Original Article

Management of Triplet Pregnancy

Lulu A Al-Nuaim¹, Turki M. Al-Kharfy², Mohammed S Mustafa¹, Zeinab M Abotalib¹, Fahmida Banu¹
Departments of Obstetrics and Gynecology and Pediatrics
King Khalid University Hospital
Riyadh, Saudi Arabia


ABSTRACT

Objective: This manuscript represents a retrospective observational cohort of 22 triplet pregnancies and addresses the impact of antenatal hospitalization, prophylactic cervical cerclage, tocolytic therapy and mode of delivery on the obstetric and neonatal outcomes.

Study Design: All triplet pregnancies that progressed beyond 22 weeks of gestation during the period 1988 to 1995 at King Khalid University Hospital, Riyadh, Saudi Arabia were included. The data was analyzed using Chi-square and student paired two-tailed T-test.

Results: The incidence of triplet pregnancy in the present study is 0.8 per 1000 deliveries. The mean gestational age at delivery was 33 ± 4 weeks (range 23-38 weeks), 50% of deliveries occurred between 34 and 38 weeks. The mean birth weight was 1766 ± 644 grams. There was no statistically significant difference in the mean gestational age and birth weight between triplet pregnancies that were managed with prophylactic cervical cerclage, hospitalization and tocolysis and those who were not. Six patients had pre-term labor (27.2%) <37 weeks of gestation. Three had pregnancy-induced hypertension (13.6%). Otherwise no significant antenatal complications were noted.

Nineteen sets of triplet pregnancies (86.4%) were delivered by lower segment cesarean section (LSCS); 15 were emergency and four were elective. There were seven perinatal deaths (12.3%) among the triplets who were delivered by C.S. compared to none in the vaginally delivered group.

Conclusion: Our study, though small, showed no significant difference in obstetric and neonatal outcomes among those triplet pregnancies managed with tocolysis and those who were not. Triplet pregnancies delivered by LSCS, whether elective or emergency, had higher neonatal mortality than those delivered vaginally, though the number was only three. This is due to the rarity of triplets and higher multiple pregnancies.

We feel that future prospective multi-center studies are needed to answer the questions of the optimal antenatal management as well as the best and safest mode of delivery for triplet pregnancies and higher multi-fetal pregnancies.

KEYWORDS: delivery, pregnancy management, outcome, triplet pregnancy

INTRODUCTION

Triplet pregnancies are associated with an increased risk of maternal and neonatal complications. The incidence of fetal and neonatal mortality and morbidity in triplets is higher than in singletons[1,2]. Owing to the relatively low incidence of naturally occurring high order births, in general, and the infrequency of triplet pregnancies in specific[3,4], information on the best management of triplets appears to be inadequate. Many studies have been hampered because they had to span a number of years in order to accumulate a reasonable sample size. However, since the introduction of ovulation induction and assisted reproduction, the incidence of multiple gestation has risen substantially[5,6].

Obstetricians are increasingly challenged with the questions of how to manage triplet pregnancies as they are often faced with limited information on which to base their management decision. On the basis of uncontrolled studies, routine cesarean section has been advocated to improve the perinatal outcome, particularly for the second and third triplet[6,7,8]. At present, however, there appears to be no substantial evidence to suggest that the advantages are significant[9,10]. On the other hand, it has been recently shown that multi-fetal pregnancies place an important burden on medical care resources and carry much higher social and economic costs than singleton pregnancies[11,12].

We report our experience in a university hospital on the management of 22 triplet pregnancies. The study evaluates the course of pregnancy with particular emphasis on prenatal management, mode of delivery and neonatal outcome. It also discusses the perinatal mortality and morbidity.

Address correspondence to:
Dr. Lulu Al-Nuaim, P.O. Box: 564, Riyadh-11421 Saudi Arabia. Tel: 467-0818; fax: 492-0520
MATERIALS AND METHODS

This is a retrospective review of 22 cases of triplet pregnancy for which gestation was greater than 22 weeks. All pregnancy were managed between 1988 and 1995 at King Khalid University Hospital (KKUH), Riyadh, Saudi Arabia. Abortions before 22 completed weeks of gestation were excluded. The charts from the delivery room registry were selected and reviewed retrospectively. The bio-data retrieved included maternal age, nationality, parity, family and personal history of multiple gestation, method of conception, antenatal management and pregnancy outcome. All the triplet pregnancies were diagnosed by ultrasonography early in the first trimester. The gestational age of spontaneous triplet pregnancies was determined based on the last menstrual period or by ultrasonic examination. For those with assisted conception, the gestational age was determined by the timing of human chorionic gonadotrophin (hCG) administration. Antenatal management included the use of supportive measures including cervical cerclage, bed rest, tocolytics and glucocorticoids, development of ante-partum complications, and the duration of maternal hospitalization. Individual mothers were managed at the discretion of various attending obstetricians. Delivery methods were classified into three groups: spontaneous vertex, assisted vaginal delivery, whether ventouse forceps or assisted vaginal breech delivery, and cesarean section, whether elective or emergency. Information on the immediate and late neonatal periods was also recorded. Statistical analysis was performed using Chi-square or student’s unpaired two-tailed t-test whenever appropriate. The data is presented as mean ± standard deviation. The level of significance was set at the P value of <0.05.

RESULTS

During the period from January 1988 through December 1995, 22 triplet pregnancies booked at the University Hospital reached >23 weeks gestation. The total number of deliveries during the same period was 28,500, giving an incidence of triplet gestation of 0.8 per 1000 deliveries.

Nine women (41%) conceived spontaneously and 13 of the 22 (59%) were associated with assisted reproduction techniques (12 with ovulation induction and 1 with IVF).

The maternal age ranged between 20 and 42 years with a mean of 28 ± 4 years. The mean age of the mothers with spontaneous triplet pregnancies was 31 ± 1 years, while the mean age of the iatrogenic group was 27 ± 3 years. This difference was statistically significant (P ≤ 0.001). The majority (68%) of the mothers were Saudi nationals and 19 (86.4%) mothers were multigravidas.

The gestational age at delivery for the whole group ranged from 23 to 38 weeks, however, most patients were delivered between 32 and 38 weeks (77%). This was neither influenced by the type of pregnancy (induced vs spontaneous) nor by the age of mothers.

Four of the nine women who achieved pregnancy spontaneously had a family history of twin pregnancy; three had personal histories of twin pregnancy. There was no history of multiple pregnancy in the induced group.

Seventeen mothers (77.2%) had ante-partum hospitalization ranging from one to three occasions. Among this group, five women (22.7%) had an additional admission to have a cervical cerclage performed. Indications for hospitalization were for bed rest in eight women (36.4%), pre-term uterine contractions in six women (27.2%) and pregnancy-
induced hypertension (PIH) in three women (13.6%).

The duration of hospital stay ranged from 8 to 102 days, with a total of 919 days for all the triplet pregnancies. The average duration of hospitalization was 48.3 days. Ante-partum hospitalization was prolonged in one mother, beginning from the time of diagnosis at 8 weeks until the time of delivery at 36 weeks. She was para 0+1 with 15 year of infertility and had no help at home. Five women were offered but refused hospital admission. Their pregnancies ended favorably at 28, 32, 33, 35 and 36 weeks gestation. The length of gestation for those not hospitalized ranged between 23 and 38 weeks compared to 24 to 37 weeks for those who had been in hospital.

Five women (22.7%) had cervical cerclage performed prophylactically at 14 weeks. None of these women had a history or evidence suggestive of cervical incompetence. The mean duration of gestation and mean birth weight for infants born to mothers who had cervical cerclage were lower than those born to mothers who had no cervical cerclage ($P = 0.38$ and $P = 0.54$, respectively) (Table 1).

The most common ante-natal complication observed was premature uterine contractions. This occurred in six (27.2%) women, three of whom were primigravida. All were treated with intravenous β-sympathomimetic agents for a mean period of 72 hours, and delivery occurred at 23, 24, 32, 33, and 36 weeks of gestation. The features of this group are shown in Table 1. The difference in gestational age and birth weight between those mothers who received tocolytics and those who did not was not significant ($P = 0.37$, 0.09, respectively).

Pregnancy-induced hypertension (PIH) was diagnosed in three women (13.6%). They all required anti-hypertensive therapy to control their blood pressure. The three women carried their pregnancies to viability and did not develop further complications that required immediate delivery. Anemia, as defined by WHO in this study as a hemoglobin of <10.5 gm/dl, was seen in one woman (4.5%) in the first trimester with a history of pre-existing menorrhagia.

Antenatally-administered dexamethasone was given to nine mothers. Two mothers received multiple courses of dexamethasone without apparent side effects.

The fetal outcome and mode of delivery in relation to gestational age is outlined in Table 2. Three mothers delivered vaginally at 28, 32 and 35 weeks gestation while the remaining mothers (19/22; 86.4%) were delivered by lower segment cesarean section (LSCS); four elective and 15 emergency LSCS. The indications for the latter were triplet pregnancies in labor, the majority of them were in advanced labor. There was no neonatal death in the vaginally delivered group, while there were seven neonatal deaths in the cesarean section group. Six neonatal deaths were from two sets of triplets delivered by emergency LSCS at 23 and 24 weeks gestation. These deaths were due to extreme prematurity rather than mode of delivery and the seventh was the third triplet of the only set delivered at 38 weeks by emergency LSCS. This infant had suffered severe intrauterine growth retardation (IUGR) and died from fulminating gram negative septicemia.

Five infants presenting by breech were delivered by assisted vaginal breech delivery. Three of them belonged to one set of triplets. The remaining two were the third babies in their sets. There was no delay or manipulative procedure in the delivery of any of the breeches. The first set of triplets was delivered at 35 weeks gestation. They had reasonable birth weights of 2330, 2790, 1915 gm and apgar scores of 9, 8, 8 respectively at five minutes. The third triplet, however, stayed in the NICU for six days. None of the triplets developed respiratory distress syndrome (RDS) and they were discharged home in good condition. The other two babies presenting by the breech were premature at 28 and 32 weeks gestation. They had birth weights of 1560 gm and 1050 gm, developed significant RDS and stayed in the NICU for 41 and 59 days, respectively. They were ultimately discharged home in good condition. The characteristics of the assisted vaginal breech are described in Table 3.

**DISCUSSION**

Naturally occurring multiple pregnancies involving more than two fetuses are rare[1-4]. The incidence of multiple pregnancy has, however, increased significantly with the introduction of ovulation-induction agents[5,6]. Early diagnosis of multiple pregnancy is important both for maternal and fetal welfare. As far as the mother is concerned, it is psychologically beneficial to know the diagnosis as early as possible. From the fetal standpoint, early diagnosis is important for the improvement of antenatal care and fetal salvage since it enables measures to be taken to prevent pre-term labor. Prophylactic cervical cerclage can be employed in good time. It also allows for timely advice on the reduction in household load and the need for bed rest at an early stage of gestation[7]. Clinical suspicion of multiple gestation may be entertained when the uterine size is disproportionately larger in relation to the period of amenorrhea in individuals with or without family or personal history of multiple pregnancy. The diagnosis may be made by finding of multiple fetal parts. However, triplet pregnancy is rarely
suspected clinically. It is usually revealed with reasonable accuracy within the first trimester of pregnancy by sonography when the number of gestational sacs may be detected. Vaginal ultrasound appears to be more sensitive in confirming the diagnosis. Early diagnosis of multiple pregnancy is relatively easy after ovulation treatment because it is expected. In the past, the most reliable definitive means of diagnosis of multiple pregnancy of any number, however, was an abdominal X-ray during the late second or third trimester. In previous studies, however, up to 20% were undiagnosed before delivery with 50% perinatal mortality among that group. In the present study, all the 22 triplet pregnancies were diagnosed early. Complications were, therefore, detected well in advance.

The main objective in managing multiple pregnancy is to enable the pregnancy to be carried on as far as possible, preferably to term. In the present series, 82% of the deliveries occurred before the 38th week of pregnancy, which is similar to the rate reported by others. In our study, the mean gestational age at delivery was 33 ± 4 weeks. The prevention of prematurity poses a major challenge. A number of approaches have been evaluated. These included hospitalization (prophylactic or mandatory if complications arise), cervical cerclage, and the use of tocolysis. Prolonged hospitalization, as an effective way to prevent premature labor, was thought to be a controversial issue in previous studies. An earlier study by McFee suggested that patients should be hospitalized as soon as the diagnosis is made for the remainder of pregnancy. Others recommended hospitalization as being essential from the beginning of the third trimester. Their argument was that prolonged hospitalization could delay the onset of labor and improve placental blood flow as well as allow for immediate medical attention should complications or labor commence. An additional advantage of hospitalization is that it enables the relief of discomfort associated with the enlarged uterus. Daw however, reported that prolonged bed rest did not appear to influence the onset of labor or the survival rate of infants. Loucopoulos et al were also of the opinion that prolonged hospitalization did not significantly increase the length of gestation. However, the results of their studies are difficult to interpret because they consisted of a small number of mothers and they were not randomized.

In terms of hospitalization time and gestational age achieved, our study is in agreement with the findings of Newman et al. We support the view that prenatal care for these mothers should include adequate bed rest at home. This advice would have the added advantage of easy acceptability and compliance from the mothers. Prolonged hospitalization in our view, especially where the mother is removed from her home or children for a long time may lead to poor compliance and psychological upset. Hospitalization, however, is indicated at the onset of obstetric complications. The risk of thromboembolism should be seriously considered when recommending prolonged bed rest and appropriate thromboprophylaxis measures should be taken.

Multiple pregnancy per se is not necessarily associated with cervical incompetence and gestation does not appear to be invariably prolonged by cervical cerclage. However, this procedure has been recommended for routine use in triplet pregnancies by some authors. Pheiffer and Golan suggested that this procedure should be performed even as an emergency procedure during the mid-trimester, or on those patients in whom cervical incompetence related to the triplet pregnancy is suspected. However, other studies have reported that cervical suture did not appear to prolong gestation in multiple pregnancy. The series by Daw also neither supported nor denied the value of cervical cerclage in multiple pregnancy. Information obtained from the present study does not suggest any obvious beneficial effect of this procedure. The average duration of gestational age of those who had no cerclage was slightly longer than those who had cerclage, but this difference is not statistically significant.

Intravenous infusion of β-mimetic drugs for actual threatened premature labor may be of benefit and should be considered. In this series, Beta mimetic drugs were not used routinely in all premature contractions while intravenous infusion of Ritodrine hydrochloride was tried in only six women. Fourteen of the 18 infants who were born survived.

Reports of the incidence of PIH complicating multiple pregnancy differ between various studies. The figures range from 8% to 46%. A review of triplet gestation by Syrop and Varner found that among 20 sets of triplet pregnancies delivering at greater than 20 weeks, PIH had occurred in 20%. Hypertension is thought to be ameliorated to some extent by bed rest, though this claim is debatable. In the present study, the incidence of PIH was rather low (13.6%). The relatively low incidence of hypertensive disorders in the present series may reflect the demographic characteristics of our population and/or effect of obstetric care.

In several studies, anemia was reported to occur in approximately 35% of women with triplet gestation. In our study, the incidence was 1/22.
(4.5%), similar to that reported by Itzkowic[2].

Again, this disparity may be due to the difference of prenatal care and nutrition as well as other socio-economic factors.

With the increasing number of triplet pregnancies resulting from assisted reproduction technology, obstetricians are increasingly being confronted with the question of the optimal mode of delivery, namely elective cesarean section (CS) or vaginal birth. There appears to be a general tendency to favor CS in triplet pregnancies. The reported benefits of this procedure include the avoidance of the risks of intrapartum complications, such as malpresentation, cord accident, reduction in utero-placental blood flow and increase in the interval between delivering fetuses with its accompanying intrauterine asphyxia in those premature triplets[21]. Cesarean section is also thought to safeguard the mother against injuries from internal podalic, intrauterine manipulations, version, breech extraction and manual removal of placenta because abnormal fetal presentations at CS become less of an issue. Moreover, CS can be a planned procedure thereby ensuring the presence of all senior staff, including obstetricians, neonatologists and anesthesiologists. There is no convincing evidence, however, that these advantages are real[9,10].

In the Obstetric Unit of KKUH, there is no uniform policy on the delivery all triplet pregnancy beyond 24 weeks. In the present series, 19 out of the 22 (86.4%) sets were delivered by cesarean section. Thirteen were by emergency CS because of premature uterine contractions in spite of favorable presentation. This high cesarean section rate may have been a reflection of the obstetrician’s anxiety for a satisfactory outcome in subfertile mothers.

Itzkowic[21] considered vaginal delivery as a reasonable method after 34 weeks gestation in uncomplicated triplet pregnancies, though in his series, a large number of deaths occurred in the vaginally delivered group. Nonetheless, vaginal delivery remains the main option for some authors[17,22]. In the present study, only 3 of 22 women (13.6%) were allowed to go through labor, and all had uneventful vaginal delivery. In one set of triplets at 35 weeks of gestation, all three fetuses presented breech. In the other two sets of triplets, the third baby in each set presented breech. All the five infants (5 of 9) presenting breech were delivered by assisted vaginal breech and each had Apgar Scores of at least 8 at five minutes.

Even though the results of the present study provide evidence that babies in triplet pregnancies delivered by CS did well, it also indicates that when such babies are delivered vaginally, the prognosis is also good. We feel that vaginal delivery should be considered when the presentations are favorable. We were unable to confirm from the present study the reports of Daw[1] that infants in breech presentation delivered vaginally fared worse with regards to perinatal mortality and morbidity than those delivered by elective CS. Cesarean section, however, is not without risks. The maternal mortality and morbidity rate is four times higher than vaginal delivery[21]. Moreover, evidence suggests that some types of fetal complications can not be prevented by performing cesarean section for the triplet pregnancies. A policy of a planned abdominal delivery in triplets is not superior to a policy of a planned vaginal delivery in terms of fetal and early neonatal outcome[21]. Due to this uncertainty and because of previous individual small studies including ours, we feel that future prospective multi-centre studies are worthwhile.

REFERENCES