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Investigation of effects of sleep disorder in infertile couples

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Abstract

Objectives: Inability to conceive after one year of unprotected sex is defined as infertility which affects near 20% of couple. The incidence of infertility has increased recently due to probable factors such as life stressors and increased child-bearing age. Some studies have done to show relationship between sleep and reproduction but most of them are focused on shift works. So, we designed this study to evaluate depression and sleep quality in women referred to infertility clinic of a tertiary hospital.
Material and methods: This cross sectional study conducted in Womens' hospital between August 2016 and July 2017. Inclusion criteria were: age more than 18 and less than 40, candidates for IVF and no underlying diseases such as kidney disease, coronary disease, PCO (poly cystic ovarian syndrome).Seventy four healthy women who were age matched were enrolled too.
Results: Fifty individuals (52%) in case group and 35 (47.2%) in control group were poor sleepers (p=0.4).Correlation coefficient between PSQI and BDI in case group was r=0.5, p<0.001 and in control group was r=0.49, p<0.001.There was no significant correlation between BDI and duration of infertility r=0.1, p=0.1.In whole participants, logistic regression analysis by considering poor sleep as dependent and age, BDI and BMI as independent variables, only BDI was an independent predictor.
Conclusion: proper evaluation of women who are going under IVF cycles is necessary as depression and sleep disturbance improvement will be helpful in fertility treatment. depression and sleep quality should be considered in women who are going under IV.

Keywords: sleep, disorder , infertile couples

Introduction

Inability to conceive after one year of unprotected sex is defined as infertility which affects near 20% of couples (1). The incidence of infertility has increased recently due to probable factors such as life stressors and increased child-bearing age(2). Infertility could impair different aspects of affected cases such as mental, physical, social and personal aspects(3, 4).Women of infertile couples are at higher risk of anxiety, depression, sexual dysfunction and other psychological problems(5).Prevalence of psychological problems in these cases range from 25-60%(6).Suicide attempt risk is twice in these women (3, 4, 7).Depression is the most common psychological problem which is more common in primary cases than secondary ones(8).On the other hand, one of the determinations of women's health is sleep which is related to issues such as menstrual cycle, pregnancy, and menopause(9).Although sleep and its impairment are among crucial issues in the field of reproductive health, there are little studies regarding this issue for women. Some studies have done to show relationship between sleep and reproduction but most of them are focused on shift works(10, 11).So, we designed this study to evaluate depression and sleep quality in women referred to infertility clinic of a tertiary hospital.

Materials and Methods

This cross sectional study conducted in Womens' hospital between August 2016 and July 2017.

Inclusion criteria were: age more than 18 and less than 40, candidates for IVF and no underlying diseases such as kidney disease, coronary disease, PCO (poly cystic ovarian syndrome).Seventy four healthy women who were age matched were enrolled too. All cases were asked to fill informed consent forms before study. They also asked to fill valid and reliable Persian versions of BDI (Beck depression inventory) and Beck Depression Inventory (BDI) should have been answered according to the patient's feelings in the last week including 21 questions. Each answer scores from 0-3 to determine how depressed a person is. Individuals with scores between 0 and 9 are not recognized as depressed, scores between 10 and 18 indicate mild to moderate depression, scores between 19 and 29 values indicate individuals with moderate to severe depression, and scores between 30 and 63 correspond to severe depression(12).Pittsburg Sleep Questionnaire (PSQI), a self-administrative instrument, consists of 9 questions generating seven-component scores (sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction). Each component score ranged from 0 to 3 (0, not in the past month; 1, less than once per week; 2, once or twice per week; and 3, three or more times per week). A valid and reliable Persian Version of this test was applied for assessing the quality of sleep in current survey. The total score ranges from 0 to 21 while higher scores indicates poorer sleep quality; A total score ≥ 5 indicates a 'poor' sleeper(13).Data regarding age, partner age, education, and history of abortion were recorded for all. SPSS version 18 (SPSS Inc., Chicago, IL, USA) was used for data analysis. Data was shown in mean ±SD. Independent sample t test and paired sample t test applied for continuous, as well as the Pearson X^2 test with Fisher's exact test used for assessment of categorical variables. Correlation coefficient was applied. Logistic regression analysis by considering poor sleep as dependent was used.

P-value < 0.05 was considered statistically significant

Results

	Case group	Control group	P value
Age	32.4±5.6	33.4±6	0.08
Partner age	35.5±6.2	38.6±6.5	0.002
Previous abortion	25(26%)	16(21.6%)	0.4
Primary infertility Secondary infertility	72(75%) 22(25%)	------	----------
Cause of infertility Male factor Female factor Unknown	 16(16.6%) 42(43.7%) 16(16.6%)	----------	----------
Duration of infertility(year)	5.2±4	----------	----------
BMI (kg/m^2)	25.6±3.5	25.9±3.7	0.8

Mean BDI scores were significantly different between two groups (table 2).

	Case group	Control group	P value
BDI	15.8±10	9.3±7.9	<0.001
Total PSQI	4.7±2.6	4.5±2.5	0.5

Depression	Case group	Control group	P value
Mild	27(28.1%)	24(32%)	<0.001
Moderate	28(29.2%)	2(2.7%)	
Severe	10(10.4%)	2(2.7%)	

Fifty individuals (52%) in case group and 35 (47.2%) in control group were poor sleepers (p=0.4).

Correlation coefficient between PSQI and BDI in case group was r=0.5, p<0.001 and in control group was r=0.49, p<0.001.

There was no significant correlation between BDI and duration of infertility r=0.1, p=0.1.

(14)In whole participants, logistic regression analysis by considering poor sleep as dependent and age, BDI and BMI as independent variables, only BDI was an independent predictor (table 3).

Table 3:Logistic regression analysis by considering poor sleep as dependent and age, BDI and BMI as independent variables

	OR	95%CI	P value
Age	1	0.9-1.1	0.3
BDI	1.09	1.05-1.1	<0.001
BMI	0.9	0.8-1	0.4

In case group, logistic regression analysis by considering poor sleep as dependent and age, BDI and BMI as independent variables, BMI and BDI werean independent predictors (table 4).

Table 4: Logistic regression analysis by considering poor sleep as dependent and age, BDI and BMI as independent variables.

	OR	95%CI	P value
Age	1.1	0.9-1.2	0.06
BDI	1.1	1.04-1.1	0.001
BMI	0.8	0.7-0.9	0.02

Discussion

The result of current study showed that women with infertility had higher BDI score and half of them suffer from poor sleep. The results also showed that BDI score was significantly correlated with PSQI score in both groups. This could show that poor sleep is related with depression in women either with infertility or not. One of the consequences of infertility is psychological problems that between 25-60% of cases(15). In a previous study 74% of infertile women reported mood change (16). Factors such as age and duration of infertility influence depression and anxiety experience of infertile women(14, 17).Previous studies demonstrated that longer duration of infertility and unsuccessful treatment cycles impose psychological problems especially depression (18, 19). But our results showed that there was no significant correlation between BDI and duration of infertility which is consistent with Hunt et al findings(20).In a previous study conducted by Ramezanzadeh et al, 370 women with infertility were evaluated. depression found in 40% which was related with duration of infertility(21).During first three years, infertility is more accomplished by depression, anxiety, maladjustment of marital status and other psychological problems. Factors such as social support, positive personal characteristics and good relationship with the husband are positively affect psychological well being (22).In current study, in infertile group, 28% had mild depression, 29% moderate depression and 10% severe depression while in Jines et al study there rates were as 28%, 7% and 1.2%(23).We should say that in earsern countries such as Iran child bearing is important for women and having a child is an important issue for a woman. In some previous studies, age was related with depression in infertile women while in this study such as Beutel et al there was no relationship between age and depression in infertile women(24).The results also show that near 50% of participants (either infertile or not) suffer from poor sleep and mean PSQI score was 4.7 in infertile group and 4.5.Goldstein et al evaluated women undergoing IVF and found that 57% were poor sleepers with mean PSQI score of 6.1 which was higher than our score(25).In another study, Lin et al reported poor sleep in 23% of women during oocyte retrieval and 46% the time of embryo transfer(26) while in Okum et al study poor sleep reported in 19% of healthy women (27).By evaluating 117 women receiving ART, Lin et al reported mean PSQI of 4.9 and poor sleep in 35% of cases(28).

In whole population, BDI was the only predictor of PSQI while in infertile women BDI and BMI both were predictors. In Lin et al study, psychological distress and nausea were predictors of poor sleep(28).One explanation for poor sleep in infertile women is psychological problems such as depression. Infertile women feel nervous when coping with their problem (29). People with psychological distress suffer from less sleep time, increase in the sleep-induced phase and decrease of sleep efficiency.(28, 30, 31).The other explanation could be hormonal changes. Hormonal treatment could cause somatic complaints, psychological distress, and sleep disturbances (32, 33). Hormonal treatment is unavoidable in women undergoing IVF and they have to tolerate drug related adverse effects. On the other had insufficient sleep will result in fatigue, Hypothalamic-pituitary-adrenal (HPA) axis dysregulation (34)and depression. So, proper evaluation of women who are going under IVF cycles is necessary as depression and sleep disturbance improvement will be helpful in fertility treatment.

Conclusion

Depression and sleep quality should be considered in women who are going under IV

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