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Sleep Habits and Changes in Pregnant Women

Gebe Kadınlarda Uyku Alışkanlıkları ve Değişimleri

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ÖZ

Amaç: Bu çalışmanın amacı polikliniğe başvuran gebelerin uyku apnesi riski ve uyku kalitesi açısından değerlendirilmesidir.

Gereç ve Yöntemler: Hastanenin Kadın Hastalıkları ve Doğum Polikliniği'nde Ocak 2016-Ocak 2017 tarihleri arasında yapılan retrospektif tanımlayıcı çalışmaya 31 kadın dahil edildi. Hastaların demografik özellikleri, uyku anket sonuçları, solunum fonksiyon testi değerleri ve doğum bilgileri 8. hafta ve son trimester için geriye dönük olarak elde edildi.

Bulgular: Ortalama uyku süresi 8. haftada 7.9±1.3 saat ve son trimesterde 7.3±2.0 saat idi; iki periyotta anlamlı fark yoktu (p=0.077). Uyku anketlerine göre 8. hafta ile son trimester arasında Stanford Uykululuk Skalası skoru (p=0.047) dışında istatistiksel olarak anlamlı fark yoktu (p>0.05). 8. hafta ile son trimester arasında solunum fonksiyon testi değerleri bakımından anlamlı fark yoktu (p>0.05), iki dönem arasında sadece FEV1 açısından istatistiksel fark vardı (p=0.047). Uyku kalitesi kötü olan 13 gebenin bebeklerinin ortalama doğum ağırlıkları ile uyku kalitesi iyi olan 18 gebenin bebeklerinin ortalama doğum ağırlıkları arasında anlamlı fark bulunmadı (p=0.565).

Sonuç: Sonuç olarak, çalışmamızda Pittsburg Uyku Kalitesi İndeksi'ne göre son trimesterde gebelerin yaklaşık yarısının uyku kalitesi bozulurken, uyku kalitesi kötü olan gebelerde doğum ağırlığı etkilenmedi. Uyku kalitesi, gebelikte OUAS varlığı, gebelik ve doğum sonu komplikasyonlarla ilişkisi net değildir, özellikle komplike gebeliklerde OUAS gebelik çalışmaları yapılmalıdır.

Anahtar kelimeler: uyku alışkanlığı, uyku kalitesi, gebelik

ABSTRACT

Aim: The aim of this study is to evaluate pregnant women admitted to the outpatient clinic in terms of sleep apnea risk and sleep quality.

Materials and Methods: 31 women were included in this retrospective descriptive study which was conducted at the obstetrics and gynecology outpatient clinic of the hospital, between January 2016 and January 2017. Demographic characteristics, results of sleep questionnaires, pulmonary function test values, and birth information of the patients were obtained retrospectively for the 8th week and last trimester.

Results: The mean sleep time was 7.9±1.3 hours at week 8 and 7.3±2.0 hours at last trimester; with no significant difference between the two periods (p=0.077). According to the sleep questionnaires there was no statistically significant difference between 8th week and the last trimester (p>0.05), except for Stanford Sleepiness Scale score (p=0.047). There was no significant difference according to pulmonary function test values between the 8th week and the last trimester (p>0.05), there was a statistical difference between two periods only in terms of FEV1% (p=0.047). No significant difference was found between the mean birth weight of babies of 13 pregnant women with poor sleep quality and mean birth weight of babies of 18 pregnant women with good sleep quality (p=0.565).

Conclusion: As a result, in our study, nearly half of the pregnant women had worsened sleep quality in the last trimester according to the Pittsburg Sleep Quality Index, but birth weight was not affected in pregnant women with poor sleep quality. Sleep quality, the presence of OSAS in pregnancy and its relationship with pregnancy and postpartum complications are not clear, OSAS pregnancy studies should be performed especially in complicated pregnancies.

Keywords: sleep habits, sleep quality, pregnancy

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INTRODUCTION

Numerous studies on sleep and sleep qualities of healthy people are being made. In a healthy society, a rate of almost 45% of bad sleep quality is observed, which decreases quality of life and work productivity. Low quality of sleep also causes many diseases and complications such as diabetes, cardiovascular diseases, depression, obesity and strokes. Many environmental, physiological and psychological causes can factor into a lowering of general sleep quality (1). Almost half of pregnant women (45.7%) experience poor sleep quality and almost %15 have OSAS (2). Obstructive sleep apnea syndrome (OSAS) is a hypoxia-induced sleep disorder caused by recurrent complete or partial upper airway collapse. In the studies, OSAS rate in women of reproductive age varies between 2-13% (3). OSAS is seen in 15-20% of obese pregnant women and OSAS incidence increases with increasing body mass index (4, 5).

In pregnant women, there are risk factors that increase (increased resistance in the upper airways, reduced pharyngeal diameter, estrogen-induced nasal congestion and rhinitis) and decrease (progesterone-stimulating effect, the muscles that keep the upper airways open with the effect of progesterone and the last trimester of pregnancy use the side-lying as a sleep position) sleep breathing disorders (4, 6).

OSAS can lead to pregnancy-related systemic diseases and therefore increase mortality and morbidity, all pregnant women should be questioned for OSAS symptoms and polysomnographic examination should be recommended when necessary and patients should be given appropriate treatment (4, 7). However, it is not clear in the literature which period and method should be used for this screening for OSAS (4).

In addition, there is currently no guide for OSAS screening in pregnant women. In this study, we aimed to evaluate pregnant women admitted to the outpatient clinic in terms of risk of sleep apnea and sleep quality.

MATERIALS AND METHODS

31 women who were followed up at the obstetrics and gynecology outpatient clinic of the hospital between January 2016 and January 2017 and who completed the sleep questionnaires (Stanford Sleepiness Scale, Epworth Sleepiness Scale-ESS, Pittsburg Sleep Quality Index-PSQI, Berlin Questionnaire, STOP Questionnaire) at the visits were included in this retrospective descriptive study (8-13). Demographic characteristics, results of sleep questionnaires (8th week and last trimester), pulmonary function test values (8th week and last trimester), and delivery information of the patients were obtained retrospectively. The patient was excluded from the study if any of this information was missing.

Percentages and frequencies, mean and standard deviation values, median and minimum-maximum values were given as descriptive statistics. Shapiro-Wilk test was used to assess the normality of the data. In order to compare paired data; paired samples t-test or Wilcoxon signed-rank test was used for continuous variables, Mc-Nemar test was used for categorical variables.

RESULTS

Mean age of the pregnant women included in the study was 29.84±4.81. Two of the thirty-one pregnant women had asthma, one had hyperthyroidism, one had Hashimoto thyroiditis and the other pregnant women had no additional disease. Only two of the cases smoked during pregnancy. Cesarean section rate was 74.2% (n = 23). It was the first pregnancy of 15 of the women (48.4%).

The mean duration of sleep was 7.9±1.3 hours at the 8th week and 7.3±2.0 hours at the last trimester. There was no difference in sleep duration in the two different periods (p = 0.077).

When questioned about daytime sleepiness of pregnant women, twenty women (64.5%) complained about daytime sleepiness in the 8th week and 16 women (51.6%) in the last trimester. There was no significant difference between the two periods (p=0.424).

Median value of Stanford Sleepiness Scale score was 4 (1-6) at the 8th week and was 2 (1-7) for the last trimester. Women were sleepier at the first trimester (p=0.047).

According to ESS, only one pregnant woman (3.2%) at the 8th week and 3 women (9.7%) at the last trimester had excessive daytime sleepiness. There was no statistically significant difference between two periods (p=0.625).

Based on PSQI scores, 6 pregnant women (19.4%) at the 8th week and 13 women (41.9%) at the last trimester had poor sleep quality with no statistically significant difference between two periods (p=0.065).

According to STOP Questionnaire, one pregnant woman (3.2%) at 8th week and three women (9.7%) at the last trimester had high OSAS risk. There was no statistically significant difference between two periods (p=0.625).

Regarding Berlin Questionnaire, 4 pregnant women (12.9%) at 8th week and 9 women (29%) at the last trimester had high OSAS risk. The difference between two periods was not statistically significant (p=0.125).

In the pulmonary function test of pregnant women, obstruction was detected in one (3.2%) at 8th week and improved in the last trimester. Restriction was detected in 4 (12.9%) pregnant women in the last trimester. In two of these pregnant women there was restriction in 8th week and in two of them there was no restriction in 8th week.

There was no significant difference between FEV1, FVC, FEF25-75 values between 8th week and last trimester measurements (Table 1). There was a statistical difference between the two periods only in terms of FEV1%.

Table 1. Pulmonary function evaluations of pregnant women at 8th week and last trimester

	8th week (Mean±SD)	Last Trimester (Mean±SD)	p
FEV_1	2.84±0.54	2.82±0.51	0.789
FVC	3.39±0.67	3.48±0.75	0.424
FEV_1%	86.35±11.16	82.29±9.29	0.047
FEF_{25-75}	3.10±0.93	2.91±0.81	0.174

SD: Standard Deviation

The mean PEF values of the pregnant women were 65.03 ± 16.30 in the 8th week, whereas PEF was 59.39 ± 15.51 in the last trimester and the mean PEF was significantly lower in the last trimester (p = 0.044).

Three (9.7%) of the pregnant women at 8th week and 5 (16.1%) at the last trimester complained of snoring; 20 (64.5%) at 8th week and 16 (51.6%) at the last trimester complained of daytime sleepiness. There was no significant difference between the two periods in regards to these two complaints (p=0.687; p=0.424, respectively).

All pregnant women delivered at term and without complications.

The mean birth weight of babies of 13 pregnant women with poor sleep quality according to PSQI was 3261.54±272.81 gr, and the mean birth weight of 18 pregnant women with good sleep quality was 3362.78±581.11 gr, and no significant difference was found between the two groups (p=0.565).

According to the PSQI, the mean FEV1 of 13 pregnant women with poor sleep quality was 2.85±0.48, and the mean FEV1 of 18 pregnant women with good sleep quality was 2.80±0.54, and there was no significant difference between the two groups (p=0.795).

The mean weight change of 13 pregnant women with poor sleep quality according to the PSQI was 16.27±15.97 and the mean weight change of 18 pregnant women with good sleep quality was 18.58±9.89 (p=0.622).

DISCUSSION

According to the findings of evaluation with different sleep questionnaires obtained in our study, no difference was found between early and late pregnancy periods in healthy pregnant women regarding sleep apnea risk and sleep quality. Accompanying these findings, it was found that sleep quality did not cause any significant negativity during pregnancy, birth and birth weight. With many studies demonstrating the negative effects of poor sleep quality on pregnancy, it is possible that our study failed to show those effects due to a relatively smaller number of patients. (2,14)

In pregnancy, growth around the mother's abdomen, mothers emotional status, and hormonal changes may lead to a decrease in the duration of sleep in the late pregnancy. In our study, when the mean sleep duration was examined, there was no statistically significant difference between the 8th week and the last trimester. In a study conducted in 252 pregnant women, the duration of sleep was 8.1 ± 1.1 in the first trimester and 7.5 ± 1.8 hours in the last trimester and the duration decreased significantly in the last trimester (15). In our study, having no significant difference between durations of sleep may be caused by the low number of cases.

In a study on the prevalence of habitual snoring in pregnant women in our country, Ursavas et al. found the rate to be 11.9% of pregnant women in the third trimester of pregnancy. When snoring before pregnancy was questioned in these pregnant women, the rate was reported as 2.5% (16). In another study, snoring rate was found to be 16.5% in 266 patients in all trimesters (17). In our study, the frequency of snoring was found to be 9.7% for the first trimester and 16.1% for the last trimester in accordance with previous studies. In our study, when we examined the frequency of daytime sleepiness, daytime sleepiness was found to be 64.5% in the first trimester and 51.6% in the last trimester. In another study by Kır Şahin et al. conducted in our country, first and last trimester excessive daytime sle-

epiness' were compared, 73.3% in the first trimester and 71.3% in the last trimester, and no significant difference was reported between the two groups (7). In another study, daytime sleepiness was observed in 7.9% of 266 pregnant women in all gestational months, but no difference was found between trimesters in terms of daytime sleepiness (17).

In a study investigating the relationship between obesity and sleepiness, 149 obese patients had an ESS score of over 10 with a rate of 8.1% and ESS score increased as body mass index increased (18). Therefore, a relationship between body mass index during pregnancy and increased sleepiness can be expected. In our study, the ESS score was higher than 10 in only one pregnant woman (3.2%) in the first trimester and 3 (9.7%) in the last trimester, and the difference was found to be insignificant. In a previous study conducted in 2427 pregnant women, no difference was observed in ESS in all months and a rate of 49.3% daytime sleepiness was observed (19). In our study, daytime sleepiness was found to be 51.6% in the last trimester.

In a study involving 266 pregnant women, no statistically significant difference was reported according to Berlin Questionnaire and ESS of pregnant women with high risk for OSAS in all trimesters (17). In our study, no difference was found between the first and last trimester in terms of OSAS risk on the Berlin Questionnaire and ESS. However, the difference between these two studies is that; in our study in the first and last trimester the Berlin Questionnaire and ESS were applied to the same patients, while the other study compared these tests which were applied to different patients. (17). In the study performed in 3705 pregnant women with sleep disorder, the Berlin Questionnaire and ESS showed low sensitivity and specificity in pregnant women (20). In this study, sleep disturbance rate (AHI > 5) was 3.6% in 6-15 weeks sleep test; In the sleep test performed at 22-31 weeks, the rate of sleep disorder was found to be 8.3%. They found that maternal age, snoring and body mass index can be used to predict sleep disorder (20). In another study, as a result of polysomnography performed in 105 pregnant women, OSAS was seen in 10.5% at the first trimester and 26.7% at the last trimester. OSAS increased significantly in the last trimester (21). However, the ESS applied in the same study was not associated with OSAS or AHI change in the third trimester (21). As sensitivity and specificity are low, the increased risk of OSAS in the last trimester cannot be demonstrated by these questionnaires as well as in our study. In these studies conducted with pregnant women, polysomnography should be added to the studies and questionnaires with high sensitivity and specificity should be formed. In a retrospective study conducted in 1998-2009, OSAS was seen with a ratio of 3/10.000 in all pregnant women; only in 2009 this rate was 7.3/10.000 (22). In a multicenter study involving 3705 pregnant women, the rate of sleep-disordered breathing was 3.6% in the first trimester, and this rate increased to 8.3% in the middle of pregnancy. In the same study, the rate of preeclampsia was 6% and the rate of pregnancy-dependent diabetes was 4.1% (3).

In the study conducted with 72 high-risk pregnant women (hypertension, gestational diabetes), the Berlin Questionnaire was found to be 26.4% positive; it was positive in 56.5% in pregnant women with OSAS (all trimesters) and 12.2% in women without OSAS, which was significantly higher in women with OSAS. The sensitivity and specificity of the Berlin Questionnaire were 56.5% and 87.8%, respectively (23). In our study, Berlin Questionnaire positivity was found to be 29% positive in the last trimester and 12.9% positive in the first trimester, but no significant difference was found between the two trimesters.

In a study about the relationship between sleep quality and trimester during pregnancy; 44 women at the first trimester, 47 women at the second trimester and 61 women at the third trimester were included and sleep quality deteriorated according to both PSQI and Berlin Questionnaire but this deterioration was not statistically significant. The rate of pregnant women with poor sleep quality in the third trimester was 43.5%, the group with high OSAS risk was 46.2%, and in our study the rate of pregnant women with poor sleep quality in the third trimester was 41.9% and the group with high OSAS risk was 29% (24).

In the last trimester, the number of patients whose PSQI score was 5 and above was 13 (41.9%), and the number of patients whose PSQI score was 5 or more in the first trimester was 6 (19.4%). Sleep quality was impaired in pregnant women in the last trimester more than 8th week but this was not statistically significant. In a study conducted in the last trimester of 200 pregnant women, the number of patients whose PSQI score was 5 and above was 174 (72%), which was higher than that of our study (25). In this study, as in ours, the increase in weight during pregnancy

was not associated with poor sleep quality.

In another study, PSQI was applied to 200 pregnant women and 292 healthy controls, sleep quality was found to be significantly impaired in pregnant women compared to healthy controls. In this study, 17 (21.8%) in the first trimester and 52 (34.2%) in the last trimester had poor sleep quality in 200 pregnant women and sleep quality was significantly impaired in the last trimester (26). Although these rates are similar to our study, we did not find statistical significance between trimesters in our study (26). In another study performed with 198 pregnant women, 54% of pregnant women had poor sleep quality and sleep quality deteriorated as the gestational week increased (27).

In a study, 209 pregnant women were closely observed for 9 months, and those with poor sleep quality on the PSQI and those with high OSAS risk in the Berlin Questionnaire were not associated with low birth weight (28). In another study Sleep quality of 88 participants was examined with PSQI. Poor sleep negatively influenced gestational weight gain and Apgar score (14). In our study, birth weight of those with poor sleep quality was not statistically different from women with good sleep quality.

We did not find a significant difference regarding FEV1, FVC, FEF25-75 values between the 8th week and last trimester measurements. There was a statistical difference between the two periods in terms of FEV1/FVC, however in both periods they were within normal limits. Gridheim et al. found that FVC was increased after 14 weeks, FVC1% was always within normal limits in pregnancy (29).

The low number of patients in our study is a limitation of the study. In addition, our group of patients were young, and we lacked enough obese patients for the study. With our study being a retrospective one, the lack of polysomnography, which is the gold standard for these patients, was also a deficiency.

CONCLUSION

CONCLUSION

As a result, in our study, nearly half of the pregnant women (41.9%) had impaired sleep quality in the last trimester according to the PSQI, but birth weight was not affected in pregnant women with poor sleep quality.

Sleep quality and the presence of OSAS in pregnancy and its relationship with pregnancy and postpartum complications are not clear. More extensive pregnancy studies especially involving complicated pregnancies in the presence of OSAS should be performed.

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