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Selected Risk Factors of Primary Infertility among Young Women at Jorhat City: A Case Control Study

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ABSTRACT

Infertility implies apparent failure of a couple to conceive. It is a global phenomenon that affects between 60 million and 168 million people worldwide. It affects 13% to 15% of couples worldwide. Primary infertility is the inability to conceive after 1 year of unprotected sexual intercourse with no previous conceptions. It is observed that 80% of couples conceive within a year. Aim of this study was to assess risk factors of primary infertility among women.

Methods: A non probability (purposive sample) of 60 infertile women as case group who were selected from fertility centre, and 60 healthy women as control group those who visit primary health care centre, both infertile and healthy women are involved in the sample of study. The data was collected by using pre-structured questionnaire. The data included socio demographic data, medical and surgical history and reproductive history. Data was analyzed to find out risk factors and its association using odds ratio, chi-square.

Results: The factors include age, BMI, recent weight gain, thyroid, history of previous surgery, duration of menstrual cycle, irregularity of menstrual cycle.

Conclusion: Early screening and diagnosis of menstrual disorders and disease like thyroid disorder, uterine abnormalities, ovarian dysfunctions and correcting them by appropriate treatment.

Key words: *Infertility, Risk factors, Women, Jorhat.*

INTRODUCTION

Reproduction is one of the most important biological functions of all life forms. For most couples having children feels like a primal need and inability is considered as devastating. Infertility is generally defined as the inability of a couple to conceive even after two or more years of unprotected sexual intercourse.

Infertility plays a huge psychological burden on the infertile couples, especially on the woman, and it may lead to depression, suicidal tendencies and other pathologic psychological conditions. Primary infertility defines as the couples who have not become pregnant after at least 1 year having sex without using any contraceptive methods.

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Secondary infertility refers to couples who have been able to get pregnant at least once and now unable to conceive.

Infertility is a global health issue that affects approximately 60 million to 168 million people and 13% to 15% of couples worldwide. There are exists a core group of couples, approximately 3 to 5 percent, who are infertile due to unknown or unpreventable conditions. Infertility rates vary amongst countries from less than 5% to more than 30%. According to WHO, Most of the people who suffer from infertility those are belonging to developing countries. In general infertility is a global health issue that is growing at an alarming pace. It is not only recognized for female problem. Actually infertility is broad term which refers to a range of disorders some of which affect the male, and some of the female and contribute to childlessness in a couple.

The risk factors for infertility include smoking, obesity, alcohol consumption, advanced maternal age, sexually transmitted infection and many others. A global survey of almost 17,500 women from 10 countries revealed that knowledge regarding fertility biology of reproduction was poor. Many women are verbally or physically abused in their own homes, deprived of their inheritance, sent back to their parents home, looked down upon by society, or even have their marriage dissolved or terminated if they are unable to conceive. Increasing the level of knowledge of these factors may help to decrease the incidence of infertility by allowing couples to avoid certain risk factors that might lead to it. According to WHO the prevalence of primary infertility has been estimated to be between 3.9% to 16.8% among married couples. Moreover the prevalence of primary infertility has also be shown to vary across tribes and castes within the same region in India. Indian women especially who live in north eastern India are still sticking to their old traditional and ancient pattern of life. Faith and traditional healers were the first option for the treatment of infertility among illiterate and rural women. However in Assam no previous studies have been conducted related to infertility. So the current study is selected the risk factors regards infertility in women at Jorhat city. Intervention of these risk factors will bring down the incidence of infertility. There are many causes of female infertility some of which are solved by medically.

MATERIAL AND METHODS

Study design:-

Case control study

Study settings:-

Fertility centre, primary health care centre, Jorhat

Study subjects:-

Cases: Sixty women who have not conceived after one year of cohabitation, seeking treatment at fertility centre where considering only primary infertility

Controls: Sixty women who have conceived within one year of cohabitation considered from outpatient clinics.

Samples: 60 cases and 60 controls were taken. All new cases of primary infertility attending fertility centre were taken as cases and outpatient clinics were taken as controls.

Data collection: Data was collected by direct interview method using a semi structured questionnaire.

Statistical analysis: Data was entered and analyzed to find out risk factors and its association using odds ratio, chi-square test with 5% level of significance.

RESULTS

Table 1: Case control study of age and infertility

Age	Disease status		
	Case	Control	Total
>30	40(33.33%)	18(15%)	58(48.33%)
<30	20(16.67%)	42(35%)	62(51.67%)
Total	60	60	120

P value: .000 Odds ratio: 4.667

From the study, it was found that age has significantly affect with female infertility and female with age greater than 30 who have 4.667 times higher risk of infertility than others.

Table 2: Case control study of educational status and infertility

Educational status	Disease status		
	Case	Control	Total
Lower than HS	16(13.33%)	13(10.83%)	29(24.17%)
Higher than HS	44(36.67%)	47(39.17%)	91(75.83%)
Total	60	60	120

P value: .522

From the study educational status is not affected on female infertility.

Table3: Case control study of duration of menstrual cycle and infertility

Duration of menstrual cycle	Disease status		
	Case	Control	Total
>35 days	18(15%)	9(7.5%)	27(22.5%)
<35 days	42(35%)	51(42.5%)	93(77.5%)
Total	60	60	120

P value: .049 Odds ratio: 2.429

From the table, Duration of menstrual cycle is significantly associated with infertility and women with duration of menstrual cycle greater than 35 days have 2.429 times higher risk of becoming infertile than others.

Table 4: Case control study of age of menarche and infertility

Age of menarche	Disease status		
	Case	Control	Total
>15 days	4(3.33%)	2(1.67%)	6(5%)
<15 days	56(46.67%)	58(48.33%)	114(95%)
Total	60	60	120

P value: .402

From the above table, it was found that there is no significant relation between age of menarche and female infertility.

Table5: Case control study of Irregularity of menstrual cycles and infertility

Irregularity of menstrual cycles	Disease status		
	Case	Control	Total
Irregular	42(35%)	15(12.5%)	57(47.5%)
Regular	18(15%)	45(37.5%)	63(52.5%)
Total	60	60	120

P value: .000 Odds ratio: 7

From the study, Irregularity of menstrual cycles is a significant risk factor associated with female infertility. Women with irregular menstrual cycle have 7 times higher risk than regular menstrual cycle.

Table 6: Case control study of no. of menstrual flow days and infertility

No. of menstrual flow days	Disease status		
	Case	Control	Total
<3 days	10(8.33%)	6(5%)	16(13.33%)
>3 days	50(41.67%)	54(45%)	104(86.67%)
Total	60	60	120

P value: .283

From the study, it was found that the relationship between no. of menstrual flow days and infertility is insignificant.

Table 7: Case control study of recent weight gain and infertility

Recent weight gain	Disease status		
	Case	Control	Total
Yes	16(13.33%)	3(2.5%)	19(15.83%)
No	44(36.67%)	57(47.5%)	101(84.17%)
Total	60	60	120

P value: .001 Odds ratio: 6.909

From the study, it was found that Recent weight gain is a significant risk factor in female infertility and who are continuously gaining the weight they have 6.909 times higher risk in infertility than others.

Table 8: Case control study of duration of cohabitation and infertility

Duration of cohabitation	Disease status		
	Case	Control	Total
>3 years	24(20%)	21(17.5%)	45(37.5%)
1-3 years	36(30%)	39(32.5%)	75(62.5%)
Total	60	60	120

P value: .572

From the study, the result we have got there is no significant association between Duration of cohabitation and female infertility.

Table 9: Case control study of knowledge of fertile period and infertility

knowledge of fertile period	Disease status		
	Case	Control	Total
No	18(15%)	13(10.83%)	31(25.83%)
Yes	42(35%)	47(39.17%)	89(74.17%)
Total	60	60	120

P value: .297

From the above table, the result was found that knowledge of fertile period and female infertility is not significant.

Table 10: Case control study of BMI and infertility

BMI(kg/m^2)	Disease status		
	Case	Control	Total
>25	44(36.67%)	11(9.17%)	55(45.83%)
<25	16(13.33%)	49(40.83%)	65(54.17%)
Total	60	60	120

P value: .000 Odds ratio: 12.25

From the study, the result was found that the factor BMI is significantly associated with female infertility and who have greater than 25 BMI they are more prone in infertility than others.

Table 11: Case control study of History of previous surgery and infertility

History of previous surgery	Disease status		
	Case	Control	Total
Yes	34(28.33%)	7(5.83%)	41(34.17%)
No	26(21.67%)	53(44.17%)	79(65.83%)
Total	60	60	120

P value: .000 Odds ratio: 9.901

From the study, it was found that the association between history of previous surgery and infertility is significant. Female with history of previous surgery have 9.901 times higher than who have no history on previous surgery.

Table 12: Case control study of thyroid disorders and infertility

Thyroid disorders	Disease status		
	Case	Control	Total
Yes	38(31.67%)	4(3.33%)	42(35%)
No	22(18.33%)	56(46.67%)	78(65%)
Total	60	60	120

P value: .000 Odds ratio: 24.182

The proportion of women who are known patient of thyroid disorders are more among cases (31.67%) than among controls (3.33%)
From the study, it was found that thyroid disorders form significant risk factors contributing to female infertility and women with thyroid disorders have 24.182 times higher risk for becoming infertile than others.

DISCUSSION

The present study showed that age was a significant predictor for primary infertility. This result was relevant with two studies which are done in USA and in Denmark. As there is another risk factors proved in our study to be significant such as duration of menstrual cycle, irregularities of menstrual cycle, recent weight gain, BMI, history of previous surgery and thyroid disorders. There is a high association between risk factors and primary infertility except the factor duration of menstrual cycle. As we have got irregularities of menstrual cycle is highly associated with primary infertility and this is proved by one study respectively. Giwercman *et al.*[8] found that many abnormal cycles may be associated with infertility and this association was significant. In this study, there was a significant association between history of previous surgery and occurrence of primary infertility. In support of our findings, Regan *et al.*[14] reported that of previous surgery related with gynecological diseases causes a 5 fold increase in risk of infertility. Mc Donald *et al.*[11] and Franks found that women with gynecological disorders were concomitant with increased risk of primary infertility and menstrual irregularities.

As we have already mentioned that the significant predictor factors includes in this study are age, duration of menstrual cycle, irregularities of menstrual cycle, recent weight gain, BMI, history of previous surgery, thyroid disorders. Giwercman *et al.*[8] reported that significant risk factors for infertility among primary infertile females were: family history of infertility, women's age and history of previous operations. While Regan *et al.* found that the only risk factors of infertility in their subjects were history of previous surgical operations and women's age. Valdes *et al.* suggested that the risk factors of infertility

among primary infertile females were age of menarche, women's age and history of previous surgical operations.

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