

ORIGINAL

Study on Factors responsible for subfertility

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Abstract

One hundred cases attending the subfertility clinic of TUTH, Kathmandu were studied, for the first time in Nepal, to find out the causative factors of subfertility in Nepal. The study showed that of the total, 64% were of primary type and 36% were of secondary type. 16% of the male partners were found to be azoospermic and 49% were oligospermic. In 31% of the females there were either unilateral or bilateral tubal blocks, 11% had some kind of uterine abnormality and 16% were found to have anovular cycles. While many cases had more than one factors causing subfertility, no factors responsible for subfertility could be detected in 12% of the cases. Altogether, 15% of the females conceived with different kinds of treatment or just after the completion of investigations without any specific treatment.

Introduction

Although in the national context population explosion is a major problem that the country is facing currently, subfertility is becoming, at least at the level of a family, a problem of tremendous concern which can not simply be overlooked. That is why the numbers of patients attending our hospitals with the problem of subfertility are growing steadily. We are sorry to say that due to lack of statistics we can not exactly quantify its magnitude in our country. However, it is probably similar to that of India which is about 10% of all marriages.

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While the general causes of subfertility are more or less the same throughout the world, the prevalence of any of these may differ from country to country depending upon many variables such as socio-economic, cultural/educational, geographical factors and disease pattern of that Particular country.

Keeping all these things in mind, we have made an effort in this study to find out the causes which are responsible for subfertility in our cases. This preliminary study on subfertility is based on 100 cases attending the subfertility clinic of our Department and is first of its kind ever done in Nepal.

Since this is an ongoing study, we hope that we will be able to bring out the findings of our future studies as well.

Materials & Methods

100 cases attending the Sub-fertility Clinic in Tribhuvan University Teaching Hospital, Kathmandu, Nepal, after the opening of the GOPD were taken for study. The data necessary for the study were compiled directly from the patients, outdoor records and were all submitted to the statistical analysis. The duration of the study was nearly two years.

Proper history and clinical examination are done at the first visit. Together with the history & clinical examination a few basic laboratory investigations are also done in the same visit. These include haemoglobin estimation, total and differential counts of WBC, ESR, Stool and Urine R/E of the female partner in all cases. As required according to the information gained from history and clinical Exam, VDRL is done of both partners. Semen analysis is also routinely done. If the semen analysis reveals azoospermia or very low count, then further invasive investigations are not done on the female partner except in few cases where artificial insemination is planned.

Female partner after routine investigations are subjected for Endometrial Biopsy or dilatation and curettage; the endometrium thus obtained is sent both for histopathological examination & AFB culture. Examination under anaesthesia also sometimes gives a clue.

Tubal insufflation test in few cases were performed to exclude tubal obstruction but Hysterosalpingogram (HSG) which is more accurate in diagnosis than tubal insufflation, is carried out in the 8-10th day of the cycle. It is done to exclude uterine cavity conditions as well as the tubal factor. Laparoscopic examinations are not contributing for their small numbers.

Results:-

Since 100 cases were taken, the number of cases in our finding will represent the same percentage of the whole to make the interpretation of data easier.

Among the cases studied, the percentage of primary sub-fertility was much higher (64%) than the secondary subfertility (36%) as shown in the table below.

Type of Subfertility	No. / %
PRIMARY	64
SECONDARY	36
TOTAL	100

Table No. 1
Types of Subfertility

Age Group	No. / %
Below 20 yrs.	9
21-30 yrs.	69
Above 30 yrs.	22
TOTAL	100

Table No. 2
Age distribution of Subfertile cases.

%	No. of Primary SF	Age Group	No. of Secondary SF	%
9.3	6	20 yrs.	3	8.3
77.1	49	21-30 yrs.	20	55.5
13.6	9	31 yrs.	13	36.2
100	64	TOTAL	36	100

Table No. 3 Showing comparative age distribution in Primary and Secondary subfertility.

This table shows most of the cases of subfertility were of the 21-30 years age group,

No. of the Primary SF	Place	No. of the Secondary SF
48	Valley	30
10	Hills	6
6	Terai	0
64	TOTAL	36

Table No. 4 Showing Geographical distribution of the subfertility cases.

This table shows that the majority of our cases were from the Kathmandu Valley itself. Hence the findings of our study may not necessarily represent the national picture as a whole,

Occupation	No. of cases
Student	9
Service	10
House wife	81

Table No. 5 Showing the occupational distribution in female partners of subfertility.

Occupation	% of cases
Officeworker	30
Business	37
Army/Police	17
Agriculturer	16

Table No. 6 Showing occupational distribution of male partners.

Basic investigations:-

Twenty percent of the cases studied were found to have Haemoglobin less than 10gm.%. Slightly higher percentages of cases with secondary subfertility showed Hb. less than 10 gm.%.

Seventy percent of the cases had ESR more than 10mm. in the 1st. hour by wintrobe method. This is partly explained by the high % of anaemic cases and other conditions leading to the higher readings.

Routine examination of urine revealed some kind of abnormality in 16% of cases. Routine stool examination revealed 64% suffering from some kind of parasites.

VDRL tests in the couple revealed 6% with positive reaction. Majority of the reactive cases were from primary subfertility group and all the cases in that group were from the age group of 21-30 yrs.

One very interesting correlation was observed in the cases with reactive VDRL test. Except one case (where HSG was not done), all the other reactive cases were found to have tubal blockage- four of them bilateral and one unilateral in type as diagnosed by HSG.

Semen Analysis in the husbands:-

A very high percentage of husbands were found to have subnormal count. In our series, 16% were found to be azospermic. This is obviously a very high figure but may be correct in a country like Nepal where prevalence of small pox and mumps were very high in the past. In our series 4 cases were found to bear smallpox marks and all of them were found to be azospermic.

SF	Azoospermic	15 mill	15-40 mill	40 mill	missing/report not available
Primary	13	10	23	5	23
Secondary	3	8	8	11	6
TOTAL	16	18	31	16	29

Table No. 7 Showing semen analysis of the husbands of the subfertility cases.

Endometrial Biopsy findings:-

Altogether 66 cases were submitted to endometrial biopsy. Among them, only 50 cases were found to have normal secretory endometrial, while 10 of them had proliferative and other 5 had either hyperplastic or granulomatous or irregular ripening type of endometrium. One case showed absent endometrial gland on biopsy.

Out of 14 cases subjected for AFB culture, 3 cases turned out to be positive.

Table No. 8 compares our endometrial findings with a similar Indian study and shows remarkably similar findings in both situations though our study is much smaller in the no. of cases in comparison to the other.

SERIES	ANOVLATORY		OVULATORY			No gland	TB Endom.
	Total no. of cases	Proli-ferative	Hyper-plastic	Secre-tory	Irreg. ripen.		
Gupta et al, 1980	680	16.9%	5.9%	60.4%	2.3%	—	8.6%
Rijal et al, 1985	100	10%	4%	50%	1%	1%	3%

Table—8 showing Endometrial findings in Nepali & Indian series.

The lower figure in case of TB endometritis in our series is obviously fallacious. Even in Britain, it is found to be 5% of all cases attending an infertility clinic (John Hawkins & G. Bourn, Shaw's TB of Gynaecology). This lower rate of TB endometritis is due to the low no of cases reporting to us with AFB culture report.

Tubal Insufflation findings:-

Out of 25 cases submitted for this test, 50% were found to have either bilateral or unilateral tubal block. As the test is not that reliable, we subjected the cases for HSG.

HSG findings in subfertile females:-

Altogether 69 cases were submitted to HSG. Among them, only less than half (32) cases were found to have normal HSG (i. e. no uterine or tubal abnormality). 31 cases were found to have tubal abnormality- 17 cases with bilateral and 14 cases with unilateral blockage. 6 cases had uterine abnormality. More cases of bilateral tubal blocks were observed than the unilateral in case of secondary subfertility. This sort of clear cut difference was not observed in case of primary subfertility.

Sub Fert.	NAD	Uterine abnormal.	Unilateral block	Bilateral block
Primary	16	3	12	9
Secondary	17	3	2	8
TOTAL	32	6	14	17

Table-9 showing HSG findings,

Discussion:-

As mentioned earlier, our main aim of the study is to find out different factors responsible for subfertility in our series.

More females were found to be responsible for subfertility than their male counterparts in our series. Altogether, 58 females were found defective in contrast to 16 males who were azoospermic i. e., sterile. Twelve cases had all investigations normal.

Analysing the available data we found the following conditions causing subfertility.

Male Factor:-

In the male partner, azoospermic was responsible for 16% and 49% of the males were oligospermic. A case of azoospermia had undescended testes.

We have not taken oligospermia as a strong factor since we have two examples of cases where the wives of husbands with semen count as low as 800,000 have conceived.

Cox (1975) reported 19.7% defective male factor in infertile cases. Our azoospermia data more or less matches with his finding.

Female Factors:-

The most common factor in the females are tubal factor—31%, ovulation factor—16%, and uterine factor—11%.

The ovulation factor in our series was much less than found in Cox series where 42.9% of the females had anovulatory cycle.

The tubal factor in our series is quite near to those of Kistner & Behrman (1975) and Raymont et al (1969). Cox reported only 11%.

Uterine factor in our series is not very high than reported by Raymont et al (1969).

FEMALE FACTORS

SERIES	Ovulation factor	Tubal factor	Cervical factor	Uterine factor	Male factor	Normal Tests
	%	%	%	%	%	%
Cox (1975)	42.9	11	—	—	19.7	17.6
Kistner & Behrman (1975)	15	30-35	20	—	35	—
Raymont et al (1969)	—	32	—	8.5	—	—
Rijal et al (1985)	16	31	—	11	16-Azoo 49-oligo	12

Table-No. 10 Showing comparison of different factors responsible for subfertility in different series.