just as in the case above, the authors compare it with the population as a whole.

Antenatal examination has an important role in preventing preterm birth. Ideally, antenatal mothers did 15 times during pregnancy. Antenatal 3-10 times would suffice, and> 10 times are considered good. For mothers who never checkups or just <3 times considered bad. In this study, the majority of which came in the category of pretty (66.67%), good (2.08%), poor (10.41%), while the rest are not mentioned (20.83%). Similar to the case of the other variables in the above, is the number of maternal antenatal checks in a category is quite bigger than mothers who do ante natal in the bad category. Same with the explanation in the above case, when compared with the overall population, the percentage will be different results.

Spacing pregnancies less than 2 years mentioned have 3.4 times greater risk for premature delivery (Anggriani 2007) .In this study, does not seem appropriate because only two mothers (4.17%) who gave birth to a premature baby with a distance of previous pregnancies less than 2 years. At a distance of a good pregnancy is 2-10 years old just a lot of mothers who gave birth to a premature baby. And at a distance of pregnancy> 10 years there were more premature births than the distance of pregnancy <2 years. Most of the mothers were included in this study are included in the pregnancy so I did not have the distance of pregnancy. This difference can also be explained as the cases above.

Many sources say that the history of previous preterm births that occur closely associated with spontaneous preterm birth occurred. This is quite in accordance with this study, seen from the data, there are 9 mothers (18.75%) who have had a bad obstetric history (BOH), either premature labor or miscarriage. Indeed there are more mothers who gave birth to a premature baby with a normal obstetric history, namely 16 women (33.33%). And there are more that 23 mothers (47.92%) who had experienced a first pregnancy so it does not have a previous obstetric history. Just like the other cases, when compared to the overall population, the results of the percentage of mothers who have a history of poor obstetric and preterm birth is estimated to be greater than normal women with obstetric history.

Judging from the number, infection factors seem to have a minor role in influencing premature labor at the Dr. Soetomo Hospital. Judging from the data, only 2 mothers (4.17%) had an infection. Please note indicator of infection or not, investigators only rate of maternal rectal temperature, if> 37.6 C infection is considered positive and if <37.6 is considered negative infections. This happens also in the ante-partum haemorrhage, but the ante-partum hemorrhage has a greater percentage of 10.42%. Other factors, such as multiple pregnancy and hydramnios had a percentage of 12.5%. Deformities of the uterus and fetal abnormalities also showed minimal percentage of preterm labor, which is only 2.08% and 0%. All of this can happen because it is not compared with the population as a whole.

Maternal systemic disease also affects cause premature birth. In this study, there were 4 women who suffer from systemic diseases such as asthma bronchiale and suspected chronic kidney disease also influence the occurrence of preterm labor.

Premature rupture of membranes (PROM) is quite often a trigger of preterm labor. Most deliveries will occur some time after the rupture of amniotic membranes. In this study, PROM occurred in 10 mothers who give birth prematurely. In addition to KPD, preeclampsia/eclampsia also had a considerable

influence, even seen from the data occurrence of preeclampsia/eclampsia in mothers who gave birth to premature babies is greater than the incidence of PROM. If you add up the incidence of PEB and PER covers almost 30% of preterm labor and the remaining 70.83% did not experience preeclampsia/eclampsia. When compared with the overall population, as a percentage of the result will be different because the number of patients with KPD and preeclampsia/ eclampsia is less than normal.

CONCLUSION

Although there is no dominant factor that will certainly lead to premature labor, a factor that is considered to have a significant effect on the incidence of preterm labor include: age is too young (<20 years) or too old (> 35 years), parity multiparous group and grande multiparous, less education (not to get an college), multiple pregnancy and hydramnios, previous obstetric history included in the BOH, premature rupture of membranes, and also eclampsia/preeclampsia.

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