ORIGINAL ARTICLE

Iron Intake and Risk of Ovulatory Infertility

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ABSTRACT

Background: About one third of infertility is due to women. One of the reasons of infertility is deficiency of iron.
Aim: To evaluate the relationship of iron intake with the risk of infertility.
Methods: Study was conducted among 50 married, premenopausal women with history of infertility and history of no iron supplement since 10 years. 30 age matched fertile women with history of taking iron as supplement in their life time were taken as controls.
Results: Results: it is observed that mean age of infertile women was near to 30 years. These women were married 10 years before. Their BMI was 21 kg/m^2. 20 women belong to poor class and 30 women belong to middle class. Financial body was father in case of 20 women and 30 women's financial body was husband. Ultra sound report of all women was normal.
Conclusion: Iron supplements may play a role in decreasing the risk of infertility.
Keywords: Infertility, Iron intake, socioeconomic status

INTRODUCTION

Infertility affects 10-12 % of couples. About one third of infertility is due to women. One of the reason of infertility is deficiency of iron. According to a survey women who use iron supplements have,40% decrease risk of ovulatory infertility compare to those who don't use iron supplements i.e. proper iron intake decrease the risk of infertility[1].

Women who do not use adequate iron may suffer lack of ovulation with deprived egg health, which may decrease the rate of pregnancy of about 60%or more compared to women with adequate intake of iron[2].

Iron is an important part of hemoglobin, myoglobin, collagen and of number of enzymes. It helps to keep immune system healthy[3]. Decreased iron content may increase the risk of infections. Moreover, lack of iron, even without anemia, may cause tiredness and reduced working ability[4].

Iron deficiency is multi factorial and it is usually due to excess loss of iron or due to mal absorption. The main source of iron from diet may be affected due to other dietary components[4,5].

Blood loss during menstruation also has a negative iron balance in the age of child bearing[6]. Therefore, these women are at risk of infertility and need extra iron[7].In child bearing age the need of iron increases, as iron is needed to support red blood cells and the placenta. About 1.0 liter of blood is present in the uterus and spaces of the placenta.

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About 50-55% of infertility cases are due to different factors. One of these factors are trace elements including iron, selenium and zinc in the ovarian tissue which seems to be localized to specific structures i.e., surrounding the antrum of big follicles[10].Many women need more because they start their pregnancy with insufficient stores of iron it is obvious that for increase blood volume there is an increase need of iron and folic acd[11].

Infertility has been a increasing problem for years and may be due to number of factors especially in women and are not using any advice. Dietary trace mineral deficiency, stress, socioeconomic status may play a role in increasing the risk of infertility. Study was therefore designed to find out the relationship of iron intake with infertility.

MATERIAL AND METHODS

Study was conducted among 50 married, premenopausal women with history of infertility and history of no iron supplement since 10 years. Women who are married from 10 years were included in the study. Infertile women was taken from THQ Hospital, Sharaqpur. 30 age matched fertile women with history of taking iron as supplement in their life time were taken as controls. Detail history of subjects was entered in proforma. of consent was taken from each women. Study was approved by local ethical committee.

Statistical Analysis: Data was entered in SPSS 18.0. Qualitative variables were expressed as frequency and quantitative variables were expressed as mean±SD. P value less than 0.5 is taken as significant.

Table: Demographic characteristics of infertile women

Variable	Infertile women (50)	Fertile women (30)
Mean age (yrs)	29.69±6.2	30.45±8.2
BMI (kg/m^2)	21.45±4.4	25.1±4.2
Age at marriage (yrs)	19.19±3.5	21.19±5.5
Socioeconomic status	20 Poor class 30 Middle class	30 middle class
Financial body	20 father 30 husbands	10 father 20 husbands
Ultra sound report	Normal	Normal

Results: it is observed that mean age of infertile women was near to 30 years. These women were married 10 years before. Their BMI was 21 kg/m^2. 20 women belongs to poor class and 30 women belongs to middle class. Financial supporting body was father in case of 20 women and 30 women's financial body was husband. Ultra sound report of all women was normal. In case of controls or fertile women the BMI was 25 kg/m^2. Age at marriage was 21 year. Financial supporting body was father in case of 10 women and 20 women's financial body was husband. Ultra sound report of all women was normal.

DISCUSSION

According to our study mean age of infertile women was near to 30 years. These women were married 10 years before. It is reported that fertility starts to decrease in the age of mid-30s, and rapidly turn downs after late 30s.The reason may be that with increase age the production of eggs from ovaries was reduced and also poor quality of eggs is produced[12].

We observed that mean BMI of infertile women was 21 kg/m^2. It is suggested that these women are also have health dilemmas that may impede fertility. study also reported that estrogen is synthesized in ovary by fat cells and hormonal imbalance and increase or decrease body weight may contribute to infertility[13].

We found that 20 women belong to poor class and 30 women belongs to middle class. Their financial supporting body in some cases is father not companion. It is demonstrated that low socio-economic status is directly link with poor nutrition especially in the developing countries[14].

It is demonstrated women on low calorie diets are at risk, especially with irregular periods. Study observed that < 10-15% of body fat may completely stop the process of reproduction. As poor families use cheap diet have no proper minerals (iron, folic acid and vitamin) their women may have reproductive problems[15]. Combination of low-risk lifestyle features, including body weight, diet, and physical activity was related with a 60-69% decrease risk of ovulatory disarray infertility[16].

Besides these factor, environmental dangers like pesticides, herbicides and industrial pollutant usually present in rural areas have also a role in interfering with infertility, because these compounds disrupt the reproductive and other hormone[11] We are also agreed with a study who reported that stress may interfere with the process of fertility[13].

A study carried out on a group of women with average age of 32 years, with history of infertility due to ovulation dilemmas. Study observed that women who used iron as supplements were about 35- 40% more likely to have the ability to fertile compared to the women who did not use iron[2]. Another study reported that the level of iron were very inadequate in among infertile women[17]. Another study reported that supplementation of folic acid and other micronutrients including vitamins and calcium may have a positive impact on infertility[18]. However the effect of these supplements on infertility is still conflicting[19].

Conclusion: it is concluded that adequate iron intake is crucial for women with child bearing age which is not possible in developing countries. There is a need to educate the families for iron and mineral supplementation and healthy diet before conception. There is also a need of pre-marital counseling.

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