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Triplet Pregnancies in Linköping, Sweden, 1973–1981

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A survey of triplet pregnancies in Linköping, Sweden, 1973–1981, showed a low perinatal mortality (4%) and low morbidity possibly due to prophylactic bed rest and tocolytic treatment. All children were followed at child health clinics. In one child, a persistent growth retardation was recorded at 4 years of age. No psychomotor deviations were found in the group. An interview concerning social and economic factors after delivery was carried out. The answers revealed considerable strain in daily life for all families.

Key words: Triplets, Multiple pregnancy, Bed rest, Child development, Socioeconomic factors

INTRODUCTION

In studies on twin pregnancies the importance of early diagnosis, close surveillance during pregnancy, and controlled delivery have been stressed by several authors [4,5]. According to Persson et al [5] and Jouppila et al [4], the highest risk factor in twin pregnancies is preterm delivery with increased risk of perinatal death or neurological impairment.

In a study on triplet pregnancies, Itzkowic [3] showed that preterm labor leading to preterm delivery was the single most important factor predicting the outcome of triplet pregnancies. In this study, the order of delivery of the triplets was found to be the next most important factor, triplet three being more vulnerable than triplet one. However, Itzkowic's material is from 1946 to 1976, and among all triplets, the mortality rate was high (23%). In a more recent study on triplet and quadruplet pregnancies between 1970 and 1978, Ron-El and coworkers [7] found a corrected perinatal mortality rate of 137/1,000. In their experience, premature delivery was the most common cause of perinatal mortality.

Besides the fetal and maternal complications associated with triplet pregnancies, a sudden enlargement of the family by three children results in considerable strain socially as well as economically. In order to evaluate perinatal mortality and morbidity and long-

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term morbidity in triplets, we studied triplet deliveries in Linköping, Sweden throughout the years 1973 to 1981, including follow-ups of the children at child health clinics. Furthermore, seven of the eight women were interviewed concerning practical, social, and economical consequences of their multiple births. The only family who lost one child before delivery was excluded from the interview but otherwise studied.

MATERIALS AND METHODS

During the 8 years, 1973 through 1981, eight women with triplet pregnancies were delivered at the University Hospital of Linköping. Case records for all mothers and children were thoroughly reviewed. Case records from child health clinics as well as up-to-date check-ups of all children were carried out. During the spring of 1982, seven of the families were interviewed concerning daily life conditions as well as practical, social, and economical consequences of their triplet deliveries.

Seven of the eight women were parous. Four of the women had been treated with ovulation-induction agents such as clomiphene citrate and gonadotrophins because of infertility.

RESULTS

Pregnancies

A cervical suture was performed in four women because of obvious or suspected cervical incompetence in their 18th to 29th week of pregnancy. In all women the diagnosis of triplet pregnancy was established before delivery. Whereas X-ray was used for the diagnosis of triplets in 1973, all other triplets were diagnosed by ultrasound, four of them before 20 weeks of gestational age. All women were hospitalized before delivery, the mean prepartal hospitalization time being 39 days. No severe maternal complications were registered.

All women were treated with tocolytics, therapeutically or prophylactically. In 1973, isoxuprine and intravenous infusion of ethanol was used, whereas in the following years all patients were orally or intravenously treated with terbutaline.

In four women with preterm labor, steroids were administered to enhance fetal pulmonary maturity. Intrauterine growth was followed by ultrasound measurements of biparietal diameter (BPD) and, lately, also by abdominal circumference of the fetuses. In all fetuses intrauterine growth measured by BPD corresponded to normal BPD growth curves

TABLE 1. Triplet Pregnancies in Linköping, Sweden, 1973–1981—Antenatal Data

Year of birth	Ovulation stimulation	Diagnosis (week)	Cervical suture	Prophylactic steroids	Prepartal hospitalization (weeks)	Delivery (week)	Delivery mode
1973	No	30	No	No	6	35	Vaginally
1974	No	25	No	No	6	35	Vaginally
1977	No	19	21st Week	Yes	1	30	Vaginally
1977	Yes	22	26th Week	Yes	6	35	Cesarean
1979	No	12	29th Week	No	7	35	Vaginally
1980	Yes	26	No	Yes	4	35	Cesarean
1980	Yes	12	No	No	6	35	Cesarean
1981	Yes	16	18th Week	Yes	5	36	Cesarean

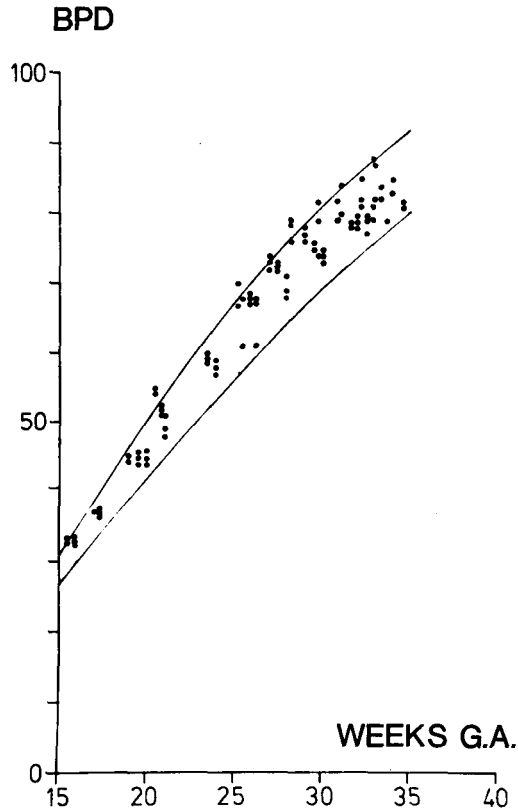


Fig. 1. Individually ultrasound-estimated biparietal diameters (BPD) in eight triplet pregnancies. The lines represent the 5th and the 95th percentiles of singleton intrauterine BPD. Assumed ultrasound velocity, 1540 m/s. GA, gestational age.

for singleton pregnancies (Figure 1). More details about the pregnancies are presented in Table 1.

Deliveries

One woman with an intrauterine fetal death delivered vaginally in her 30th gestational week in spite of intravenous terbutaline treatment. All other women were delivered in their 35th–36th week, four of them by cesarean section. Among the vaginally delivered children, the time from delivery of the first to the third triplet varied between 8 and 20 minutes.

Neonatal Period and Follow-Up

Only one stillbirth and no neonatal deaths occurred, resulting in a total mortality of one out of 24 children (4%).

In all children delivered by cesarean section, the Apgar score at 5' was 8 or more. In three triplets vaginally delivered, the Apgar score at 5' was 4 or less. No statistical differences in birthweight between triplets 1, 2, or 3 were found, although there was a tendency to less weight in triplet 3.

TABLE 2. Triplet Pregnancies in Linköping, Sweden, 1973–1981—Neonatal and Follow-Up Data

Year of birth	Apgar 5'	Sex	Neonatal diagnosis	Neonatal hospitalization (weeks)	Growth up to 18 months	Length at latest control
1973	10	F	—	4	Normal	Normal
	10	M	—	4	Normal	Normal
	10	M	Postnatal asphyxia	4	Normal	Normal
1974	10	M	Mild respiratory disturb.	2	Length = - 2 SD	= - 1 SD 6 years of age
	10	M	—	2	Length = - 1.5 SD	Normal
	8	M	SGA ^a	2	Length < - 2 SD	= - 1 SD 6 years of age
1977	2	F	Severe postnatal asphyxia	8	Length < - 2 SD	Normal
	—	F	Intrauterine death			
	4	F	Severe postnatal asphyxia	8	Length = - 2 SD	Normal
1977	9	M	—	4	Normal	Normal
	9	F	—	6	Normal	Normal
	9	F	SGA	6	Length = - 2 SD	= - 2 SD 4 years of age
1979	10	M	—	4	Normal	Normal
	10	M	—	4	Normal	Normal
	4	M	Mild respiratory disturb.	4	Normal	Normal
1980	10	F	—	6	Normal	Normal
	10	F	—	6	Length = - 1.5 SD	Normal
	9	F	SGA	6	Length = - 2 SD	Normal
1980	9	F	—	6	Length = - 1.5 SD	Normal
	9	F	Mild respiratory disturb.	6	Length = - 1.5 SD	Normal
	10	M	Mild respiratory disturb.	6	Normal	Normal
1981	9	F	—	3	Normal (3 months)	Normal
	10	F	—	3	Normal (3 months)	Normal
	9	F	—	3	Normal (3 months)	Normal

^aSGA, small for gestational age.

All children were supervised in a neonatal unit, the mean hospitalization period lasting 32 days. Four children were small for gestational age at birth, and seven children had slight respiratory problems. In no case was hyaline membrane disease diagnosed. The pediatric follow-up at 3 months to 6 years of age showed normal development and growth catch-up in all but one child who, still at four years of age, was below 2 SD in length but otherwise normally developed. For more details concerning neonatal and follow-up data, see Table 2.

Interviews

During the spring of 1982, seven of the families were interviewed concerning practical, social, and economical influences of their triplet births. All families had severe problems with their night sleep up to 1 year after delivery. This was considered the dominant practical problem in all families. Three of the mothers breast-fed all their newborn children for more than 3 months. No increase in neonatal infections was found among the 23 children and no increased frequency of infant colic or feeding difficulties was recorded.

In five out of the seven families interviewed, the economical situation deteriorated considerably after delivery. However, most families received help from the social welfare system, mainly in the form of nursing personnel assistance for 4–12 months, but also monetary support.

DISCUSSION

According to the Swedish Medical Birth Registration, the number of triplet deliveries in Sweden varies between 8 and 15 annually. The spontaneous rate of triplet pregnancies is low, from 1/6,400 [2] to 1/9,800 [7] births. In addition to the spontaneous frequency, the use of ovulation-induction agents has been described to increase the frequency of triplet pregnancies to 1/1,696 [7]. In the present study, half of the women had used ovulation-induction agents. The frequency of triplet pregnancies in Linköping during the years 1973 to 1981 was 1/2,148, compared to the overall frequency in Sweden of 1/9,125 during the same period.

The perinatal and neonatal mortality and morbidity in the present study is extremely low. However, the number of triplet pregnancies is low, and the fortunate results can partly be due to chance. In Itzkowic's study [3] comprising 59 triplet pregnancies, the main risk for the fetuses was preterm delivery. The same result was found in the study by Ron-El and coworkers comprising 19 triplets and six quadruplet pregnancies [7]. These authors used prophylactic bed rest as well as both tocolytic treatment and progesterone treatment. In the present study all women were prophylactically hospitalized and treated with tocolytics.

In twin and, even more so, in triplet pregnancies there are reasons to suspect insufficient placental function during the last trimester of pregnancy. Therefore we chose to deliver the women by elective cesarean section if spontaneous delivery had not occurred before the 37th gestational week. Since no biochemical parameters are reliable in multiple pregnancies, we have used ultrasound measurements of BPD and, lately, also fetal abdominal circumference as a measure of intrauterine fetal growth, since BPD measurements as indicators of fetal growth have been questioned [6].

The number of patients in this study is too low to allow conclusions about the preferable mode of delivery. In a study on 14 triplet pregnancies in England, Daw [1] found a poor prognosis of triplets delivered breech first and he suggests that most triplets should be delivered by cesarean section. In our department a tendency toward controlled delivery of triplet pregnancy by cesarean section has developed to optimize the perinatal care.

A sudden increase in a family by three new members is likely to cause strain in the daily life situation. The interviews demonstrated that this was the case in all families concerned. In Sweden, the social welfare system is well developed. However, in families with triplets, no special rules for social support exist, allowing individual judgement of the authorities as to whether the family concerned is qualified to receive social welfare or not. In our opinion, a simple rule stating that all families with multiple births are to be assisted with personnel and economical support would greatly simplify the contact between the individual family and the social authorities.

In conclusion, this study on triplet pregnancies in Linköping, Sweden, 1973–1981, has shown that perinatal mortality and morbidity as well as neonatal morbidity can be kept at a low level by preventive hospitalization and, possibly, prophylactic tocolytic treatment.

We also consider the date of delivery to be of importance, not allowing triplet pregnancies to proceed beyond 36 weeks. The psychosocial impact of multiple birth is considerable.

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