The outcomes of the pregnancies of lactating women

Özlem ŞENGÜL1,*, Ahmet Akın SİVASLIOĞLU1, Mahmut Kuntay KOKANALI1, İşık ÜSTÜNER2, Ayşe Filiz AVŞAR2

1Department of Obstetrics and Gynecology, Halil Şıvgın Çubuk State Hospital, Ankara, Turkey
2Department of Obstetrics and Gynecology, Atatürk Education and Research Hospital, Ankara, Turkey

Aim: To evaluate the outcomes of pregnancies occurring during lactation.

Materials and methods: Sixty-one women who had interpregnancy intervals of 2 years were evaluated. Group 1 included 39 pregnancies of lactating women. Group 2 included 22 pregnancies of women who ceased lactation before conception. The groups were compared for gestational weight gain, birth weight, and obstetric complications.

Results: The birth weights of the subsequent pregnancies of the first group were statistically lower than the second group (3086.6 ± 379.2 versus 3386.8 ± 388.1 g, P = 0.006). There was no statistically significant difference in obstetric complications observed between the 2 groups (P = 0.073). In the first group, in the pregnancies without any complications, the mean duration of lactation during the subsequent pregnancy period was 2.1 ± 1.5 months, and it was 2.0 ± 1.2 months in pregnancies with complications (P = 0.985).

Conclusion: The mean birth weight of the subsequent pregnancy was lower in pregnancies observed during lactation. There was no difference in obstetric complications between the 2 groups. The duration of lactation is not a determining factor for increased complications in subsequent pregnancies.

Key words: Interpregnancy interval, lactation, pregnancy outcome

1. Introduction
Several studies have shown that women with a very short interpregnancy interval are at increased risk of adverse perinatal outcomes such as preterm birth, low birth weight, intrauterine growth retardation (IUGR), and fetal death (1–4). It is reported that interpregnancy intervals of less than 18 months are independently associated with increased risk of adverse perinatal outcomes compared with interpregnancy intervals of 18–30 months (5). This emphasizes the importance of advising women with an initial delivery to wait at least 12 months for subsequent pregnancy (6). Women with shorter interpregnancy intervals also have a higher risk of maternal mortality, hypertensive disorders of pregnancy, bleeding, and anemia (7). In spite of this fact, even pregnancies during the lactation period can be observed. The purpose of this study is to evaluate the outcomes of pregnancies occurring during the lactation period, to determine if lactation has any adverse effects on subsequent pregnancy, and to consider the value of continuing or stopping lactation during this period.

* Correspondence: ozlem.sengul@yahoo.com

2. Materials and methods
In this case-control study, 61 women who had a subsequent pregnancy within 2 years after giving birth were enrolled. The study was conducted at the Halil Şıvgın Çubuk State Hospital between June 2006 and June 2009. Informed consent was obtained from all individuals enrolled in the study. Women who were pregnant while lactating formed group 1 (n = 39), and women who were pregnant after the cessation of lactation formed group 2 (n = 22). These 2 groups were compared in terms of prepregnancy body mass index, gestational weight gain, birth weight, and obstetric complications such as missed abortion, intrauterine ex fetus, IUGR, and preterm delivery. None of the women in the first group continued lactation after 20 weeks of gestation.

The normal distribution of the quantitative data was evaluated with the Shapiro–Wilks test. For normally distributed variables, the difference between the groups was evaluated by independent samples t-test, and the correlation between 2 quantitative variables was evaluated by Pearson’s correlation coefficient.
evaluating the difference between the groups, covariance analysis was used in order to prevent the effect of the interpregnancy interval. For the variables that were not normally distributed, the difference between the groups was evaluated by the Mann–Whitney U test, and the correlation between 2 quantitative variables was evaluated by Spearman’s rank correlation coefficient. The chi-square test and extension of Fisher’s exact test to m × n tables were used to evaluate qualitative variables. Numerical data was presented as mean ± standard deviation. P < 0.05 was accepted as statistically significant. Data analysis was performed using SPSS 16.0.

3. Results
There was no statistically significant difference in the 2 groups in terms of age, body mass index, birth weight of the previous baby and gestational week at the time of birth of the previous and the subsequent pregnancies, gestational weight gain of the previous and subsequent pregnancies, and Apgar scores of the babies of the subsequent pregnancies (Table 1). However, there was a statistically significant difference in terms of the birth weight of the subsequent pregnancy between the groups (P = 0.006). The birth weight of the subsequent pregnancy of group 1 was lower than that of group 2 (3086.6 ± 379.2 g in group 1 versus 3386.8 ± 388.1 g in group 2). After an adjustment of the interpregnancy intervals in the 2 groups, this result remained unchanged. No complications were observed in 31 out of the 39 cases in group 1. There were 8 cases of complications including 3 missed abortions, 1 IUGR, 1 preterm delivery, 2 intrauterine ex fetus, and 1 therapeutic abortion due to encephalocele in the first group. IUGR was detected in 1 out of 22 cases in the second group, and there were no other complications detected in the rest of group 2. In the first group, although the pregnancy complications such as IUGR, intrauterine ex fetus, and preterm delivery were observed to be higher than in the second group, this was not statistically significant, probably because of the limited number of the groups (P = 0.073) (Table 2).

There was a statistically significant difference in the mean interpregnancy interval. The mean interpregnancy interval was shorter in group 1 than group 2 (9.4 ± 4.2 months in group 1 versus 14.8 ± 4.8. months in group 2; P = 0.001). In the first group, the mean interpregnancy interval was 9.7 ± 5.2 months in 31 pregnancies without any complications; it was 8.1 ± 2.8 months in 8 pregnancies with some complications. The interpregnancy intervals did not statistically correlate with the pregnancy complications in the lactating women (P = 0.594).

The mean duration of lactation during the subsequent pregnancy period was 2.1 ± 1.4 months. In the first group, in the pregnancies without any complications, the mean duration of lactation during the subsequent pregnancy

| Table 1. Demographical and obstetrical features of patients included in the study. |
|-----------------------------------------------|-----------------|-----------------|---|
| Age (years)                                  | Group 1 (n = 39)| Group 2 (n = 22)| P-values |
|                                               |                 |                 |
| 25.3 ± 4.9                                   | 23.2 ± 3.3      |                 | P = 0.08 |
| Body mass index (kg/m²)                      | 26.4 ± 4.4      | 25.7 ± 3.7      | P = 0.49 |
| Gravidity                                    | 2.5 ± 0.9       | 2.3 ± 0.7       | P = 0.59 |
| Parity                                       | 1.4 ± 0.9       | 1.3 ± 0.6       | P = 0.66 |
| Abortion                                     | 0.79 ± 0.86     | 0.05 ± 0.21     | P = 0.01 |
| Birthweight of previous pregnancy (g)        | 3042.2 ± 580.3  | 3160.1 ± 579.2  | P = 0.45 |
| Gestational week at birth of previous pregnancy (weeks) | 38.6 ± 2.3      | 38.4 ± 1.9      | P = 0.67 |
| Gestational week at birth of subsequent pregnancy (weeks) | 38.1 ± 1.5      | 38.8 ± 1.1      | P = 0.43 |
| Gestational weight gain of previous pregnancy (kg) | 13.3 ± 3.9      | 11.8 ± 2.7      | P = 0.13 |
| Gestational weight gain of subsequent pregnancy (kg) | 10.6 ± 3.6      | 11.8 ± 3.0      | P = 0.17 |
| First-minute Apgar score of the babies of subsequent pregnancy | 7.03 ± 0.39     | 7.0 ± 0.44      | P = 0.79 |
| Fifth-minute Apgar score of the babies of subsequent pregnancy | 8.94 ± 0.24     | 8.91 ± 0.29     | P = 0.68 |
The outcome of subsequent pregnancies.

<table>
<thead>
<tr>
<th></th>
<th>Group 1 (n = 39)</th>
<th>Group 2 (n = 22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missed abortion</td>
<td>3 (7.7%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Intrauterine ex fetus</td>
<td>2 (5.1%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>IUGR</td>
<td>1 (2.6%)</td>
<td>1 (4.5%)</td>
</tr>
<tr>
<td>Therapeutic abortion</td>
<td>1 (2.6%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Preterm delivery</td>
<td>1 (2.6%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Healthy baby</td>
<td>31 (79.5%)</td>
<td>21 (95.5%)</td>
</tr>
</tbody>
</table>

For the mother, a short birth interval may give insufficient time to recover from the nutritional burden of pregnancy (9). Pregnancy increases energy needs by 13%, protein needs by 54%, and vitamin and mineral needs by 0%–50% (10–13). Lactation represents a greater nutritional burden than pregnancy, increasing energy needs by 25%, protein needs by 54%, and vitamin and mineral needs by 0%–93% (14). Prolonged lactation has been associated with depletion of energy reserves (15). Lactation that overlaps with pregnancy represents a particularly large nutritional burden (16). Since lactation and pregnancy are both very energy-demanding processes, when these 2 physiological states occur simultaneously, the risk of depletion of nutrient stores in the mother or growth retardation of the fetus might increase, particularly among women with limited intake of food (8). Since the nutritional burden on the mother between pregnancies depends on the extent of breastfeeding, the interpregnancy interval is not the best measure of whether the mother has had a chance to recover from the pregnancy in terms of replenishing her nutritional status. Therefore, some studies examined the ‘recuperative interval’ (duration of the nonpregnant, nonlactating interval) instead. Studies do not provide clear evidence of an association between interpregnancy or the recuperative interval and maternal anthropometric status. This may be partly due to changes in the hormonal regulation of nutrient-sharing between the mother and the fetus when a mother is malnourished (17). On the other hand, van Eijdsen et al. suggested that folate depletion contributes to the risk of IUGR, which is associated with short interpregnancy intervals, and so postnatal supplementation of folate may be beneficial (18). In another study, it was suggested that reduction of zinc intake during pregnancy affected food intake and fetal growth rate (19). Since children with vitamin B₁₂ deficiency present with severe neurological and hematological findings, nutritional supplementation of vitamin B₁₂ to pregnant women and infants may also prevent neurological deficits and neurodevelopmental retardation of infants (20).

Although it is not statistically significant, obstetric complications occur more frequently in the pregnancies of lactating women. Since a significant decrease in birth weight is observed in these pregnancies, we propose that the interpregnancy interval should be well organized to ensure healthier mothers and children in society. Most lactating pregnant women use lactation alone or coitus interruptus as contraceptive methods. Ovulation may be delayed for many months, but eventually it reappears in women who breastfeed, generally after the introduction of other foods to the infant’s diet. These women should be better educated about contraceptive methods and they should not accept lactation or coitus interruptus as
contraceptive methods in order to have more planned pregnancies. Education about contraceptives should be a part of postpartum care. Huang et al. suggested that 86% of unintended postpartum pregnancies occurred without contraceptive usage and 88% of them resulted in induced abortion, and so education of contraception before discharge from the hospital and during the postpartum period is very important (21). Intrauterine devices, progestin-only pills, depot medroxyprogesterone acetate, and male condoms are some of the reversible modern contraceptive methods that may be used for this purpose. Tocce et al. suggested that immediate postpartum etonogestrel implant insertion significantly reduced postpartum pregnancy rates in adolescents with a good continuation rate after the birth (22). However, if a pregnancy is observed during this period, women should be informed of the risk of low birth weight and a possible adverse perinatal outcome. Since the continuation of the lactation does not deteriorate the pregnancy outcome, breastfeeding should not be immediately stopped while taking into consideration the nutritional status of the mother. Further studies are needed to validate our results and support our study.

References


