

Factors affecting male infertility

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Abstract

Introduction: Infertility is commonly defined as the failure of conception after at least 12 months of unprotected intercourse.¹ Accurate assessment of the prevalence of infertility has always been difficult because of the large scale population based studies.² Male factor is the only cause of infertility in about 20 % of infertile couples, but it may be a contributing factor in as many as 30 % to 40 % of cases.³ Factors like diabetes, bronchiectasis, high grade fever, long term medication, urinary tract infection, sexually transmitted infection, epididymitis, testicular injury, un-descended testis, mumps, orchitis, excessive alcohol, smoking, exposure to heat and certain chemicals effect in the spermatogenesis. Impotence or erectile dysfunction remains one of the important contributors in the male infertility.

Methods: This is a prospective descriptive study conducted during the health camps in Sindhupalchowk, Manang, Baitedi, Rauthat and Darchula districts of the Nepal. The objective of the study is to find out the factors contributing to male infertility. Couples who were unable to conceive after regular, unprotected coitus of at least one year were included in the study. Detail history, clinical examination and semen analysis was done.

Results: There was limited facility of investigation and treatment of infertility in the health camps. The diagnosis was based only on history, examination and semen analysis. Various factors like mumps, chemical exposure like men working in carpet factory, testicular trauma and smoking were found as contributing factor of male infertility in these districts.

Conclusions: Testicular trauma, mumps, smoking is common in all the districts. Exposure to chemicals such as dyes, used in carpet factories seems to be responsible for infertility in some men of Sindhupalchowk and Darchula.

Keywords: Azospermia, male infertility, oligospermia.

Introduction

Infertility is commonly defined as the failure of conception after at least 12 months of unprotected intercourse. Accurate assessment of the prevalence of infertility has always been difficult because of the large scale population based studies.¹ Male factor is the only cause of infertility in about 20 % of infertile couples, but it may be a contributing factor in as many as 30 % to 40 % of cases.²

In the simplest term male infertility is a failure to fertilize the normal ovum arising from a deficiency of functionally competent sperm at the stage of fertilization. Reports

suggest that some 14-17 % of couples may be affected at some time in their reproductive lives.³ According to recent European data one of the four couple has infertility problems.⁴ Most of the studies which have attempted to evaluate the etiology of infertility have used the conventional criteria of semen quality promulgated by the WHO (1999) to define male factor. WHO criteria of semen analysis is important but many of the couple are able to conceive even with these abnormal semen findings.⁵⁻⁷ Diagnostic categories for the male partner of an infertile couple according to WHO remains of basic importance.⁸ The idiopathic causes are, oligospermia, asthenozoospermia, teratozoospermia, azospermia etc.

Male infertility

Others are obstructive azospermia, isolated seminal abnormalities sexual or ejaculatory dysfunction. Systemic diseases, endocrine abnormalities, iatrogenic injuries, congenital abnormalities, acquired testicular damage, varicocele, immunological factors, male accessory gland infection etc are also responsible for male infertility.

Methods

A prospective observational study was conducted in reproductive health camps of Sindhupalchowk, Manang, Baitadi, Rauthat and Darchula district.

In the camps the couples who presented with history of inability to conceive after regular, unprotected coitus of at least one year were called separately at the end of the day for detail history taking, examination, counseling and investigations. After mass counseling, verbal consent was taken for enrollment in the study. All the couples agreed to participate in the study. Their detail history focusing on above mentioned causes was taken and thorough examination for general physical and systemic abnormalities was done.

Unfortunately there was limited investigation facility. Only history, examination and semen analysis were basis of this research.

After semen analysis and counseling, couples were advised to attend the infertility clinic nearest to their place for possible management

Results

Smoking, testicular trauma and mumps were the common risk factors amongst the males of infertile couples (Table 1).

Table 1: Risk factors of infertility

	Sindhupalchowk	Manang	Baitadi	Rauthat	Darchula
Mumps	1	2	2	2	1
Heat Exposure	2	-	1	1	1
Testicular trauma	1	-	1	1	2
High grade fever	-	-	-	-	-
Tuberculosis	-	-	1	2	-
Chemical Exposure	5	-	-	-	4
Smoking	4	-	4	6	5
Alcohol	2	5	1	1	1
Undescended testis	1	-	1	1	-
Diabetes	-	-	-	-	-
Sexually transmitted disease	-	-	-	-	-
Hydrocele	2	-	1	3	1
Varicocele	-	-	-	1	-
Multiple risk factors	3	3	2	4	3

Mumps seems commoner in all the four districts, chemical exposure is only in Sindhupalchowk and Darchula districts. All of them were exposed to the carpet dyes which are quite

common in Darchula and men from Sindhupalchowk were also working in carpet industries in Kathmandu. Many of the patients had multiple risk factors.

Table 2: Proportion of male infertility in relation to total gynaecological and infertility patients.

Proportionally men are most affected in Sindhupalchowk district, where the male factor is responsible in 25 % of infertility (Table 2).

Sindhupalchowk	Manang	Baitadi	Rauthat	Darchula	
Total Gynae patients	421	408	462	948	753
Infertile patients	64(15.2%)	24(5.9%)	58(12.6%)	109(11.49%)	86(11.42%)
Infertility patient with male factors	16(25%)	5(20.8%)	11(18.9%)	21(19.2%)	17(19.76%)

None of the patients had isolated abnormal motility but there was oligospermia associated decreased motility in some patients (Fig. 1).

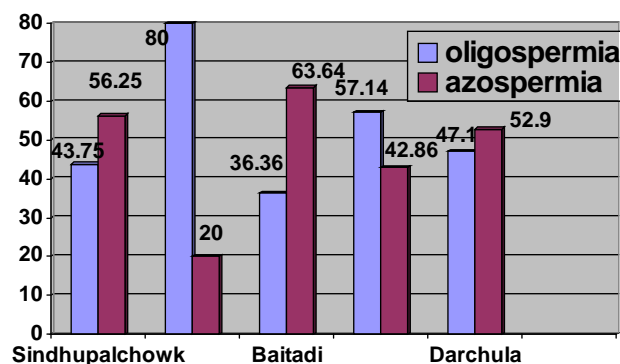


Fig. 1: Sperm abnormality in different districts (%)

Discussion

As already said above, accurate assessment of the prevalence of infertility has always been difficult because of the large scale population based studies. According to the study by Hull et al, some 14-17 percent of couples may be affected at some time in their reproductive lives, according to another study by Thonneau LS, male factor is the only cause of infertility in 20% of the couple, but it may be a contributing factor in as many as 30% to 40% of cases.⁹ In this study the highest percentage of infertile couple were in Sindhupalchowk (15.2% of total gynaecological patients with 25 % of male factors) and least in Manang (5.9 % infertile couple of total gynaecological patients with 20.8 % male factors).

For men semen analysis is inexpensive and noninvasive and remains fundamental to the infertility evaluation. In this study only history, examination and semen analysis

was the basis as there were no other facilities in these camps.

As evident from the result mumps was found to be a contributing factor in all five districts, heat exposure and testicular trauma was found in the districts except than the Manang. Chemical exposure was the main from Sindhupalchowk and Darchula who work in carpet industries; probably they were working with carpet dye. Hydrocele was found in all districts except in Manang. According to Comhair, varicocele contributes 48 % cases but surprisingly in this study only one case was found with varicocele in Rauthat.

Alcohol was consumed by some men in every district but it was consumed by majority in Manang probably due to cold climate, but none of the men was found smoker among the infertile couple. Oligospermia was found maximum percentage in Manang while Azospermia in Baitadi district.

Unfortunately for complete diagnosis of these couple other tests like immunological tests, testicular biopsy, and hormone profiles could not be done in the camps.

Conclusions

Alcohol intake and smoking was very common in the couples with infertility. Exposure to dyes (especially carpet dye) was a common incidence among them. Though Testicular trauma, mumps and hydrocele was also common among the infertile males, further studies and more detail investigations which is beyond the scope of a health camp is required to establish a definite association.

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