



Acta Genet Med Gemellol 34: 67-71 (1985)
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Received 15 June 1984
Final 6 November 1984

Bed Rest in Twin Pregnancy

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Abstract. A total of 146 twin pregnancies were studied to evaluate the importance of bed rest. A significantly reduced frequency of preterm delivery was found after bed rest in hospital as compared to bed rest at home or no bed rest at all. An increase in gestational age and in birth weight was seen after bed rest. No effect was found on the intrauterine increase of fetal weight per time. Early routine ultrasound is recommended, so that effective bed rest may be instituted in due time.

Key words: Twin pregnancy, Bed rest, Birthweight, Preterm delivery, Small for dates, Perinatal mortality

INTRODUCTION

Twin pregnancies represent a high-risk group: perinatal mortality rate may exceed 10% [14]. A high frequency of preterm delivery [7] may explain a great deal of the perinatal mortality. Prophylaxis to reduce the frequency of prematurity is thus important.

Bed rest in hospital has been generally recommended. Many authors have demonstrated a reduced frequency of preterm deliveries, small for dates and perinatal mortality with bed rest in hospital [2,5,6,8,12,13]. The control groups in these studies, however, consist of women who have not bed rested at all, not even at home, or representing a historical control group.

Several studies, on the other hand, failed to prove any effect of prophylactic bed rest [1,11,15,16], the usefulness of which seems therefore uncertain. In addition, a long stay in hospital may represent a severe psychological stress for the pregnant woman, as well as her family. The present investigation was therefore conducted to study the effect of an alternative to hospitalization, that is, bed rest at home.

MATERIAL AND METHODS

The material represents information about 146 consecutive twin pregnancies, delivered at the Department of Gynecology and Obstetrics, Aarhus Kommunehospital in the period from 1 January 1977 to 1 October 1980. All pregnant women were advised to bed rest if possible, for a period of 8 weeks from the start of the third trimester. Three groups can be identified:

Group 1: Bed rest in hospital. Patients bed rested in hospital for at least two weeks from the 29th to the 36th gestational week inclusive. Patients hospitalized for other reasons than bed rest were excluded.

Group 2: Bed rest at home. These women all refused hospitalization and were advised to bed rest at home for at least two weeks from the 29th to 36th gestational week.

Group 3: No bed rest. Patients in this group bed rested less than two weeks in the above mentioned period (15 patients), or did not bed rest at all (19 patients).

Patients who could not be included in either group were omitted.

The social classification in groups 1 and 2 was based on information regarding the parent's profession. The parents were grouped into five social classes [3].

Statistics

The statistical calculations were done by means of one-tailed analysis of variance, t test and χ^2 test. The effect of bed rest on the intrauterine increase in weight and the duration of bed rest (more or less than 10 weeks) were evaluated by expressing the individual birthweight as a percentage of the meridian for any given gestational age, followed by a one-tailed analysis of variance.

Terminology

Preterm delivery indicates delivery before the end of the 37th gestational week. Small for dates indicates a child with a birthweight less than the 10th percentile on a weight curve determined from the total of birthweights in this twin material. Perinatal mortality indicates the number of stillbirths after the 28th gestational week, plus the number of livebirths where the newborn dies within the first week after delivery, per 100 live-/and stillbirths.

RESULTS

The characteristics of the three groups are shown in the Table. No difference in social class was found between groups 1 and 2; a significant difference was found in the start of bed rest, but it is of only 3 days, and is in favour of group 2. A significant difference was found for the time of delivery and for the time of delivery for all preterm births. The significant difference between the mean birthweight disappeared after correction for differences in gestational age. Likewise, there was no significant difference in birthweights between pregnancies where women bed rested for more than 10 weeks and those with less than 10 weeks of bed rest. All P values are shown in the Table.

DISCUSSION

Preterm delivery is a serious problem in twin pregnancies. In the total material of 146 twin pregnancies, prematurity was about 10 times more frequent than in singletons.

The reasons for this increased frequency of prematurity in the twin gestation has been studied by several authors, who have proposed theories of decreased uterine blood flow [9], of uterine overdistension and reduced synthesis of progesterone [15] and of relative cervix insufficiency. No positive effects of ritodrine hydrochlorid [10] or cervix cerclage [16] have been found.

Table. Characteristics of Mothers, Frequency of Obstetrical Complications, Delivery Time and Birthweight

	Group			Comparisons	
	Group 1	Group 2	Group 3	Groups 1-2	All 3 groups
Number	37	31	34		
Mean age (yr)	27,0	27,1	26,2	ns	ns
Time of diagnosis (wk)	26,9	26,2	32,4	ns	P < 0,01
Start of bedrest (mean, wk)	30,4	29,9		P < 0,02	
Duration of bedrest (mean, wk)	7,7	7,9		ns	
Primiparae/Nonprimiparae	11/26	19/12	10/24	P < 0,05	P < 0,05
Time of delivery (mean, wk)	38,4	37,1	34,9	P < 0,05	P < 0,01
Time of delivery for all preterm births (mean wk)	36,4	34,6	33,8	P < 0,05	P < 0,01
Birth before end of 37th week (%)	35,1	54,8	82,2	P < 0,05	P < 0,005
Birth before end of 33rd week (%)	0	12,9	41,2	P < 0,005	P < 0,005
Birthweight (mean, g)	2734	2624	2150	P < 0,05	P < 0,01
Small for dates (%)	8,1	8,1	20,6	ns	ns
Perinatal mortality (%)	1,4	3,2	10,3	ns	ns

Whatever the reasons for preterm delivery of twins, it is the general opinion that it can be reduced by bed resting [2,4,5,6,8,12,13]. The present study also demonstrates a significantly reduced frequency of preterm delivery in patients who have bed rested compared to those who have not, and a significantly reduced frequency of preterm delivery after bed rest in hospital compared to bed rest at home.

To be able to evaluate the effect of bed rest on the intrauterine increase in weight, it is necessary to correct the birthweights according to the difference in age of gestation in the groups being compared. After such a correction a previous study [5] showed a significant increase in the birthweight of children of women who had bed rested in hospital compared to women who had not bed rested. The difference amounted to 200-300 g per child for any given age of gestation. In the present study, there was no significant difference between birthweights in the three groups after correction for difference in age of gestation. It was not possible to demonstrate a significant difference between the birthweight of the children of women who had bed rested more than 10 weeks compared to those who had bed rested less. So, bed resting does not seem to affect the increase of weight per time.

There was no difference between perinatal mortality in the three groups. However, a somewhat positive effect of bed rest may be noted. In previous studies, a reduced perinatal mortality rate in the children of women who had bed rested in hospital was found [2,6,8].

In group 2, a relative overrepresentation of primiparae may be seen, relative to group 1. This probably indicates that primiparae have more opportunity for bed rest at home than women who already have children. As for the theory relating distension of the uterus to prematurity, it may be speculated that the uterus of a primipara is less resistant to stretch compared to a uterus which has previously been distended. This might contribute to the increased frequency of prematurity in group 2. However, the percentage of primiparae was similar among women who delivered preterm and those who delivered at term in the whole material (146 pregnancies).

The results in group 3 clearly indicate that an early diagnosis is important. This may be achieved by routine ultrasound scanning of all pregnant women, perhaps at the beginning of the 2nd trimester. The present investigation indicates that bed rest in hospital is more effective compared to bed rest at home. A randomized prospective study, which is however difficult to conduct, may be needed for a final conclusion.

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