Thai Journal of Obstetrics and Gynaecology
October 2010, Vol. 18, pp. 165-171

OBSTETRICS

Pregnancy and Perinatal Outcomes of Twin Pregnancies in Prapokklao Hospital

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ABSTRACT

Objective: To evaluate the outcomes of twin pregnancies in Prapokklao Hospital.

Materials and Methods: The outcomes of 151 women with twin pregnancies delivered at Prapokklao Hospital between 1st January 2004 and 31st December 2009 were retrospectively reviewed. The maternal and neonatal data were obtained from the medical records. Statistical analysis was performed.

Results: The prevalence of twin deliveries at Prapokklao Hospital was 6.89 per 1,000 live births. The diagnosis of twin pregnancies in the antepartum period was made in 70.2% of cases. Cesarean section was the most common route of delivery. The three leading pregnancy complications were preterm delivery, anemia and pregnancy-induced hypertension, with a prevalence of 62.9%, 23.8% and 13.9%, respectively. There was no maternal death. In pregnancies with gestational age less than thirty-four weeks, only ten (11.1%) received corticosteroid therapy before delivery. Forty-one (43.2%) preterm cases recieved the antibiotics for group B streptococcal prophylaxis before delivery. The three most common neonatal complications were low birthweight (73.2%), an Apgar score less than 7 at 1 minute (13.9%), and sepsis (11.6%). There were 5 neonatal deaths and 11 stillbirths. Eighty one percent of the death occurred in preterm fetuses. The perinatal mortality rate was 53.0 per 1,000 births.

Conclusion: Preterm delivery was the most common complication of twin pregnancies and was the leading cause of perinatal mortality. Prevention of preterm labor and improvement of neonatal care may improve outcomes in twin pregnancies.

Keywords: twins, pregnancy outcomes, perinatal outcomes, preterm delivery

Introduction

The number and rate of twins, triplets, and other higher-order multiple births have climbed at an unprecedented pace over the last two decades[1]. Multifetal pregnancies are associated with increased morbidity and mortality for both fetuses and especially mothers who are six times more likely to be hospitalized for antepartum complications, most frequently preterm labor, preterm premature rupture of membranes and pre-eclampsia[2,3].

In 2006, the data from Scotland showed that the rates of stillbirth and neonatal mortality of multifetal pregnancies were 14.9 and 19.8 per 1,000 live births respectively and were three to eight times higher than

singleton pregnancies[4]. In addition, Confidential Enquiry into Maternal and Child Health (CEMACH) data from England, Wales and Northern Ireland showed that the rates were trended to raise too[5]. Many Thai studies had also found higher rates of stillbirth and neonatal mortality for multiple births compared to singletons, with perinatal mortality rates between 30.8 and 68.18 per 1,000 births[6-10].

There is no prior study of twin pregnancies at Prapokklao Hospital (PH). The objective of this study was to assess maternal and neonatal complications and pregnancy outcomes of twin pregnancies at PH. The results may be beneficial for the evaluation of the quality of the obstetric care and neonatal services and guide to develop the service strategies in the future.

Materials and Methods

All twin gestations over 28 weeks of gestation delivered at Prapokklao Hospital between 1st January 2004 and 31st December 2009 were retrospectively enrolled. This study was approved by the Ethics Committee of PH, Chantaburi, Thailand. The cases were identified through a search of the hospital computer database. Cases with missing or incomplete data were excluded. The maternal charts and labor records were reviewed to identify maternal general characteristics, clinical complications and the data from neonatal charts were reviewed to identify neonatal complications and evaluate the perinatal mortality. All data were analyzed by using a statistic software package and presented in percentage, mean, range and standard deviation.

Results

From 1st January 2004 to 31st December 2009, there were 23,954 total live births including 165 twins, giving an incidence of twin delivery of 6.89 per 1,000 live births. However, only 151 cases were available for evaluation and analysis. The chorionicity was identified by placental examination without pathologic assessment. Ninety-six pregnancies (63.6%) were dichorionic, 34 pregnancies (22.5%) were monochorionic and 21 pregnancies (13.9%) had no record of chorionicity. The mean maternal age was 26.5 ± 6.4 years (range 14 – 41 years) which 20.5% were teenage and 14.6% were more than 35 years old. There were 43.7% of nulliparous. The most common place where women had antenatal care was at PH (38.4%) and the second most common was at a community hospital (37.2%). The mean number of antenatal visits was 7.8 ± 3.4 times. Only 4% of the women had no antenatal care. The antepartum diagnosis of twin pregnancies was made in 70.2% of cases. Table 1 showed the pregnancy outcomes. The mean gestational age at delivery was 35.6 ± 2.8 weeks. Cesarean section was the most common route of delivery, which was 49.7% for the first twin and 51.0% for the second twin. Furthermore, 1.3% of cases had cesarean section for the second twin after vaginal delivery of the first twin .

Pregnancy complications were shown in Table 2. The three leading pregnancy complications were preterm delivery, anemia and pregnancy-induced hypertension with the prevalence of 62.9%, 23.8% and 13.9%, respectively. The mean maternal hemoglobin at delivery was 34.9 ± 4.0 g/dl. In pregnancies with gestational age was less than thirty-four weeks, only ten (11.1%) received corticosteroid therapy before delivery. Forty-one (43.2%) preterm cases recieved antibiotics for group B streptococcal prophylaxis before delivery. The mean maternal hospital stay was 7.2 ± 3.7 days. There was no maternal death.

The neonatal outcomes were shown in Table 3. The mean birth weight of first and second twins was 2,214.6 ± 512.7 gm and 1,999.8 ± 662.0 gm, respectively. The three most common neonatal complications were low birthweight (73.2%), an Apgar score less than 7 at 1 minute (13.9%), and sepsis (11.6%). There were 5 neonatal deaths and 11 stillbirths in this study. The perinatal mortality was mainly in preterm fetuses (81.3%), with only 3 deaths (18.8%) in term fetuses. The perinatal deaths in those categorized as low birth weight (<2,500 gm) and normal birth weight (≥2,500 gm) were shown in Table 4.

Table 1: Pregnancy outcomes (N= 151 cases)

	No.	%
Gestational age at delivery (weeks)		
28-36+6	95	62.9
37-41+6	55	36.4
≥ 42	1	0.7
Fetal presentation		
Cephalic-cephalic	96	63.6
Cephalic-breech	26	17.2
Breech-cephalic	12	7.9
Breech-breech	12	7.9
Others	5	3.3
Delivery of the 1st twin		
Cesarean section	75	49.7
Normal delivery	68	45.0
Instrumental	5	3.3
Breech assisting/ Breech extraction	3	2.0
Delivery of the 2nd twin		
Cesarean section	77	51.0
Normal delivery	42	27.8
Instrumental	7	4.6
Breech assisting/ Breech extraction	25	16.6
Birth interval > 30 min	4	2.6

Instrumental = Vacuum extraction or Forceps extraction

Table 2: Pregnancy complications (N=151 cases)

	No.	%
Preterm delivery	95	62.9
Anemia	36	23.8
Pregnancy induced hypertension	21	13.9
Premature rupture of membranes	13	8.6
Gestational diabetes mellitus	10	6.6
Febrile morbidity	10	6.6
Fetal distress	6	4.0
Meconium-stained amniotic fluid	5	3.3
Postpartum hemorrhage	3	2.0
Antepartum hemorrhage	1	0.7

Table 3: Neonatal outcomes

	1st twin (N = 151) n (%)	2nd twin (N= 151) n (%)	Total (N=302) n (%)
Birth weight			
<1,500 gm	12 (7.9)	20 (13.2)	32 (10.6)
1,500 -2,499 gm	95 (62.9)	94 (62.3)	189 (62.6)
≥ 2,500 gm	44 (29.1)	37 (24.5)	81 (26.8)
Apgar score < 7 at 1 min	19 (12.6)	23 (15.2)	42 (13.9)
Apgar score < 7 at 5 min	4 (2.6)	4 (2.6)	8 (2.6)
Sepsis	17 (11.3)	18 (11.9)	35 (11.6)
IUGR	13 (8.6)	15 (9.9)	28 (9.3)
Congenital Anomalies	17 (11.3)	14 (9.3)	31 (10.3)
Respiratory distress syndrome	8 (5.3)	11 (7.3)	19 (6.3)
Polycythemia	4 (2.6)	10 (6.6)	14 (4.6)
NEC	3 (2.0)	5 (3.3)	8 (2.6)
TTTS	2 (1.3)	2 (1.3)	4 (1.3)
Birth injury	2 (1.3)	1 (0.7)	3 (1.0)
Admission to NICU	12 (8.0)	9 (6.0)	21(7.0)

NICU = newborn intensive care unit, TTTS = Twin-twin transfusion syndrome, NEC = Neonatal Necrotizing Enterocolitis, IUGR = Intrauterine growth restriction

Table 4: Perinatal mortality rates categorized by birthweight

	< 2,500 gm	≥ 2,500 gm	Total
Live births	210	81	291
Stillbirths	10	1	11
Early neonatal deaths	4	1	5
Perinatal mortality rates	63.6	24.4	53.0

Discussion

The incidence of twin deliveries of 6.89 per 1,000 live births in the present study was similar to the previous studies in Thailand, which ranged between 6.08 and 13.22 per 1,000 births[6-11]. This number is close to the previous incidence reported from Europe and North America which had been stabilized around 1-1.2% of pregnancies (1.9% to 2% of births), but which, owing to assisted reproduction, has risen to 2.7-2.8% of births over the past two decades[12]. Only a small number of twins are conceived from assisted reproductive techniques according to most Thai studies[6-11]. All twin pregnancies at PH were conceived naturally since there was no assisted reproductive service available. In the presentour study, there were 14.6 % of twins with maternal age of more than 35 years old. Beemsterboer, et al found that the rate of natural twinning peaks at the age of 37 years[13]. The rate of dichorionic and monochorionic twins were 63.6% and 22.5% in the present study, respectively which is similar to those in the previous study[6]. The cases of unidentified chorionicity were high, up to 13.9%. Therefore, we

recommended that the technique of placenta and membranes examination should be added to the training program. Monochorionic twins have significantly greater risk of abortion than dichorionic twins[14-17] and identification of chorionicity can aid in obstetric risk assessment and guide the obstetricians neonatologists for the management of multifetal gestations.

Even though 96% of the cases had prenatal care, diagnosis of multifetal pregnancies was made antenatally in only 70.2% of cases. Similar studies show various results, with diagnosis ranging between 47.82% and 64.7%[9,10,18]. This can be improved by the routine midgestation sonographic examinations which may detect 99 percent of multifetal gestations before 26 weeks[18]. Cesarean section was the most common route of delivery, which is similar to most Thai studies.[6-11]. The delivery interval of more than 30 minutes and the incidence of postpartum hemorrhage were only 2.7% and 2.0%, respectively. These data may reflect proper management during the intrapartum period. The mean maternal hospital stay (7.2 days) was long, due to the fact that the mothers were often discharged from the hospital with their children.

The three most common maternal complications of preterm delivery, anemia and pregnancy induced hypertension, which were the same as other studies[6-11]. The incidence of preterm delivery was 62.9% of cases. The higher rate of preterm delivery compromises the survival chances and increases the risk of lifelong disability[19]. To reduce the risk, obstetric and neonatal management of preterm should be improved. In the cases which were less than 34 weeks gestation, only 11.1% recieved corticosteroid therapy and only 43.2% recieved antibiotics for group B streptococcal prophylaxis. Proper practice guidelines for the use of corticosteroid and group B streptococcus prophylaxis may reduce neonatal complications such as neonatal respiratory distress syndrome and neonatal sepsis.

The most common neonatal complications were low birth weight, an Apgar score of less than 7 at 1 minute, and sepsis. These findings were similar to the previous[6-11]. In this study 81.3% of the deaths occurred in preterm fetuses, while 18.8% were term fetuses. This data correlated to Chittacharoen, et al, who found that the perinatal death decreased with increasing gestational age[6]. Perinatal death was also related to birth weight. The perinatal mortality rate was 63.6 per 1,000 births in cases where birth weight was less than 2,500 gm while the rate was 24.4 in cases where birth weight was above 2,500 gm. The perinatal mortality rate of twin pregnancies was 53.0 per 1,000 births compared to 11.3 of singleton, which is 4.7 times greater.

There were some limitations in this study. Medical records were lost or chart data were incomplete. The authors could not show the correlation of certain factors, such as fetal sex, chorionicity or administration of corticosteroid with the outcomes. The number of stillbirths was high but without established investigation. Further investigations for the causes of stillbirths in twin pregnancies and prevention strategies is needed to reduce perinatal mortality.

In conclusion, the perinatal mortality rate of twin pregnancies was 4.7 times higher than that of singleton. Preterm delivery was the most common maternal complication while prematurity was the leading cause of perinatal mortality. Prevention of preterm labor and improvement of neonatal care may improve the outcomes in twin pregnancies

Acknowledgment

The authors would like to thank the Department of Obstetrics and Gynecology, Prapokklao Hospital for permission to work on this project and providing the funding for this report.

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ผลลัพธ์การตั้งครรภ์และทารกปริกำเนิดของผู้คลอดครรภ์แฝดที่มาคลอดที่โรงพยาบาลพระปกเกล้า

ณรงค์วัฒน์ สุริยะ, ประภาพ ยุทธวิสุทธิ

จุดประสงค์ : ศึกษาหาผลลัพธ์การตั้งครรภ์และภาวะแทรกซ้อนของมารดาและทารกปริกำเนิดในครรภ์แฝด ที่คลอดในโรงพยาบาลพระปกเกล้า

วิธีการศึกษา : ศึกษาย้อนหลังในหญิงตั้งครรภ์แฝดจำนวน 151 คน ที่มาคลอดที่โรงพยาบาลพระปกเกล้าระหว่างวันที่ 1 มกราคม พ.ศ. 2547 ถึงวันที่ 31 ธันวาคม พ.ศ. 2552 โดยเก็บข้อมูลของมารดาและทารกจากเวชระเบียน แล้วนำมาวิเคราะห์ทางสถิติ

ผลการศึกษา : ความชุกของการคลอดครรภ์แฝดที่โรงพยาบาลพระปกเกล้าเท่ากับ 6.89 รายต่อการเกิดมีชีพ 1,000 ราย สามารถวินิจฉัยครรภ์แฝดในระยะก่อนคลอดได้ร้อยละ 70.2 และการผ่าท้องทำคลอดเป็นวิธีการคลอดที่พบมากที่สุด ภาวะแทรกซ้อนของมารดาที่พบมากที่สุด 3 อันดับแรกคือ การคลอดก่อนกำหนด, ภาวะเลือดจางและภาวะความดันโลหิตสูงระหว่างตั้งครรภ์โดยคิดเป็นร้อยละ 62.9, ร้อยละ 23.8 และร้อยละ 13.9 ตามลำดับ ไม่พบว่ามารดาเสียชีวิต มีมารดาอายุครรภ์น้อยกว่า 34 สัปดาห์ที่ได้รับคอร์ติโคสเตียรอยด์ก่อนคลอดบุตรเพียง 10 ราย (ร้อยละ11.1) มีมารดาอายุครรภ์น้อยกว่า 37 สัปดาห์ที่ได้รับยาปฏิชีวนะเพื่อป้องกันสเตร็ปโตคอคคัสกรุ๊ปบี ก่อนการคลอดบุตรเพียง 41 ราย (ร้อยละ 43.2) ภาวะแทรกซ้อนของทารกที่พบบ่อยสุดสามอันดับแรกได้แก่ ภาวะน้ำหนักตัวน้อย (ร้อยละ 73.2), ภาวะคะแนนแอพการ์ที่ 1 นาทีน้อยกว่า 7 (ร้อยละ 13.9) และภาวะติดเชื้อในกระแสเลือด (ร้อยละ 11.6) มีทารกเสียชีวิตหลังคลอดในช่วง (early neonatal death) 5 รายและทารกตายคลอด (stillbirth) 11 ราย ในจำนวนทารกที่เสียชีวิตร้อยละ 81.3 เป็นทารกที่คลอดก่อนกำหนด อัตราการตายปริกำเนิดเท่ากับ 53.0 ต่อการเกิด 1,000 ราย

สรุป : ครรภ์แฝดเป็นครรภ์เสี่ยงสูง การคลอดก่อนกำหนดเป็นภาวะแทรกซ้อนของมารดาที่พบบ่อยที่สุด โดยที่ทารกที่คลอดก่อนกำหนดนั้นเป็นสาเหตุสำคัญของการตายปริกำเนิด การป้องกันการคลอดก่อนกำหนดและการปรับปรุงการดูแลทารกหลังคลอดอาจจะทำให้ผลลัพธ์ของครรภ์แฝดดีขึ้น