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CLINICAL CHARACTERISTICS AND TREATMENT RESULTS OF PREMATURE RUPTURE OF MEMBRANES AT OBSTETRICS DEPARTMENT IN CAN THO CENTRAL GENERAL HOSPITAL

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ABSTRACT

Objective: *The study was designed to describe the clinical characteristics and to evaluate the treatment results of premature rupture of membranes (PROM) at the obstetric department in Can Tho Central General Hospital. Methods:* *A prospective, cross-sectional study design was used. Between August 2014 and March 2015, 166 patients with PROM were evaluated. Results:* *Of the 166 PROM cases selected, the average age of pregnant women were 28.5 ± 5.3 . Majority of patients with the full term gestational age was recorded. The average time between rupture of the membranes and hospitalization, and rupture of the membranes and termination were 154.4 and 580.1 minutes, respectively. Finally, although 61.4% of pregnant women underwent cesarean section, children had good Apgar scores (no intensive care was required) and no puerperal sepsis was found. Conclusions:* *Propagating risk factors of PROM and early treatment contribute to reduce the risk of PROM. Antibiotics should be used early and properly in treatment.*

Key words: *Premature rupture of membrane, pregnant women, preterm labour*

I. INTRODUCTION

Premature rupture of membranes is the phenomenon when the membranes ruptures prematurely an hour or more before the labour begins. In the US, there are approximately 120,000 cases of premature rupture of membranes which causes many risks for the mothers and their children [8]. For example, it can cause preterm labour, infection and increase perinatal mortality rate. Especially, if it occurs in preterm labour, the risk is likely to increase up to 4 times. During pregnancy, premature rupture of membranes accounts for 10% to 15%. Specifically, in full term labor, premature rupture of membranes accounts for 8% to 10% whereas in preterm labor, it covers 2% to 4% in single birth and 7% to 10% in twin's birth [5]. Clinical signs and premature rupture of membranes's treatment results assist the doctors in discovering and monitoring the rupture of membranes in order to

minimize the risks for the patients.

This report aims to fulfill the two main purposes: (1) To describe the characteristics of the premature rupture of membranes in Can Tho Central General hospital in 2014-2015; (2). To evaluate the treatment results.

II. MATERIALS AND METHODS

All pregnant women with premature rupture of membranes at Can Tho Central General Hospital were the target population. These women must fully satisfy the required standards of hospitalization at the obstetric ward in Can Tho Central General Hospital. The process would be ceased when the samples were sufficient.

The data of all satisfied participants were recorded and would be analyzed using SPSS 18.0.

III. RESULTS

In the period from 20th August, 2014 to 20th March, 2015, 166 cases of PROM were included in the study.

General characteristics

Their mean age was 28.5 years, ranging from 23.2 to 32.8 with the youngest being 18 years old and the oldest 44 years old. Among 116 cases, there were 63 cases (38%) aged from 30 to 39.

In terms of educational level, the most frequent were secondary level with 47% (78 in 166 cases). In occupation distribution, housewives and workers accounted for 41% (68 cases) and 10.2% (20 cases) respectively. There were 77.7% (129 in 166 cases) having average income.

The analysis also showed that 112 cases (67.5%) were primigravida, 36 cases (21.7%) had history of PROM and 37 cases (22.3%) had vaginal infections.

Clinical characteristics

The report showed that 119 PROM cases (71.7%) were in the gestational age from 38 to 42 weeks. The average time from the occurrence of PROM to the hospitalization was 154.4 minutes. The average temperature of the patient was 37°C. In general, the time from the rupture of membranes to the 3cm of cervical dilation was 398 minutes with the fastest being 90 minutes and the slowest being 1260 minutes. Among 98 patients who had completed PROM, there were 75 cases (76.5%) having the time from the membranes ruptured to the 3cm of cervical dilation less than 480 minutes. When the membrane was ruptured, most of the cases had cloudy water, there were 76.5% for hospitalization and 77.7% for giving birth.

Results

For 17 cases having the gestational age less than 34 weeks, 14 cases (82.4%) were treated by corticosteroid. The average time using antibiotics when the membranes ruptured was 305.1 ± 217.7 minutes. 43 cases (25.9%) were indicated using antibiotics prior to termination of pregnancy. In addition, the average time from the rupture of membranes to birth was 580.1 minutes with the fastest time being 120 minutes, and the slowest time being 2810 minutes. In 166 cases, birth with cesarean section accounted for 61.4% (102 cases). 61 cases (36.7%) were caesarean delivery because of obstructed labor.

The report also declares that 161 cases (97%) had the Apgar score per 1 minute higher than 7 and 165 cases (99.4%) had the Apgar score per 5 minutes higher than 7.

Fortunately, a hundred percent of pregnancies did not have postpartum infection during hospitalization. For more information, the average hospital stay of the pregnant women who delivered their babies by natural birth was 3.6 days. In 64 pregnancies having natural birth, 34 cases (53.1%) had 3-day hospital stay. The average hospitalization of pregnancies giving birth by caesarean section was 5.4 days and 66.7% pregnant women were hospitalized for 5 days.

IV. DISCUSSION

Premature rupture of membranes will stimulate the endogenic prostaglandin amount which activates the labor as well as shorten the labor's period. In our study, the average time from the rupture of membranes to the 3cm of cervical dilation was 398 minutes (about 6.5 hours), which is relatively consistent with the latent phase in the first stage of the labor. Among 98 patients who had completed the premature, there were 75 cases (76.5%) having the time from the membranes ruptured to the 3cm of cervical dilation less than 480 minutes. Our results are different from the results of Bui Hanh Dao Duyen's study from Can Tho Central General Hospital in 2003, which showed the duration from the rupture of membranes to the 3cm of cervical dilation which was less than 8 hours occupied 37.5% and the duration higher or equal to 8 hours took up 62.5% [1]. The differences between the two studies might be caused by following two reasons. Firstly, the time when the pregnant women perceive the amniotic fluid to the time when they were hospitalized in our studies were earlier, which demonstrated the pregnant women were increasingly concerned about their gestation and had more knowledge about premature rupture of membranes. Secondly, it might be when being admitted to the hospital, the pregnant women in our studies had more active treatments so it shortened the time from the rupture of membranes to the 3cm of cervical dilation.

The Neonatal Respiratory Distress Syndrome is a frequent phenomenon that occurs in preterm infants and rarely occurs in infants more than 35 weeks. The main cause of the respiratory distress syndrome is the lack of surfactan in lungs which helps to maintain the volume of the breath air reserve when breathing out, known as Hyaline Membrane Disease. Since Liggins and Howie first identified that using corticosteroid could reduce the percentage of Respiratory Distress Syndrome, the corticosteroid used to stimulate the growth of the lungs has become popular [4]. The side-effects of corticosteroid are increasing the risk of Neonatal infections, Neonatal adrenal insufficiency; the risk of maternal stomach ulcers, diabetes, hypertension, oedema, etc. Using corticosteroid after 35 weeks of gestation might have little effect because the lungs surfactant in the fetus is large enough [6]. The National Institute of Child and Human Development (NICHD) 2000 Consensus Panel concluded that studies regarding the possible benefits and risks of repeat courses of antenatal corticosteroids are limited because of their study design and "methodologic inconsistencies." The NICHD 2000 Consensus Panel noted that, although there is a suggestion of possible benefit from repeated courses (especially in the reduction and severity of respiratory distress), there are also animal and human data that suggest deleterious effects on the fetus regarding cerebral myelination, lung growth, and function of the hypothalamic-pituitary-adrenal axis.

Follow-up of children at 2 years of age who were exposed to repeat courses of antenatal corticosteroids showed no significant difference in physical or neurocognitive measures in two studies, and the same outcome was found in younger children in a third study. Despite not statistically significant, the relative risk of cerebral palsy in infants exposed to serial courses of antenatal corticosteroids (RR, 5.7; 95% confidence interval, 0.7–46.7; $P=.12$) in one study is of concern and warrants further study. Maternal effects include increased risk of infection and suppression of the hypothalamic–pituitary–adrenal axis. Regularly scheduled repeat courses or serial courses (more than two) are not currently recommended. [7]. In 17 cases higher than 34 weeks of gestational age, 14 cases (82.4%) were nominated to use corticosteroid. The percentage of cases nominated to use corticosteroid on early stages of pregnancy to stimulate the growth of fetus's lungs was slightly high in the study. Considering the use of corticosteroid on the early stages of pregnancy and the side-effects of corticosteroid, we should use corticosteroid in those having gestational age ≤ 34 weeks, though there have not been official reports yet about the side-effects of corticosteroid to fetus.

The appropriate time to utilize antibiotic before the birth is still a controversial issue. In our study, 43 pregnancies (25.9%) were nominated to use antibiotic before the birth. There are still many debates about the prophylactic antibiotics application for premature rupture of membranes treatments. Some support that although prophylactic antibiotics lower the risk of complication and amniotic infection for mother, they did not guarantee safety for the fetus because the medicine just passes across the placenta. In some cases, it is difficult to detect the infection timely for the appropriate treatments when using prophylactic antibiotics. The prophylactic antibiotics treatment should be utilized in cases at risk which might be caused by the maternal atopic such as a history of rheumatic fever, heart valve disease, etc.

Although the process of labor and giving birth to a healthy child is a normal physiological process, there are latent dangers for mothers and infants either through the vagina or by caesarean. Based on medical evidence, US National Institute of Health believes that caesarean is necessary in some cases, such as placenta praevia centralis and ablatio placentae. In other cases where the risks are low, caesarean can be more dangerous than giving birth normally. People usually mistake that caesarean are totally safe. Reality shows that the mothers' death rate and perinatal death rate are higher when undertaking caesarean than giving birth through vagina with the numbers being 102 cases (61.4%) for caesarean and 64 cases (38.6%) for giving birth by vagina. For pregnant women who have rupture of membrane, caesarean section rates are higher than those of normal birth giving. In reality, caesarean section rates have been increasing worldwide, including Viet Nam. This number in all obstetrics departments at obstetric centers as well as provincial or district hospitals have moved upward.

In Vu Thi Nhung's research, doctors choose cesarean in response to fear of litigation. So we need to consider carefully when indicating caesarean section to maximize the safety for mother and her child [2]. Kham Kip Phaphong Savan's studied at gestational age from 20 to 37 weeks, resulting in 50% of the vaginal delivery, 50% of women were prescribed cesarean section [3]. In Joveria Sadaf's research on preterm rupture of membranes at 37 weeks of gestational age, from 20 to 34% of cases were done by caesarean section [9]. There is a significant difference in the studies that the primary authors of preterm prelabour rupture of membranes occur in preterm infants, so that the

small fetal weight contributes a part to the vaginal birth prognosis. In vaginal delivery, the decision depends on pregnant women's individual situation.

The average age of patients was 28.5, varying from 23.2 to 33.8. The duration from the rupture of membranes to hospitalization and the end of pregnancy was 155.4 and 580.1 minutes respectively. The percentage of using corticosteroid on patients at under 34 weeks of gestation was 82.4%. 61.4% patients required surgical procedure for laboring. Most of them had good Apgar index and did not require intensive care. 100% of the patients had no post-labour infection.

V. CONCLUSIONS

Increasing women's awareness of earlier hospitalization, propagating for women the risk factors of PROM and the importance of early treatment after to contribute to lower the risk of PROM happening. Increasing time from the PROM to delivery up to 12 hours to be able to reduce the rate of cesarean section. Using antibiotics in treatment early and properly.

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