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 the 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/preecclampsia (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 cesarean 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 previa, 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; Issoedibyo8 found it 3.2% whereas Hutapea1 and Masroer & Soeyono3 between 25-60 per mil.

Surgical intervention during labor leads to neonatal head injury including mechanical trauma and
anoxic trauma/defect in oxygenation.\textsuperscript{1} Such a trauma is decreasing in incidence because of improvement in obstetrical care and pediatrics care. Issoedibyo et al\textsuperscript{8} found out severe asphyxia in 54.63\% of the babies and Suyoso et al\textsuperscript{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\textsuperscript{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|

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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, Suyoso et al, Issoedibyo et al, 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 (84.74%) and Issoedibyo et al (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. Neverthe-
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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