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Reproductive History and Contraceptive Methods in Women with Multiple Sclerosis

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Abstract

Background: Multiple sclerosis is the most common neurologic immune-mediated disease affecting young adult especially women in reproductive age. There is little information on the pattern of fertility and contraceptive methods used in the patients. This study aims to determine the fertility behavior pattern and the contraceptive method of MS patients under the care of Khuzestan MS Society.

Material and methods: In a cross-sectional analytic method, 150 women, aged 19 to 59, married and suffering from MS who referred to MS society of Khuzestan in 2010 were studied. After preparing the questionnaire, content validity and reliability criteria, data was collected through questionnaires and SPSS was used for data analysis using *t*-test, Chi square and correlations.

Results: The mean age of patients was 34.2± 8.1. The average number of pregnancies and children were 2.3±1.7 and 2.06±1.5, respectively. The total of 66% of patients were using contraceptive methods. ANOVA test showed a significant differences between the mean age of onset of MS and number of pregnancies ($p<0.001$). Stage of disease was significantly associated with age groups and contraceptive methods ($p<0.05$).

Conclusion: The use of hormonal contraception may delay or improve symptoms in patients with MS.

Key words: fertility, contraceptive method, multiple sclerosis.

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Introduction

Multiple sclerosis (MS) is the most common neurological disease affecting the young (1), and mostly young women in their reproductive years (3, 2). Negative effects of the disease on quality of life have been emphasized in various studies (7, 6). Accurate statistics of the prevalence of multiple sclerosis in the world is unknown and there are many statistics based on conjecture. Accordingly, the numbers of patients are estimated to be 5.2 million people (8, 2). In Iran, it is estimated to be 57 per 1000 people (9). According to a report by Iranian MS Society, the number of patients is around 40,000 of which 9,000 cases are officially registered (7). The most common age disease, among women is between 40-20, and they are twice to 3 times more than in men, this in some countries is even 4 times (9, 5). Various studies on MS have stressed the significance of gender.

Therefore, the disease mostly affects young women than men. This may be due to sex chromosome, steroid hormones on the immune system, BBB (blood-brain barrier) and parenchyma cells of the central nervous system (3, 5). Fertility age in women is the most affected age of MS, and therefore, fertility behavior, pregnancy and the disease process are of considerable significance among such patients (3, 2). A major concern is that MS pregnant women, often suffer from reduced activity against autoimmune system against other diseases (11).

Studies have shown different results on the correlation of pregnancy and multiple sclerosis.

Since concerns have existed on the disease process in pregnancy and drug side effects, it was very common to avoid pregnancy and attempt abortion especially before 1970 (12), however, recent studies have shown that these patients do not show any incidence of significant effects during pregnancy or at childbirth, compared to the healthy women (13).

During pregnancy especially the third trimester undergoes a significant reduction of attack diseases (15, 14).

The process of diseases escalates during the pregnancy, especially during the last months, and this provides a field of new clinical studies aiming to determine effect of sex hormones treatment on MS.

Results of clinical studies and experiments show that using steroids medications may be effective in treating MS (5).

During the last three to six months postpartum increases risk of attacks (16, 13). This increase causes a reduction in hormone levels (2). On the other hand, several studies on fetal effects of medications taken by MS patients have stressed the significance of pregnancy in the disease (18, 17). The use of hormonal methods of contraception in patients has faced of arguments and objections (20, 19).

There is little information on the pattern of fertility and its related factors, as well as the contraceptive methods used for women with MS.

This study aims to determine the fertility behavior pattern and the contraceptive method of MS patients under the care of Khuzestan MS Society, and to better plan for family services and other health related services to the patients. A similar study has never been done in Iran.

Material and methods

In this cross-sectional analytic study, 150 women, aged 19 to 59, married and suffering from MS who referred to MS society of Khuzestan were examined from September 2010 to March 2011. The total number of female patients (married and unmarried) under the care of Khuzestan MS Society is 365.

In the present study, a sample of the married women who referred to the Centre or Clinic Physiotherapy Association during the period of sampling from October to March were selected, and the importance and nature of the study were described to them, and they were assured

of confidentiality, and after giving informed consent, they were enrolled to the study. Of the samples, 150 were married. Questionnaires were used to collect data. The validity of questionnaires to qualitative method was examined the use of valid scientific resources, comments professor of statistics, neurology, midwifery and interviews with 10 married with MS. The reliability was evaluated through Cronbach's alpha (0.81). Variables were included demographic characteristics (age, education level, ethnicity, family history of MS, history of respiratory disease, age disease, age at diagnosis, stage disease, early symptoms of the disease) and information related to reproductive behavior (number of birth, parity, number of abortions, number of children born alive; method of planning in the family, disease changes during pregnancy and after that, condition from marriage to the first birth, the interval between last two pregnancies). SPSS was used for data analysis using *t*-Test, Chi square and correlations.

Results

The mean age of the patients was 34.2±8.1, 10% of the female participants were between 19 to 24 years, 26.7% between 25 to 30, and 63.3% were aged 30 and over.

Around 30% of the patients had not obtained a diploma, 38.7% had diploma, and 31.3% were university graduates. Of the participants, 46% were from ethnic Persians, 28% were Lor and 26% Arab speakers. Disease-related characteristics are presented in Table 1.

Of the patients 10% were less than 25 years of age, 80% between 25 and 44 and 10% were 45 years above. The rate of onset in women less than 25 years was 32%, in women 25 to 29 it was 24.7%, in women 30 to 34 it was 20%, and in women aged 35 and above it was reported to be 23.3%.

The mean age of patients at risk for the disease was 28.4±7.4. The mean age at diagnosis of patients by doctor was 29.8±7.4 and 14% of the patients had other diseases.

Around, 80% of the patients were in relapsing-remitting stage, 6% in relapsing secondary stage, and 10% were in progressive relapsing remaining stage.

Approximately 90% of patients were under 25 years of age at diagnosis in relapsing-remitting stage and disease diagnosis for those in their 40s and above was 66.7%. The highest incidence of disease was in this age group (33.3%).

Around 12.8% of the patients had movement disorders, 50.3% suffered from sensory disorders, 52.9% had visual disturbances, 12.9% had balance disorders, 4.9% suffered from weakness and fatigue, 4.9% had pain, 1.4% had urinary problems and 0.7% had digestive problems as their first symptoms were noticed. The characteristic related to fertility of women are shown in Table 2. Mean age at marriage was 9.3 ± 2.20.

The mean interval between marriage and the first birth was 12.7± 10.9 months. The mean parity of the patients was 2.3± 1.7. Mean number of children born alive was 1.5 ± 2.06, respectively, and 99.2% of the patients who had MS in pregnancy period, had stopped taking medications. Around 52% of the patients were reported to have menstrual disorders. The disorders were reported in 50% of the cases to be menstrual irregularity, in 32% the increase in monthly bleeding, in 26.9% decreased bleeding. Among women who were currently using a contraceptive method, 66.7% of the relapsing-remitting the disease. At this stage 33.3% were women who were not using any method of prevention. Literacy level of women was significantly associated with stage of disease (p=0.001). In patients with a diploma or higher education (90.5%) disease was diagnosed in the relapsing-remitting stage. This Stage of disease was at diagnosis among women with less than a diploma (86.9%) (p=0.004). Around 66% of the patients were currently

using a method of contraception, and 16.2% hormonal methods (oral combination pills, injections and pills breast), 18.1% of the surgical methods (tubectomy and vasectomy), 11.1% the IUD, 54.6% less reliable methods (condoms and vaginal) had used a contraceptive method (Table 3). Chi square test showed that significant relationship between the disease before marriage and number of parity, contraceptive use, age at marriage and level of education ($P<0.01$). The disease stage with age, parity, ethnicity, patients' family history did not show any significant relationship. The disease stage was significantly associated with age groups and type of contraceptive methods ($p<0.05$).

Pearson statistical exam showed a significant correlation between age of disease onset and the number of pregnancies ($r=0.4$) and the age of patients ($r=0.83$). Women who had used oral contraception were in secondary relapse or progressive stage (7.1%). Among women who had used other methods, advanced stages of the disease were reported (16.5%) but no significant relationship was observed. In relapsing and progressive stage, the highest prevalence of disease was seen in women who had used contraceptive tubectomy method (46.7%) ($p=0.003$). In 88.8% of the patients who had reported symptoms of pregnancy loss, postpartum illness was reported to be ascending. Around 92.3% of the patients had an unchanged progression of their disease during the pregnancy, and after childbirth, symptoms reported to be ascending. ANOVA showed a significant difference between the mean age of disease onset and the number of pregnancies ($p<0.001$). With the increasing number of pregnancies, the mean age of disease onset in women who had no history of pregnancy was 2 2.2±3.9, and in women with a history of five or more pregnancies it reached 38.4±5.6. In this study, the interval between the last two pregnancies in women with MS was as follows: of the total patients in 51 (34%) the interval between the two pregnancies was zero, this included women with one birth, 34 (22.7%) did not experience pregnancy. In 17 (11.3%) the interval was less than 12 months, and in 23 (15.3%) the interval was between 12 to 24 months, in 28 of them (18.7%) it was between 25 to 36 months, and in 48 (32%) the interval between the last two pregnancies was reported to be 37 months and above.

Table1. Characteristics related to disease in women with MS under the care of Khuzestan MS Society

Variable	Frequency	Percent
Treatment period (month)		
<12 months	36	24
12-23 months	17	11.3
24-35 months	12	8
≥36 months	85	56.7
Disease process before pregnancy		
Up	27	18
Down	0	0
Unchanged	20	13.3
Disease history in pregnancy		
yes	40	29.6
No	95	74.4
Disease process in pregnancy		
Up	0	0
Down	26	65
Unchanged	14	35
Disease process Postpartum		
Up	74	62.7
Down	0	0
Unchanged	44	37.3
disease onset Postpartum		
Yes	92	69.7
No	42	33.3

Table 2. Characteristics related to fertility in women with MS under the care of Khuzestan MS Society

Variable	Frequency	Percent
Age of marriage		
<18 years	35	23.5
18-24 years	91	61.1
25-29 years	20	13.4
≥30years	3	2
Number of pregnancies		
0	17	11.3
1	34	22.7
2	36	24
3-5	54	35.3
≥6	10	6.8
Abortion history		
yes Number of abortions: 1 abortion 2 abortions 3 abortions	32 23 6 3	21.3 15.3 4 2
No	118	78.7
Number of alive-born children & number of present children		
0	20 & (20)	13.3 & (13.3)
1	39 & (39)	26 & (26)
2	42 & (42)	28 & (28)
3-5	45 & (46)	30 & (30.7)
≥6	4 & (3)	2.7 & (2)
The use of family planning methods		
yes	99	66
No	51	34
Number of childbirth		
0	20	13.3
1 childbirth	39	26
2 childbirths	42	28
3 childbirth	29	19.3
4 childbirth	10	6.7
≥5	10	6.7

Table 3. Contraceptive method used by women with MS who had used a family planning method

Variable	Frequency	Percent
OCP	14	14.1
Minipills	1	1
Hormonal injections	1	1
Condom	28	28.3
Tubectomy (TL)	14	14.1
Vasectomy (VAS)	4	4
Coitus interruptus	26	26.3
IUD	11	1.1

Discussion

Since the most common age of multiple sclerosis onset in women is during their fertility, it is of significant importance to apply proper methods in dealing with such patients in respect to their reproductive behavior, disease process, and pregnancy and prevention of it. The results of this study showed that the mean age at the time of disease was 28.4±7.4 years. Abedini et al. (2008) reported the average age of the disease onset in women to be 26.8±8.3 years (9). In this study, the mean age of marriage, number of pregnancies, number of children, and precedent use of contraceptive methods were consistent with the common pattern in healthy women fertility (21).

Although prevalence of abortion is high in MS patients, the results of similar studies to showed that women with MS had a normal fertility rate and therefore, having multiple sclerosis does not seem to affect fertility in any significant manner and increase in congenital malformation or abortion is insignificant (16, 13). Based on the results of this study, menstrual cycle in more than 50% of the patients was associated with disorder. MS can affect sex hormones levels, reduce the performance of hypothalamic-pituitary-ovarian or hormone metabolism, and affect the menstrual cycle ovarian (23, 22, 5). In the present study, reduction of relapse during pregnancy was reported in women who had experienced pregnancy and also those who with MS during pregnancy. It was found that the disease increased in women with a lower relapse pregnancy in the postpartum period. Confavreux C et al. (1998) studied 227 women and they were followed up from a year before pregnancy to two years after childbirth. The study showed that relapse rates during the few first months of pregnancy are unlikely to occur, and the last trimester can significantly be disconnecting. It was also stated that in the first months after childbirth, the relapse rate is 1.5 more than that before pregnancy (13). Durufle et al. (2006) reported high risk of relapse at trimester postpartum (24). In the present study, almost all the women who had the disease during pregnancy, had discontinued taking medications. Not using medications in pregnancy indicates that MS had no negative impact on pregnancy and childbirth and that the disease process is often not progressive in pregnancy period, despite discontinuation of the medications use. However, this can raise concerns over drug complications. Achiron et al. (2004) showed that the use of Natalizumab is contraindicated in pregnant women and Mitoxantrone is not advised during pregnancy due to a weakened immune system (17). Also consumption of Methotrexate and Cyclophosphamid is not recommended, due to teratogenic effects during pregnancy. Park-Wyllie et al. (2000)

reported an increased risk of cleft palate with Prednisone consumption in the first trimester of pregnancy (18). In this study, 14.1% of the patients had used combined oral pills as contraceptive methods. A study on the contraceptive methods in women with MS showed that compared to the general population, they used lower oral contraceptive pills (25). Most of the methods of contraception used by patients were reported to be condoms. Hakim Elahi (1991) reported that among contraceptive methods, Barrier methods may be more useful for disabled patients, especially patients with MS (26). Since various clinical and experimental evidence are emphasized as protective effect of estrogen on the progression of the disease (19, 5), in this study, the effects of parity and oral contraceptive were closely examined in the patients. In this study, the mean age of onset was increased with an increasing parity, but it was not significantly associated with the stage of the disease. Also, the effect of pills on the disease process were examined, and it was revealed that the use of oral contraceptives pills may prevent development of MS or at least delay the onset of it, and probably that estrogen level plays an important role in the incidence of MS in women. The results of Hernan et al.'s study (2000) on patients with MS showed that pregnancy has a protective effect on the prevalence of the disease (19). By reducing symptoms of pregnancy, it takes a protective role, which can lead to the design of a suitable method for the treatment of it through sex hormones. Studies have also shown that the use of estrogen-containing oral contraceptives delays or improves symptoms of MS in patient. This requires more clinical studies to make sure sex hormones can be applied with other new methods to treat the disease. Various studies on the OCP effect on prevalence of the disease indicated that doctors can combine apply oral pills together with other approved methods to treat the disease. Holmqvist et al. (2010) showed that the use of OCP before the onset of symptoms could increase the mean age of the onset (20). Hernán et al. (2000) showed that OCP consumption has no protective role on the disease (19). The results of 2 studies in England revealed that OCP has protective effect on disease progression and reduces the severity of symptoms. However, the results of a prospective study in America showed that OCP does not have any protective effect on the disease (5). Some studies examined to OCP complications in MS patients (10).

More longitudinal studies with larger sample size can better discuss effects as a new method in control of the disease. The limitations of this study included lack of control group, limited sample size, lack of easy to access MS patients, discounting on the details in use of any contraceptive method.

This research was conducted on women with a disabling disease, in generally, and on patients with MS, in particular. Although women fertility treatment with MS is similar to healthful women. The authors deem it is vital to familiarize female MS patients with the issues which come up during pregnancy. In Conclusion According to the results obtained in this study it can be concluded that high levels of hormones during pregnancy, may prevent the development of MS, or at least delay the onset of the disease. Also, women who use OCP may have less risks of MS. Therefore, decisions on contraceptive methods should be made with no regard to the disease.

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