Original Article

Male Factor Infertility: Five Years Experience

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Objective: **To determine the frequencies of different etiological factors responsible for male infertility in our setup.**

Study Design: **Case Series Study**

Place and Duration: **This study was conducted at Lady Reading Hospital Peshawar, Pakistan, from 1st January 2002 to 31st December 2006.**

Materials and Methods: **All male patients attending the infertility clinic were included in this study. After taking an informed consent and history, clinical examination and related investigation were carried out and a male factor responsible for infertility were confirmed and a possible etiology was tried to be sorted out. All the above information was collected and entered into a proforma. The data were analyzed in SPSS, version 10.0, Frequencies and percentages were calculated.**

Results: **Total number of patients was 676, in which 166 (24.55%) were normospermic, 316 (46.74%) were oligo and/or asthenospermic and 194 (28.69%) patients were azoospermic. 240 (35.50 %) patients had a past history of sexually transmitted infection (STI) and 72 (10.65%) had mumps in childhood while 98 (14.50%) patients underwent inguinal/scrotal surgery or sustained scrotal trauma in the past. 24 (3.55%) patients were having varicocele on left side on clinical examination. 340 (50.30%) patients were having pus cells (>1*10^6/mL) in their semen, out of which 08 (2.35%), 04 (1.17%), 02 (0.59%) and 02 (0.59%) were having growths of N. gonorrhoeae, E.coli, Proteus and Provedencia respectively on semen culture. Out of 194 azoospermic patients, 108 (55.67%) were labeled as having testicular failure on the basis of clinical/radiological examination, semen analysis, hormonal assays or testicular biopsy. Sexual dysfunction in the form of decreased libido or premature ejaculation was found in 234 (34.62%) patients. 616 (91.12%) patients married once, 54 (7.99%) married twice and 6 (0.89%) patients married thrice.**

Conclusion: **Male factor contributes significantly towards infertility and several treatable causes can be sorted out easily. Thus steps should be taken to create an environment of awareness regarding the issue and male partner should be investigated first thereby reducing the negative social impacts.**

Keywords: ***male infertility, semen analysis, genital infections, testicular failure.***

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Introduction

Infertility is defined as the inability to conceive after one year of unprotected sexual intercourse.[1] It affects about 15% of couples and a male factor is responsible in about 50% of cases.[2] It has got social implications in certain societies. A diagnosis of male factor infertility is responsible for lower sexual and personal quality of life.[3] Moreover, an age above 30 years; 3-6 years of infertility duration and male factor infertility are risk factors for marital dissatisfaction.[4] There are several recognizable causes for male infertility such as varicocele, chryptorchidism, infections, obstructive lesions, cystic fibrosis, trauma, tumours and oxidative stress.[5] All these are responsible for defective spermatogenesis through cytokine production thereby

causing infertility.[6] Semen analysis is the first step to investigate male infertility.[7] It can label a patient as normospermic, oligospermic, asthenospermic, teratospermic, leucocytospermic and azoospermic or a combination of these. Patients with varicocele have significant oligoasthenospermia and varicocelectomy improves sperm volume, density, motility and vitality.[8, 9] Testicular inflammation leads to decreased testicular volume and oligospermia.[10] Testicular damage is also associated with exposure to heat, noise and physical exertion causing terato/oligoasthenospermia.[11] Prolonged automobile driving and cigarette smoking are responsible for significant teratoasthenospermia.[12] Patients with history of sexually transmitted infections (STI) have significant leucocytospermia. Early and adequate treatment of STI will prevent late sequalae.[13] Azoospermia can result from duct obstruction or hypospermatogenesis, absent spermatogenesis, maturation arrest, Sertoli cell only syndrome or Leydig cell hyperplasia.[14] These can be confirmed by testicular FNAC or biopsy. Before embarking upon such invasive investigation, gonadal hormonal levels i.e. testosterone, LH, FSH and prolactin are done. The level of testicular damage can be measured by blood levels of gonadal hormones especially FSH.[15] In addition to the causes already mentioned; there are cases of Idiopathic infertility in which the pathophysiology is still unknown.[2]

This study was conducted to evaluate the spectrum of the disease male leading to infertility in our local community.

Materials and Methods

This descriptive study of 676 patients was conducted in Infertility clinic at Lady Reading Hospital Peshawar, Khyber Pakhtunkhwa, from 1st January 2002 to 31st December 2006. After approval from ethical committee and taking an informed consent, all male patients attending the clinic were included and evaluated by history, clinical examination and investigations such as urine R/E, ultrasound abdomen/pelvis and scrotum and semen analysis. Collection of samples followed the standard protocols and the specimens were subjected to examination within an hour of collection. If there were some positive findings then semen culture and hormonal studies were done accordingly. Some of the patients also underwent testicular biopsies and thus labeling of patients with a diagnosis of testicular failure was done on the basis of clinical/radiological examination, semen analysis, hormonal studies or testicular biopsy. Patients having test results more than three times normal values for FSH were considered to be having testicular failure whether biopsies were performed or not. All the above information were collected and entered into a semi structured proforma. The data collected from specially designed proforma for these patients were labeled in SPSS version 10 and frequencies and percentages were calculated accordingly.

Results

There were a total of 676 patients. The age range was 17 to 50 years with a mean of 27± 9 years. Majority of the patients (82.54%) were in their third and fourth decades of life.

Out of the 676 patients, 166(24.5%) had normal sperm counts, 316 (46.7%) had decreased counts with decreased sperm mortality and 194 (28.6%) patient had no sperm in their ejaculate.

Out of 676 patients, 240 (35.5 %) gave a history of sexual contact with female and/or male partner/s in the past followed by urethral discharge. 72 (10.6%) patients had mumps in childhood while 98 (14.5%) patients were giving a past history of inguinal/scrotal surgery in the form of surgery for hernia, varicocele, hydrocele and blunt scrotal trauma in the form of sports injury. 24 (3.5%) patients were having varicoceles of different grades on clinical examination. The patients were labeled as having testicular failure if they had small/atrophic testes, their semen analyses showed azoospermia, their hormonal levels showed low testosterone, three times normal FSH or absence of normal sperm cells on testicular biopsies. Thus 108 (15.9%) patients were labeled as having testicular failure.

The semen analysis of 340 (50.3%) patients showed pus cells and hence their specimens were cultured. The results showed growth of N. gonorrhoeae in 08 (2.4%) patients, while 04 (1.2%), 02 (0.59%) and 02 (0.59%) patients were having growths of E.coli, Proteus and Provedencia respectively.

Out of 676 infertile males, 164 were addicted i.e. 81 (49.4%) cigarette, 59 (35.9%) naswar and 24 (14.6%) marijuana. Professionally, 35.9% were hard workers (Laborers, farmers), 12.8% worked while sitting for long hours (shopkeepers, tailors, office clerks), 9.9 % were drivers, 4.4 % were mechanics, 16.3% were teachers (school/religious), 8.4% were from law enforcement agencies (police, FC, judiciary), 5 were healthcare professionals and one engineer. 9.9 % of them were unemployed.

234 (34.6%) patients also gave a history of sexual dysfunction in the form of decreased libido and/or premature ejaculation. Whether it was the cause or effect, could not be ascertained. 54 (7.99%) patients married twice and 06 (0.89%) married thrice after having no children from one spouse.

Discussion

Infertility is a fairly common issue worldwide and many researchers have worked hard to probe into the statistics and causes of this problem.

In a study by Qublan et al, who scrutinized 234 infertile patients, 176 (75.21%) were oligospermic and 58 (24.79%) were found to be having azoospermia. 35.5 %, 16.7% and 16.7% were having varicocele, hydrocele and epididymal pathology respectively.[16] Similarly in another study conducted by Zafar et al at The Agha Khan University Karachi, 210 patients were studied in which 63 (30%) had oligospermia and 21 (10%) had azoospermia.[17] In our study, 166 (24.55%) patients were normospermic, 316 (46.74%) oligo and/or asthenospermic and 194 (28.69%) were azoospermic. In contrast to the work done by Qublan et al, only 24 (3.55%) patients were having varicocele in our study.

Sheikh et al reported 33.33%, 33.33%, 13.33% and 20% of patients to be azoospermic, oligospermic, asthenospermic and normospermic respectively.[18] The results of this study are more or less similar to ours where major group is that of oligo/asthenospermic patients (46.74%) and similar is the case in Sheikh's study (46.66%). In a research by Ali et al, 51.72% of patients were found to be oligospermic, similar to our results, and 48.28% were azoospermic.[19] In contrast to our study, the work of Okeke et al in Nigeria showed oligospermia, asthenospermia and azoospermia to be 63.5%, 92% and 09% respectively.[9] Another study in Nigeria by Geidam et al shows results on the contrary to the above discussion. Here azoospermia was found in 75% of infertile men.[20]

In our study, 24 (3.55%) patients had varicocele on left side and 98 (14.50%) were giving a past history of inguinoscrotal surgery or trauma. This is similar to a study by Balda et al who also found that obstructive azoospermia is caused by herniorrhaphy.[21] Our study also showed 72 (10.65%) patients with a history of mumps in childhood which is almost similar to that found by Oliva et al, i.e. 6.9%. Other findings of Oliva et al were epididymo-orchitis in 28%, cryptorchidism in 8.5% and varicocele in 37% of patients.[22]

In our study, 240 (35.50%) patients had a past history of sexually transmitted infection (STI), in the form of sexual contact with female and/or male partner/s followed by painful micturation and urethral discharge. This is also nearly similar to the findings of Bayasgalan et al, where 44.2% of patients reported history of STI and 6.7% had male accessory gland infection but in contrast to our study, 27.7% of patients reported a history of previous testicular damage and 5.4% acquired testicular damage with a cumulative percentage of 33.1%.[23] Only 12% of infertile men were found to have a history of male accessory genital infection according to Dohle et al.[24]

50.30% (n=340) of patients showed pus cells in our study group. This is totally in contrast to 7.9% in China as reported by Wang et al.[25] The cultures obtained from our study population were N. gonorrhoeae (2.35%), E. coli (1.17%), Proteus (0.59%) and Provedencia (0.59%) but no growth of Chlamydia was cultured. Ikechukwu et al, in Nigeria, recovered growths of S. aureus, S. epidermidis, B-hemolytic streptococci, E. coli, proteus and Klebsiella.[26] 1.6% of semen cultures showed Chlamydia according to Ochsendorf et al.[27] As the number of patients, in our study, with positive culture report was very low as compared to the proportion of patients with history suggestive of STI (n=240) and those having leucocytospermia (340), it may be correlated to the fact that past infections rather than present ones are more related to male infertility.[28]

A total of 164 patients in our study were addicted to some form of drug including cigarette, naswar and marijuana. History of alcohol was also taken but we rarely got any positive response, may be due to the implications in our society or our low socioeconomic class.

As profession is one of the important risk factors, our study has highlighted that majority of our patients belonged to hardworking groups and sitting for prolonged periods such as shopkeepers, tailors, drivers and office clerks. These professionals also are smokers and marijuana addicts especially drivers. We did not get any patients with chemical exposure although, of the 5 health care professionals 3 were working in the operating rooms where fluoroscopy is routinely used but on enquiry all of them used protective wears such as lead aprons.

As discussed earlier, male infertility has profound social implications.[4] Our study has revealed such implications as 34.62% of patients complained of decreased libido or premature ejaculation. Whether this was the cause or effect is not clear. It could be attributed to the stress of our society on infertile men as depicted by Smith et al and Skrzypulec et al.[3, 4] In our study 616 (91.12%) patients married once, 54 (7.99%) married twice and 6 (0.89%) patients married thrice. This shows that male infertility really has disastrous effects in our society with such results as sexual dysfunction (not clear) and marital dissatisfaction which has led to multiple marriages thus affecting the female partner adversely. It is also evident that without being aware of the male factor infertility, marrying third time is also quite common, creating even more disaster.

Conclusion

Male factor contributes significantly towards infertility and several treatable causes can be sorted out easily. Thus steps should be taken to create an environment of awareness regarding the issue and male partner should be investigated first thereby reducing the negative social impacts.

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