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Original Article

Pattern of newborn babies delivered by cesarean section

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ABSTRACT

Background The birth rate in Indonesia is still high and abnormal labor constitutes 15% of all deliveries which needs cesarean section as a solution for complicated cases.

Objectives To find the general physical condition of babies born after cesarean section as well as the characteristics of mothers who underwent cesarean section.

Methods A retrospective study on newborn babies delivered by cesarean section conducted in Subdivision of Neonatology, Medical School, University of North Sumatera-Pirngadi Hospital Medan, in period of 2 years (1991-1992).

Results There were 8762 babies born during the study period, 1484 babies (16.93%) delivered by cesarean section due to placenta previa (26.2%), prolonged labor (15.8%), cephalopelvic disproportion (10.3%), neglected labor (9.9%), eclampsia/preeclampsia (8.1%), fetal distress (7.5%), previous section (6.6%), breech presentation (5.7%), solutio placenta (4.0%), and others (5.9%). It was shown that mothers undergoing caesarean section was mainly 20-30 years old (66.4%), multigravida (47.8%), term gestational age (79.4%), and minimal antenatal care (61.3%). There were 1224 (82.5%) babies with birth weight >2500 grams and 894 (60.2%) suffered from asphyxia.

Conclusions The evidence of asphyxia by cesarean section and low birth weight group was significantly different from those normally delivered ($p<0.001$). The mortality rate was 11.5% due to still birth 29.2%, RDS 18.3%, sepsis 15.5%, pneumonia 12.3%, and gastroenteritis 11.5% **[Paediatr Indones 2003;43:20-23].**

Keywords: *cesarean section, newborn baby, placenta praevia, multigravida.*

In Indonesia, the birth rate is still high and abnormal labor, which requires special manipulation during labor, constitutes 15% of all deliveries.[1] Cesarean section is the solution for such complicated cases. Doctors are still confused with various problems in adapting cesarean section because of increased morbidity and mortality in mothers and in newborn babies. In this case, cesarean section is done not as a primary indication rather as a secondary indication for operation.[2-4] Consequently antenatal check up of pregnant mothers is very essential to maintain good maternity services. Surgical intervention could decrease the mortality and morbidity rates of newborn babies in complicated cases. One of this surgical intervention, the cesarean section, is done in 10-25% of all hospital deliveries in Indonesia.[3-5] During the last 25 years, the cesarean sections in the United State increase from 4.5% to 23.8%, as a consequence of the 5 times increment of infection rate, a significantly high mortality rate, and longer BOR (bed occupancy rate) among women who undergo cesarean section.[6,7] In Indonesia, infant morbidity and mortality rate after cesarean section had not been accurately reported and the figure varied with each center. Nevertheless, various studies put forward different views; Issoedibyo[8] found it 3.2% whereas Hutapea[1] and Masroer & Soeyono[3] between 25-60 per mil.

Surgical intervention during labor leads to neonatal head injury including mechanical trauma and

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anoxic trauma/defect in oxygenation.[1] Such a trauma is decreasing in incidence because of improvement in obstetrical care and pediatrics care. Issoedibyo *et al*[8] found out severe asphyxia in 54.63% of the babies and Suyoso *et al*[5] found out in 84% of the babies who were born after cesarean section. The aim of the study was to find the general physical condition of babies born after cesarean section as well as the characteristics of mothers who underwent cesarean section.

Methods

A retrospective study was conducted among all babies who were born after cesarean section at Pirngadi Hospital, Medan from January 1st, 1991 till December 31st, 1992. Evaluation was done from medical records pertaining to cesarean section indication, perinatal death, and resuscitation result. WHO (1977) criteria for maternal age, duration of pregnancy, body weight at birth was adopted where as for the degree of asphyxia by Babson and Benson[6] (1977). The analysis of statistics data was based on Chi square test.

Results

In this study 1484 babies were evaluated consisting of 814 (54.8%) male babies and 670 (45.2%) female babies. Birth weight was <2500 grams in 260 babies (17.5%) and >2500 grams in 1224 babies (82.5%). They were delivered from 1436 mothers who underwent cesarean section.

Table 1. Clinical data of mothers (n=1436)

Characteristics	n	%
Maternal age		
<20 years	39	2.7
20-30 years	953	66.4
31-35 years	349	24.3
>35 years	95	6.6
Parity		
Primigravida	573	39.9
Multigravida	686	47.8
Gestational age		
<37 weeks	215	15.0
37-42 weeks	1141	79.4
>42 weeks	80	5.6
Antenatal care		
Never	426	29.6
1-3 times	452	31.5
4-6 times	356	24.8
>6 times	202	14.1

Table 2. Indication for caesarean section and the relationship with degree of asphyxia

Indication of cesarean section	Number of babies		Degree of Asphyxia					
			normal		moderate		severe	
	n	%	n	%	n	%	n	%
Placenta previa	389	26.2	138	35.5	115	29.6	136	34.9
Prolonged labour	234	15.8	96	41.0	92	39.3	46	19.7
Cephalopelvic disproportion	153	10.3	89	58.2	45	24.4	19	12.4
Neglected labour	146	9.9	56	38.4	49	33.5	41	28.1
Preeclampsia/eclampsia	120	8.1	63	52.5	39	32.5	18	15.0
Fetal distress	112	7.5	33	29.5	37	33.0	42	37.5
Previous sc	98	6.6	39	39.8	27	27.6	32	32.6
Breech presentation	85	5.7	47	55.3	21	24.7	17	20.0
Solutio placenta	59	4.0	5	8.5	12	20.3	42	71.2
Others	88	5.9	24	27.3	33	37.5	31	35.2
Total	1484	100	590	39.7	470	31.7	424	28.6

TABLE 3. RELATIONSHIP BETWEEN BIRTH WEIGHT, DEGREE OF ASPHYXIA WITH NEONATAL MORBIDITY

Apgar score (degree of asphyxia)	Number of babies	Birth weight				Total number of death (%)
		<2500g		>2500g		
		N(%)	Death(%)	N(%)	Death(%)	
<3 (severe)	470	173(36.8)	88(50.8)	297(63.2)	21(7.1)	109(63.7)
4-6(moderate)	424	54(12.7)	30(55.6)	370(87.3)	6(1.6)	36(21.1)
>7 (normal)	590	33(5.6)	9(27.3)	557(94.4)	17(3.1)	26(15.2)
Total	1484	260(17.5)	127(74.3)	1224(82.5)	44(25.7)	171(11.5)
x^2= 47.494	df=1	p<0.001				

There were 894 (60.2%) babies with asphyxia consisted of 424 (28.6%) babies with moderate asphyxia and 470 babies (31.6%) with severe asphyxia. Low birth weight is significantly related with severe asphyxia (p<0.001).

Characteristics of most women who underwent cesarean section were age between 20-30 years (66.4%), multigravida (47.8%), term gestational age (79.4%), and lack of antenatal care (61.1%).

As seen in **Table 2,** indication of cesarean section were placenta previa (26.2%), delayed labor (15.8%), and cephalopelvic disproportion (CPD) (10.3%). No significant relationship existed between indications of cesarean section with the degree of asphyxia.

Table 3 shows the mortality of 171(11.5%) babies, where the cause of death was: stillbirth (29.2%), RDS (18.3%), neonatal sepsis (15.5%), pneumonia (12.3%), gastroenteritis (11.5%), and others (13.2%). Among babies with low birth weight, there was significant difference in neonatal death between babies who had asphyxia and normal (p<0.001).

Discussion

In this study it was found out that the majority of the babies born after cesarean section had normal birth weight (82.5%). The same results were reported by Achjat,[2] Suyoso *et al*[5], Issoedibyo *et al*[8], with a proportion of 65%-80%. Thirty one percent of the babies had severe asphyxia, this result differs from the figures obtained by Suyoso, *et al*[5] (84.74%) and Issoedibyo *et al*[8] (54.60%).

Asphyxia in babies born after cesarean section in this study was relatively high (60.2%), it was related with the fetal and maternal status. Nevertheless, in this study there was no significant relationship between the various indications for cesarean section with the incidence of asphyxia. The relationship between birth weight and the degree of asphyxia showed significant difference whereas in low birth weight the rate of asphyxia was relatively high. Routine resuscitation of newly born babies is very essential and helpful. There was improvement of Apgar score of 5 minutes after it.

Mortality in this study was 11.5% (171 babies). This figure was much lower than the one presented by Hutapea (69%).[1] In this study cesarean section with primary indication was 16.93%, the figure exceeded the one presented by Issoedibyo, *et al*[8] (9.1%) and Achyat, *et al*[2] (3.9%). According to other researchers the incidence varied between 5-11%.[1,9,10]

From the clinical data it was found out that mothers who underwent cesarean section had the age ranged between 20-30 years in 953 mothers (66.4%). This was in concordance with the figures presented by Hutapea[1], Achyat[2], Masroer & Suyono[3] in 1979 and Issoedibyo[8]. Concerning the parity, 47.8% of the mothers were multipara, this result was different from the data reported by Issoedibyo[8] *et al* (primigravida 40.8%), Achyat[2] (61.8%) and Masroer[3] *et al* (69.6%). Besides that, the majority of the mothers had their pregnancies full term 1141 mothers (79.4%), inadequate antenatal check up was found in 878 mothers (59.2%).

The main indication for cesarean section in this study was placenta praevia (389 or 26.2%; 4.43 per 1000 deliveries), this was less than the result presented by Issoedibyo, *et al*[8] (47.4%) and the previous report[1-3] (36%-68%). But this result was in concordance with the figure reported from developed countries (23.5%; 4.8 per 1000 deliveries).[9] Placenta praevia is a risk factor for maternal fetal neonatal morbidity and mortality. In this study about 64.5% of the babies had as-

phyxia and born from mothers with placenta praevia.

This study impressed that the high incidence of placenta praevia, the high incidence of neonatal mortality, and the low standard of antenatal care constituted as the determining factors which requires improvement in the implementation of good antenatal care, improvement in the management of labor and full consideration in the application of progressive resuscitation by introducing sophisticated equipment and specific monitoring.

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