

AETIOLOGICAL FACTORS OF INFERTILITY: A STUDY DONE IN BANGABANDHU SHEKH MUJIB MEDICAL UNIVERSITY (BSMMU) HOSPITAL - A TERTIARY LEVEL HOSPITAL IN BANGLADESH

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Abstract:

Background: Infertility is defined as the failure in pregnancy after one year of unprotected intercourse. Several centers have reported different causes of infertility. The aim of the present study was to find out the aetiological factors of infertility in Bangabandhu Sheikh Mujib Medical University (BSMMU) Hospital, which is a tertiary level hospital in Bangladesh.

Methods: This cross sectional study was done at the Out Patient Department of infertility in BSMMU Hospital between December 2004 and March 2005 based on a semi-structured questionnaire. One hundred infertile couple with necessary investigations were taken for the study.

Result: In this study, primary and secondary infertility were found in 56% and 44% patients respectively. Among 100 couples, 57% had female factor, 25% had both male and female factors and in 3% had male factor and in 15% of couple, the causes of infertility were unknown. Among women, there were tubal factor in 33%, ovarian factor in 12% and endometriosis in 11%. In this study, tubal blockage after menstruation regulation (MR) was detected in 50% cases of female secondary subfertility. Result showed 82% of men had normal spermogram, and 28%, had sperm disturbance including oligospermia, asthenospermia, oligoasthenospermia and teratospermia.

Conclusion: Although female factor was the most common cause of infertility in BSMMU, we cannot conclude it as final. We suggest more similar researches with larger sample size in different institutions to evaluate most common causes of infertility in Bangladesh.

Key words: Infertility, subfertility, aetiological factors, unexplained factors.

J Dhaka Med Coll. 2012; 21(2) : 152-155.

Introduction:

Infertility is defined as the inability of a couple to achieve conception after one year of unprotected coitus. It affects one in seven couples¹. The levels and patterns of infertility apparently vary widely and also are different in developed countries compared to those in developing region of the world². Cultural, socioeconomic, health care practices and policies and environmental factors play a major role in the prevalence and etiology of infertility³. Also the proportions of causes of

infertility have changed over time⁴. The most cost-effective approach to solving the infertility problem is prevention and education. Further research in both developed and developing countries is needed to understand the high prevalence and causes of infertility⁵. There are only a few reports on this topic in Bangladesh^{6,7}. Therefore, determination of the clinical patterns and a review of the major causes of infertility in BSMMU, Bangladesh was the main objective of this study.

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Methods:

This cross-sectional study was done at Out Patient Department (OPD) of Infertility at Bangabandhu Sheikh Mujib Medical University (BSMMU) Hospital, between December 2004 and March 2005. 100 Couple with more than one year of sub-fertility were reviewed through a semi-structured questionnaire, where necessary investigations were done to detect aetiological factors. Infertile woman above 45 years of age and couples without necessary investigations were excluded from the study.

A questionnaire was designed encompassing all clinical information. It also included investigations done to detect causes of infertility. Data were collected from the review of 100 infertile couples attending the out patient department (OPD) of infertility of Bangabandhu Sheik Mujib Medical University (BSMMU). Detailed history was taken; complete Physical examination and investigation in the female partners were done to confirm etiology responsible for female factor infertility. The specific investigations performed for the female partners included tests for documentation of ovulation (gonadotrophins and steroids assays and ultrasonography), test for tubal patency (hysterosalpinography) and loperoscopy (when indicated e.g tubal diseases, endometriosis etc.). For male, reports of semen analysis were studied to detect male factors of infertility.

All the patients were given a comprehensive explanation and written informed consent was taken. Then collected data were analyzed by using SPSS version 11.0.

Result:

A total of 100 infertile couples were assessed in this study. Of them, 45 (56%) couples had primary infertility and 37 (44%) had secondary infertility. The mean age of the women was 27.73 ± 3.46 (range 18- 40 years) the mean duration of infertility at the time of presentation to infertility unit was 4.3 ± 0.46 years. The BMI of female partner was 23.16 ± 1.08 (rage 20-29 kg/m^2). The number of middle classes were attending in hospital was about 59% with monthly income of mean 5813 ± 895.4 taka per months.

In this study, only female and male factors were responsible in 57% and 3% cases respectively (Table-I). In 25% cases both male and female were responsible as combined factor infertility, remaining 15% were unexplained infertility and Female factors were responsible for sub fertility in 82% cases. Among them 56% were primary sub fertility and 44% were secondary sub fertility (Table-II). The ratio of primary and secondary infertility was 1.2:1. Regarding secondary infertility 18 cases (48.65%) were related to MR out of 37 cases.

Among women, different infertility factor included: Female factors responsible for infertility were in 82% cases (Table-III). The most common cause of female infertility was tubal factor and it was identified in 33 (40%) women by laparoscopy or hysterosalpingography (HSG). Hypothyroidism was the second most common etiologic factors and identified in 20 (24.39%) of infertile women by hormonal assay and clinical manifestation. Endometriosis was diagnosed in 12 (14.46%) cases by laparoscopy as chocolate cyst in 7 cases and obliteration of pouch of doglus in 5 cases. Polycystic ovary syndrome was identified in 11 (13.41%) women by ultrasonography, hormonal assay and clinical manifestation. Hyper prolactinemia was detected as the sole cause of infertility in 4 (4.88%) cases. Uterine factor was recognized in 2 women. One woman was with fibroid uterus and another with Asherman's syndrome.

Results of semen analysis showed that 72% of men had normal spermogram. No couple had azospermia, and 28% had sperm disturbance such as oligospermia, asthenospermia, oligoastheno -spermia and teratospermia (Table-IV).

Table-I
Types of infertility (n=100)

Type of Infertility	Number of Patients	Percentage
Male	3	3%
Female	57	57%
Combined	25	25%
Unexplained	15	15%

Table-II
Incidence of infertility (n= 100)

Type of Infertility	Number of patients	Percentage
Primary	45	56%
Secondary	37	44%

Table-III
Female Causes of infertility (n=82)

Cause of Infertility	No. of Patients	Percentage
Tubal	33	40.24%
Hypothyroid	20	24.39%
Endometriosis	12	14.46%
PCO	11	13.41%
Hyper Prolactinemia	4	4.88%
Uterus	2	2.44%

Table-IV
Semen Analysis (n=100)

Parameters	Number of Patients	Percentage
Sperm count (million/ml)		
a. No sperm	0	0%
b.<20	9	9%
c.>20 and above	91	91%
Sperm morphology		
a. <30% normal	16	16%
b.>50%	84	84%
a. non motile	3	3%
b.<30% motile	16	16%
c. >30%	81	81%

Discussion:

In this study, a relatively high frequency of primary infertility (56%) was observed. While secondary infertility was determined in 44% of couples. These findings are comparable with that of Shayela and Banu's study which was done in the same institute in 1989 and 1993 respectively^{6,7}. The most comprehensive study of infertility – a WHO study of 5800 infertile couples seeking help at 33 medical centers in 22 developed and developing countries- found

that most infertile couples around the world suffer from primary infertility⁸. Sub-Saharan Africa is an exception, where most couples (52%) suffered from secondary infertility⁸. The mean age of female partners were 27.73 ±3.46 years which are almost similar to some other reports^{9,10} from different countries.

In our study, 66% couple reported with in 5 years of marriage. Among them only 20% reported with in 2 years of infertility. Mean duration of infertility at the time of presentation in the infertility unit 4.3±4.6 years (range 2-10 years). Study of infertility by Malekshah showed that the duration of infertility was longer (5.7±4 years)¹¹. Infertile couples do not usually present in time to the infertility clinics due to inadequate general knowledge regarding infertility and about the presence of special centers in the country. Early attendance of infertile couple in their young age with lower duration of sub-fertility in infertility unit will be helpful for early assessment. They could be able to take best available method of treatment in their most fertile period.

The causes of infertility can be divided into four major categories: the female factor, the male factor, combined factors and unexplained infertility. Female and male factors were responsible in 57% and 3% cases respectively. In 25% cases both male and female were responsible as combined factor infertility; remaining 15% were unexplained infertility. Study of infertility by Malekshah showed in his study male factor consists 38.9% of infertility, female factor occurred in 34.7% of the infertile couples, in 14.6% of the couples both partners were involved and in 11.8% of couples no cause could be ascertained (11). Female factors responsible for sub fertility were in 82% cases (Table 3). 33 cases (40%) were due to tubal factors. Endometriosis and poly cystic ovarian syndrome (PCO's) were 12 (14.63%) and 11 (13.41%) cases respectively. In a field study in central part of Iran (Yazd province), Aflatoonian et al. (2009) reported female factor as the main cause of infertility (57.7%) (12). In my study 33% cases were due to tubal factor whereas in Africa the incidence of tubal factors infertility is very high at 85% (13). Tubal occlusion is

more prevalent in African countries because frequency of poorly treated STD is high (14-15). A survey of infertility in Royan Institute by Kamali showed that most common cause of female infertility were ovarian factors (20.36%) (10) and tubal factor infertility was 12.64%, was mainly due to secondary Tuberculosis (TB). Though TB is highly prevalent in Bangladesh only 3% infertile couple gave a past history of TB.

In this study, male factors were responsible in 28 cases (Table 4). Semen analysis report of 9 cases showed oligospermia i.e sperm count <20 million/ml. There was no case of azoospermia. In sperm motility in 3% cases it was totally non motile. In 16 cases motility was <30%.

Kamali in his study showed that sperm disturbance (40.3%) such as oligospermia, asthenospermia, oligoasthenospermia and teratospermia were the most common etiologic factors responsible for male infertility¹⁰.

In our study, history of infertility in first degree relatives was positive in 22% of women and 11% of men. Kamali at all identified history of infertility in first degree relatives was positive in 8.9% women and 10% men¹⁰. Therefore, a positive correlation between family histories of infertility in cases of infertile couple may be a possibility. Further study needed to prove association with it.

Conclusion:

Bangladesh is a developing country, where population burden is a big concern for the government. On the other hand, reproduction is a basic human right; infertility leads to physical, psychological and social problem. Government needs to take care of infertility carefully, considering the above issues. It is recommended to take measures to improve the referral system, fertility health education and implementing infertility prevention programs.

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