

# Prevention of Prematurity in Women with Premature Labour

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## **Abstract**

Premature labour is a frequent complication of pregnancy and caused by several factors. In most cases outpatient care is sufficient to prevent prematurity, only a few women need treatment as inpatients.

We asked women about their personal experiences during the time they had been in a hospital because of premature labour. We contacted all women who were hospitalized for more than three days in the Department of Obstetrics and Gynecology in Heidelberg in the year 1992. All women with additional disorders like premature rupture of membranes, gestosis or vaginal bleeding were excluded from the study. Fifty out of 76 women could be traced and a semi-structured telephone interview was performed.

The admittance to hospital was at  $29 \pm 5$  weeks of gestation (range 20 to 36 weeks). The average stay at hospital was 18 days (3 to 79 days). 38 out of 50 women were sent home before birth, four women had been treated twice and one woman three times as inpatients. 48% of the women reported about periods of stress in the time before hospital admittance. 86% were convinced that the stay in the hospital prolonged their pregnancy.

Prematurity could be prevented in 29 women (58%). In 21 women birth occurred before 37 weeks of gestation, in none before 31 weeks. According to their mothers' observation all infants showed a normal psychomotor development until 10 to 18 months of age.

Comparing the two groups with ( $n = 21$ ) and without ( $n = 29$ ) prematurity, there were no significant differences regarding age of mother, education, occupation, stress during pregnancy, registration of premature labour and subjective well-being in the hospital. The most

important aspects in this regard were regular contacts to the partner, accomodation in a one or two bed room, bed-side telephone and support by the medical staff. Additional conversations with a female social worker who offered "one hour time" in weekly intervals were considered to be especially helpful to the women who stayed more than two weeks.

In our study group, the therapeutic interventions (hospitalization, bed rest, tocolytic medication, psychosocial support) were effective in preventing very early preterm birth. There were no births before 31 weeks of gestation and only three births before 34 weeks. However, we speculate that the results could be even better by further improvement of the hospital environment.

### Zusammenfassung

Vorzeitige Wehen in der Schwangerschaft kommen häufig vor und haben eine multifaktorielle Genese. In den meisten Fällen sind ambulante Therapien erfolgreich und können eine Frühgeburt verhindern, nur in wenigen Fällen ist eine stationäre Therapie erforderlich.

Schwerpunkt der vorliegenden Studie ist die Erfassung der subjektiven Befindlichkeit von Frauen, die wegen vorzeitiger Wehen stationär behandelt wurden. Alle Frauen, die im Jahre 1992 in der Universitäts-Frauenklinik Heidelberg mit der Diagnose von vorzeitigen Wehen (ohne zusätzliche Befunde wie vorzeitiger Blasensprung, EPH-Gestose, vaginale Blutungen) stationär länger als drei Tage behandelt wurden, wurden im Herbst 1993 angeschrieben und um Mitarbeit gebeten. Von insgesamt 76 Frauen konnten 50 erreicht und mit ihnen ein semistrukturiertes Telefoninterview durchgeführt werden.

Die Frauen wurden mit 20 bis 36 Schwangerschaftswochen (Durchschnitt:  $29 \pm 5$ ) stationär aufgenommen und blieben 3 bis 79 Tage (Durchschnitt: 18 Tage) in der Klinik. 38 der 50 Frauen wurden vor der Geburt wieder nach Hause entlassen, 4 Frauen wurden zwei Mal, eine Frau drei Mal stationär behandelt. 48% der Schwangeren gaben körperlichen oder psychischen Stress in der Zeit vor dem stationären Aufenthalt an. 86% sind der Überzeugung, daß der Klinikaufenthalt die Schwangerschaft verlängert hat.

Insgesamt kam es bei 29 Frauen (58%) nicht zu einer Frühgeburt (vor 37 abgeschlossenen Wochen); von den übrigen 21 Schwangeren wurden nur drei (6%) vor 34 Wochen, keine vor 31 Wochen entbunden.

Alle Kinder haben sich nach Auskunft der Mütter bis zum Alter von 10 bis 18 Monaten altersgemäß entwickelt.

Beim Vergleich der Gruppen mit ( $n = 21$ ) und ohne ( $n = 29$ ) Frühgeburten fanden sich keine signifikanten Unterschiede hinsichtlich Alter, Ausbildung und Beruf der Frauen, psychischer Belastung in der Schwangerschaft, Wahrnehmung der Wehen sowie Wohlbefinden

in der Klinik. Die Dauer des stationären Aufenthaltes war in der Gruppe der Frauen mit Frühgeborenen signifikant länger ( $p < 0.001$ ).

Für das subjektive Wohlbefinden waren der regelmäßige Kontakt zum Partner, die Unterbringung in einem Ein-, bzw. Zwei-Bett-Zimmer, das Telefon am Bett und verständnisvolle Gespräche mit Ärztinnen/Ärzten am wichtigsten. Begleitende Gespräche durch eine Sozialarbeiterin des Gesundheitsamtes Heidelberg, die regelmäßig „eine Stunde Zeit“ hatte, wurden insbesondere von den Frauen als hilfreich erlebt, die länger als zwei Wochen stationär betreut wurden.

Zur primären Prävention von Frühgeburten bei Schwangeren, die im Jahr 1992 mit isoliert auftretenden vorzeitigen Wehen in Heidelberg stationär aufgenommen wurden, waren die durchgeführten Maßnahmen (Bettruhe, medikamentöse Wehenhemmung, psychosoziale Unterstützung) insofern effektiv, als es in dieser Gruppe nicht gehäuft zu sehr frühen Geburten kam.

*Every article on the care of the preterm baby  
ends with a wish that preterm delivery  
could be prevented  
The Lancet 1980*

## **Introduction**

Premature labour, one of the main causes of prematurity, develops out of complex interactions of somatic, psychological and social factors (Lukesch, 1987; Pschyrembel & Dudenhausen, 1991; Zichella, 1992; Maiwald & Janus, 1993). The high correlation between infant mortality and prematurity implies that the essential approach to lowering neonatal mortality involves reduction of the prematurity rate by primary prevention (RaeGrant, 1991).

Several controlled studies report on the outpatient care of pregnant women, who were at high risk for prematurity. These studies deal with supplemental nutrition, educational aspects, social support, early detection and treatment of vaginal infections, reduction of working hours and reduction of stress (Blondel, 1986; Olds et al., 1986; Elbourne et al., 1989; Ontario Ministry of Health, 1991).

If premature labour cannot be controlled successfully on an outpatient basis, the women are usually sent to hospitals as inpatients. They are bedridden, undergo cardiocograms and ultrasound scans. Tocolytic medication is often necessary, sometimes even antibiotic therapy. There are no studies that investigate the subjective situation of these women and deal with the multifactorial genesis of premature labour (Janus, 1991; Feodor-Freybergh, 1993). The main purpose of our present study was to find out how these women describe their situation in the hospital and which possibilities they see to influence premature labour.

## **Patients**

The study group consists of all pregnant women, who were hospitalized as inpatients at the Perinatal Center in the Department of Obstetrics and Gynecology of

Heidelberg University for at least three days between January 1 and December 31 in 1992. In order to deal with a relatively homogeneous group, all women with additional disorders such as premature rupture of membranes, vaginal bleeding or gestosis were excluded. No other criteria for exclusion were used. The group comprised 76 women.

## Methods

The hospital records of all women were studied in summer 1993 (after the expected delivery of all women) and medical data regarding pregnancy and delivery were recorded. An official letter from the Department of Obstetrics and Gynecology was sent to all women at the end of the year 1993 and they were asked to participate in a telephone interview. If the families moved, all efforts were undertaken to trace the families by parents, friends or the official public agencies.

One to three weeks after sending the letter, the women were called by the second author (M. G.) and an appointment for a semi-structured telephone interview was arranged. At the Heidelberg University we have validated this method for parents of preterm infants (Funck et al., 1993; Sontheimer et al., 1994). At the time of the interview the infants were 10 to 18 months old.

The questions dealt with the subjective situation of the women during their hospital stay and the relationship to their baby. In addition some hypothetical questions regarding the possibility to influence premature labour and the duration of their pregnancy were asked. The telephone interview lasted 30 to 45 minutes. All questions were tested by a pilot study some months before.

## Results

Interviews could be completed with 50 out of 76 women. Five families moved out of the country, 13 families did not answer to repeated letters and phone calls, 4 women did not speak German fluently enough, 4 women did not want to participate out of personal reasons. Twelve of the 26 excluded women were foreigners.

Four of the 50 interviewed women were foreigners. The average age at birth was 28.7 years (range 16 to 39 years), five women had twins, the other 45 had singletons. Eight had 9 years of education, 29 had 10 to 12 years and 13 had more than 12 years of education. At the time of admittance to the hospital, 10% of the women worked as unskilled, 70% as skilled labourers, 16% worked in an academic profession, and 4% worked as housewives.

The women came to hospital between 20 and 36 weeks of gestation, the average time was 29 weeks and 5 days. The mean length of stay in hospital was 18 days (range 3 to 79 days). Only 12 women (24%) could not go home before delivery, in 29 women (58%) the babies were not born prematurely (i.e. gestational age  $\geq 37$  weeks). Twenty one women (42%) had birth before 37 weeks, three before 34 weeks, none before 31 weeks of gestation (Figure).

All mothers report on their infants having a normal psychomotor development at 10 and 18 months of age, the mother-child-relationship was described as very good (76%) or good (24%).

Forty one of 50 women stated that they were aware of premature labour at hospital admittance, half of them experienced worsening of labour during periods of stress. Seven women could name situations which reduced labour (silence, akupuncture, diversion). Together 48% experienced periods of high stress during the time before hospitalization. Forty three women (86%) were sure that the hospital care lengthened their pregnancy. Half of all women wanted to change their circumstances during the next pregnancy, especially work less and take things easier.

The most important circumstantial determinants of the subjective well-being were the regular visits of the partner, then the accomodation in a one or two bed room and availability of a telephone. More than 80% of the women "talked" regularly to their baby during the stay in the hospital. Several women wished to have more discussions with the clinical staff, especially more time for dialogues with the physicians. Some of the women were engaged in conversations with a female social worker from the public health department, who offered "one hour time" in weekly intervals, which was found to be very helpful especially to the women who stayed more than two weeks.

When comparing the two groups with prematurely born babies ( $n = 21$ ) and term babies ( $n = 29$ ), the time in hospital was significantly longer in the group with preterm babies ( $p < 0.001$ ). No significant differences were found regarding age of mother, education, occupation, stress during pregnancy, registration of premature labour and subjective well-being in the hospital.

## **Discussion**

A follow up study by semi-structured telephone interview one year after birth was done with 50 women who were hospitalised in 1992 because of isolated premature labour at the Department of Obstetrics and Gynecology of Heidelberg University. The study group was not different from the general population in Heidelberg regarding education (26% more than 12 years of education) and occupation, but differed from the general population in Germany (15% more than 12 years of education). Similar results were found regarding the social data of parents of premature babies, born in 1988 at the Perinatal Centre in Heidelberg (Sontheimer et al., 1992).

Nearly half of the women (48%) report about hard work and/or high stress in the time before the hospitalization, and this was seen as one of the main causes for the premature labour by most of the women. Hospital admittance was seen as a relief and 86% of the women were convinced that the hospital care contributed crucially to the prolongation of their pregnancy. One of the most important findings of this study is the very low number of preterm births (42%) and that no infant was born before 31 weeks (see Fig. 1).

Excluded from the study were all women who had additional diagnoses besides premature labour, such as vaginal bleeding or premature rupture of membranes. This may have been a reason for the low prematurity rate in addition to effects of the medical and psychological treatment.

All infants had normal psychomotor development, as reported by their mothers. We have previously shown in an extensive study on nearly 400 families with

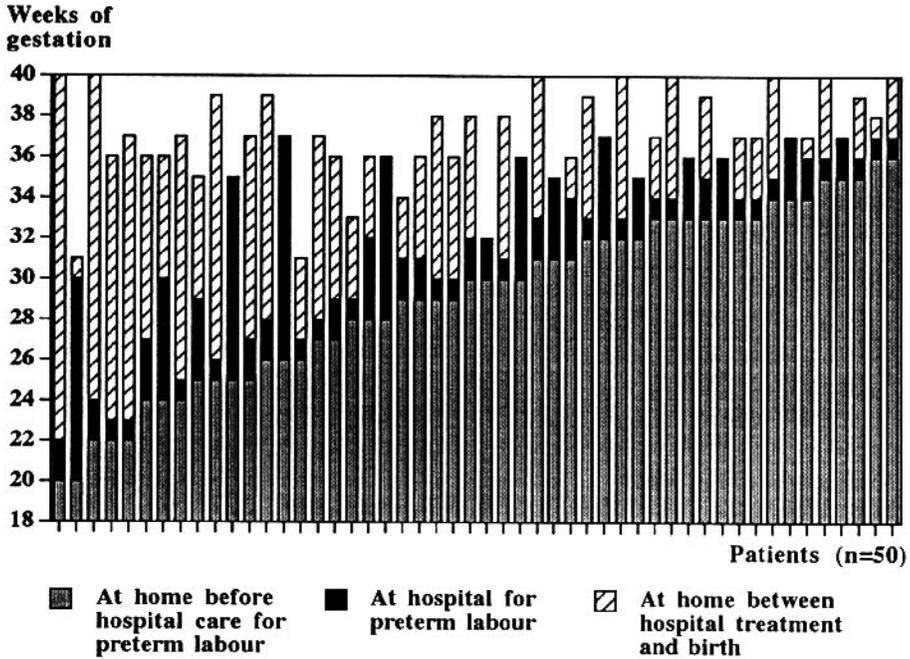


Fig. 1. Time of gestation, spent at home before (stippled), and after (striped) hospital treatment and at hospital for preterm labour (black).

a premature baby that telephone interviews are a reliable method to assess psychomotor development of infants (Funck et al., 1993).

The mother-child relationship was considered very good or good in all cases. This seems to be an important factor regarding later psychosocial development (Bowlby, 1969; Meyer, 1985). At the time of the interview, the children were 10 to 18 months old. Thus, we may have missed the early period, when a more difficult parent-child relationship is expected for preterm babies (Kunert et al., 1993). Some mothers stated that the good relationship was not present at the beginning, but developed over time.

Another indicator for a good mother-child relationship can be derived from the finding that 86% of all mothers regularly "talked" to their unborn babies during the stay in hospital. This may also explain the low prematurity rate. According to the findings of haptonomy mother-child conversation can be seen as an establishment of an interpersonal contact between mother and child, which has a positive influence on the prolongation of pregnancy (Veldman, 1994). Some mothers report about definite arrangements with the unborn baby to stay inside for some time.

On one hand the hospitalization causes essential disturbance of the social network of the patient (Gloger-Tippelt, 1988), on the other hand this interrupts everyday life and may positively influence premature labour (Freud, 1992). It is therefore not surprising that during the time in hospital the regular visits of the partners are extremely important for the subjective well-being of the women. In

addition, accomodation in a one or two bedroom and a personal telephone were mentioned as important. The undisturbed contact to their family and friends is much easier to accomplish, if the woman does not share a room with two or more patients, and the relationships are easier to maintain with a bed-side telephone.

During the time in hospital friendships to other pregnant women sometimes develop which persist for a long time. We know from parents of premature babies that contacts to other parents in a similar situation have a high priority and are ranked before contacts to the family or to the medical staff (Minde et al., 1980; Meye & Slesina, 1990).

The personal contact to the physicians was very important for most of the women. They would have appreciated an understanding dialogue on a one to one basis much more than grand rounds. Additional conversation to a female social worker from the Public Health Department – not directly involved in the clinical setting – was found especially helpful for women who were hospitalised for more than two weeks. This agrees with previous reports that a close relationship between mother and a caregiver who is not involved in medical care can develop, more personal aspects can be brought up and a psychosomatic view of premature labour as a solution for unsolved and unconscious conflicts may become evident, as described by Freud (1992) and Lange (1992).

If women had to stay in hospital longer than three weeks, significantly more babies were born prematurely. Both longer hospital stay and increased risk for early delivery may be explained by the extent and duration of early labour. Moreover, after several weeks of hospital care the preterm birth itself seems to be a relief. It terminates the unnatural situation of being permanently bedridden, which seems to be positive as interruption of everyday life only for a short period of time.

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