

Birth Risk Indicators for Maternal and Neonatal Health among Three Different Age Groups: Betong Hospital Perspective

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Objective: Examine the maternal and neonatal birth risk indicator among three different age groups, and their relationship with the outcome of pregnancy.

Material and Method: This retrospective descriptive study was conducted between October 2010 and September 2011. The birth risk indicators of maternal and neonatal health were collected from the medical records of adolescent, elderly, and reproductive women maternal age (adult).

Results: There were 902 deliveries, and the proportion of teenage pregnancy/adult/elderly group was 16.5/71.5/12.0%. Most of the indicators, including delivered baby weight less than 2,500 grams, and hematocrit less than 30 volume% before admission, were not significant increases/decreased unless the antibiotic usage in the vaginal delivery for at least 24 hours was highly significant decreased/increased among adolescent/elderly group (0.6/75.0%), compared with adult group (8.3%). The cesarean section rate due to failure to progress was significant lower among adolescents (7.3%), compared with the adult group (14.5%). While the cesarean section due to previous cesarean section and delivered baby weight less than 2,500 grams were highly significant/significant lower among the elderly group (2.7/2.7%), compared with the adult group (12.7/7.9).

Conclusion: The present study demonstrated that adolescent pregnancy even though it predisposed to maternal and neonatal complication, but when the teenagers receive optimal antenatal care, pregnancy outcome is comparable to that of other age groups.

Keywords: Birth risk indicator, Maternal health, Neonatal health, Teenage, Adult, Elderly

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Teenage pregnancy is an important public health problem, and several studies have suggested that first teenage pregnancies have a higher frequency of adverse perinatal outcome^(1,2). During the last two decades, teenage childbearing was reported to be associated with increased risks of adverse pregnancy outcomes, especially preterm birth⁽¹⁻⁵⁾.

Becoming a mother as a teenager is associated with higher risk for a number of poor outcomes. Recent study reported that the adolescent pregnancy/control group had 21.3/12.0% of low birth weight, 17.5/7.0% of anemia, 11.6/5.4% of preterm, 7.9/5.0% of pre-eclampsia, and 6.3/2.0% of caesarean section rate, respectively. The adolescent pregnancy was

associated with those opposing outcome higher significant⁽⁶⁾.

A study compared the clinical outcomes of pregnancies in adolescent, advanced, and reproductive women maternal age. The adverse fetal feature was statistically different among the groups, with higher in advance maternal age group. While the lower Apgar scores (Apgar score 1 and 5), and low birth weight were both significant, with higher in the elderly group⁽⁷⁾.

Besides, the maternal and neonatal mortality as the indicators, the maternal and neonatal morbidity either direct and indirect parameter imply to perinatal health, antepartum, intrapartum, and postpartum⁽⁸⁻¹⁰⁾. Many studies are going to achieve consensus on specific indicators in the perinatal health where the uncertainty about appropriate indicators was high. Previous study, the authors developed 16/6 maternal/neonatal birth risk indicators⁽¹¹⁾, assessing risk and outcome of pregnancy.

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The aim of the present study was to examine the maternal and neonatal birth risk indicator and their relationship with the outcome of pregnancy, among three age groups.

Material and Method

This retrospective descriptive study was conducted in the Department of Obstetrics and Gynecology, Betong Hospital during October 2010 and September 2011, among pregnant women who were admitted in the labor room for delivery. The birth risk indicators of maternal and neonatal health were collected from the medical record. Data on the maternal and neonatal indirect indicators were elicited from medical records of all deliveries and births, and subsequently analyzed. The present study was approved by the Ethics Committee of the Faculty of Medicine, Prince of Songkla University.

Demographic data were demonstrated as percentages, median, mean, range, and standard

deviation. The birth risk indicators were analyzed as cross-tabulation with chi-squared test and Fisher's exact test as appropriate. Statistical significance was set at < 0.05 .

Results

There were 902 deliveries, teenage pregnancy (less than 20 years) 149 in 902 cases (16.5%), adult (20 to less than 35 years) 645 in 902 cases (71.5%), and elderly (more than 35 years) 108 cases (12.0%), respectively. The maternal birth risk indicators are demonstrated in Table 1.

There was neither maternal mortality, nor cardiovascular failure in the study period. The antibiotic usage in the vaginal delivery for at least 24 hours was significant decreased/increased among adolescent/elderly group (0.6/75.0%), compared with the adult group (8.3%). The following were not significant indicators, delivered baby with respiratory distress syndrome baby due to induction of labor

Table 1. Maternal birth risk indicators, comparison of a selective month of three different years

Maternal indicator	Teenager No. (%) n = 149	Adult No. (%) n = 645	Elderly No. (%) n = 108
Maternal death	-	-	-
Cardiovascular failure	-	-	-
Vaginal delivery and receive antibiotic at least 24 hour	1 (0.6)**	54 (8.3)	81 (75.0)**
Retained placenta and manual removal	-	2 (0.3)	-
Operative procedure with adjacent organ injury	-	23 (3.5)	-
Blood transfusion	-	7 (1.0)	-
Hematocrit less than 30 volume% before admission	5 (3.3)	16 (2.4)	5 (4.6)
Pregnancy induced hypertension	5 (3.3)	10 (1.5)	1 (0.9)
Baby delivered by obstetrician	48 (32.2)	237 (36.7)	37 (34.2)
Induction of labor			
Postdate (42-week gestation)	4 (2.6)	4 (0.6)	-
Pregnancy induced hypertension	2 (1.3)	4 (0.6)	-
Other	2 (1.3)	13 (2.0)	2 (1.8)
Cesarean section due to previous cesarean section	11 (7.3)	82 (12.7)	3 (2.7)**
Cesarean section due to failure to progress (protracted/arrest of labor pattern, with/without rupture of membrane and augmented labor)	11 (7.3)*	94 (14.5)	17 (15.7)
Cesarean section due to fetal distress	9 (6.0)	37 (5.7)	4 (3.7)
Delivered baby weight less than 2,500 grams	8 (5.3)	51 (7.9)	3 (2.7)*
Delivered baby with respiratory distress syndrome baby due to repeat cesarean section	1 (0.6)	6 (0.9)	3 (2.7)
Delivered baby with respiratory distress syndrome baby due to induction of labor	-	-	-

* Statistical significance, $p < 0.05$

** Highly statistical significance, $p < 0.001$

Table 2. Neonatal birth risk indicators, comparison of a selective month of three different years

Neonatal indicator	Teenager No. (%) n = 149	Adult No. (%) n = 645	Elderly No. (%) n = 108
Perinatal death (less than 28 days postpartum) in baby weight 1,000 grams or more	-	1 (0.1)	-
Still birth in baby weight 1,000 grams or more	-	5 (0.7)	-
Apgar score at 5 minutes less than 4	1 (0.6)	6 (0.9)	-
Birth injury	-	-	-
Massive aspiration syndrome	1 (0.6)	1 (0.1)	-
Need neonatal intensive care unit in term newborn	-	11 (1.7)	-

* Statistical significance, $p < 0.05$,

** Highly statistical significance, $p < 0.001$

(none), retained placenta, manual removal, blood transfusion (rare), operative procedure with adjacent organ injury, hematocrit less than 30 volume% before admission, induction of labor (a few percents), pregnancy induced hypertension (0.9 to 3.3%), baby delivered by obstetrician (32.2 to 36.7%), cesarean section due to fetal distress (3.7 to 6.0%), and delivered baby with respiratory distress syndrome baby due to repeat cesarean section (2.7 to 12.7%).

The cesarean section rate due to failure to progress was significantly lower among adolescents (7.3%), compared with the adult group (14.5%). While the cesarean section due to previous cesarean section and delivered baby weight less than 2,500 grams were highly significant/significant lower among the elderly group (2.7/2.7%), compared with the adult group (12.7/7.9).

The neonatal birth risk indicators are shown in Table 2. The perinatal death, less than 28 days postpartum, in baby weight 1,000 grams or more, the still birth in baby weight 1,000 grams or more, the Apgar score at 5 minutes equals less than 4, birth injury, massive aspiration syndrome, and need neonatal intensive care unit in term newborn, were all not significant among both adolescent/elderly group.

Discussion

The use of antibiotics to prevent infections during pregnancy and the puerperium is clearly different from the use of antibiotics to treat established infections, usually more than 24-hour duration⁽¹²⁾. The quite high proportion, 8.3/75.0% in adult/elderly group of beyond antibiotic prophylaxis reflected the non-adherence or variable usage of antibiotic, concordance with published guideline^(13,14).

The anemia, hematocrit less than 30 volume% before admission, varied from 2.4 to 4.6%, it was quite low compared with the figure of 15% of developed countries⁽¹⁵⁾, while prevalence of anemia in developing countries is relatively high of 33% to 75%⁽¹⁶⁻²⁰⁾.

The indications of cesarean section in the present study are similar to the study of Naidoo and Moodley⁽²¹⁾. The majority of elective cesarean sections were done for previous cesarean section, and the emergency cesarean was performed for failure to progress, and fetal distress.

The rates of low birth weight were varied from 2.7 to 7.9%, were slightly lower than national figure of 8.7% in 2006⁽²²⁾. The frequency of RDS in previous cesarean section was ranged 0.6 to 2.7%, comparable with a large cohort study of 0.8 to 3.7%⁽²³⁾.

Among baby weight 1,000 grams or more, the perinatal death and still birth were up to 0.1% and 0.7%, similar to the four district study of Thailand the perinatal death and still birth were 0.1% and 0.6%⁽²⁴⁾.

In conclusion, the study demonstrated that adolescent pregnancy even though it predisposed to maternal and neonatal complication, but when the teenagers receive optimal antenatal care, pregnancy outcome is comparable to that of other age groups.

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Potential conflicts of interest

None.

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ตัวบ่งชี้ความเสี่ยงการคลอดสำหรับสุขภาพมารดาและเด็กแรกเกิดในกลุ่มอายุแตกต่างกันสามกลุ่ม: มุมมองของโรงพยาบาลเบตง

ไพบุลย์ศักดิ์ สีวาอุธ, วีระพล จันทร์ดียิ่ง

วัตถุประสงค์: ความมุ่งหมายของการศึกษานี้เพื่อตรวจสอบตัวบ่งชี้ความเสี่ยงการคลอดของมารดาและเด็กแรกเกิดในกลุ่มอายุแตกต่างกันสามกลุ่ม และความสัมพันธ์กับผลที่ได้รับของการตั้งครรภ์

วัสดุและวิธีการ: การศึกษาแบบพรรณนาย้อนหลังนี้ดำเนินการระหว่างเดือนตุลาคม พ.ศ. 2553 ถึง เดือนกันยายน พ.ศ. 2554 ด้วยการรวบรวมตัวบ่งชี้ความเสี่ยงการคลอดของสุขภาพมารดาและเด็กแรกเกิดจากเวชระเบียนของกลุ่มวัยรุ่น สูงอายุ และวัยผู้ใหญ่

ผลการศึกษา: มีการคลอด 902 ครั้ง สัดส่วนของการตั้งครรภ์กลุ่มวัยรุ่น/ผู้ใหญ่/สูงอายุ เท่ากับร้อยละ 16.5/71.5/12.0 ตัวบ่งชี้ส่วนใหญ่รวมถึงการคลอดเด็กแรกเกิดน้ำหนักน้อยกว่า 2,500 กรัม และฮีมาโทคริตน้อยกว่า 30 ปริมาตรเปอร์เซ็นต์ก่อนรับไว้ในสถานพยาบาล ไม่มีนัยสำคัญด้านเพิ่มขึ้น/ลดลง ยกเว้นการได้รับยาปฏิชีวนะกรณีคลอดทางช่องคลอดอย่างน้อย 24 ชั่วโมง มีการลดลง/เพิ่มขึ้นในกลุ่มวัยรุ่น/สูงอายุอย่างมีนัยสำคัญ (ร้อยละ 0.6/75.0) เมื่อเปรียบเทียบกับกลุ่มผู้ใหญ่ (ร้อยละ 8.3) ส่วนการผ่าตัดคลอดด้วยเหตุการดำเนินการคลอดล้มเหลวต่ำกว่าอย่างมีนัยสำคัญในกลุ่มวัยรุ่น (ร้อยละ 7.3) เมื่อเปรียบเทียบกับกลุ่มผู้ใหญ่ (ร้อยละ 14.5) ขณะที่การผ่าตัดคลอดด้วยเหตุผ่าตัดคลอดมาก่อน/น้ำหนักเด็กแรกเกิดน้อยกว่า 2,500 กรัม สูงกว่าอย่างมีนัยสำคัญในกลุ่มสูงอายุ (ร้อยละ 2.7/2.7) เมื่อเปรียบเทียบกับกลุ่มผู้ใหญ่ (ร้อยละ 12.7/7.9)

สรุป: การศึกษานี้แสดงให้เห็นว่าการตั้งครรภ์วัยรุ่นแม้ว่าเป็นตัวบ่งชี้ความเสี่ยงการคลอดสะท้อนผลที่ได้รับของการตั้งครรภ์ อย่างไรก็ตาม ต้องการการพัฒนาตัวบ่งชี้ขึ้นเป็นกุญแจเพิ่มเติมอีกหลายตัวบ่งชี้เพื่อประเมินผลที่ได้รับในการดูแลสุขภาพปริกำเนิด โนม์เพียงต่อการเกิดภาวะแทรกซ้อนด้านมารดาและเด็กแรกเกิด แต่เมื่อวัยรุ่นได้รับการดูแลขณะตั้งครรภ์อย่างพอเหมาะพอสมผลที่ได้รับของการตั้งครรภ์สามารถเทียบเคียงได้กับกลุ่มอายุอื่น