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Original Research Article

Male Infertility: Epidemiological, Diagnostic and Therapeutic Aspects at the Urology-Andrology Department of Ignace Deen University Hospital, Conakry

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Abstract: ***Introduction**:* Currently, infertility constitutes a real public health problem due to its prevalence, distribution, and the difficulties related to its management. The general objective of this study was to contribute to the study of male infertility in its epidemiological, clinical, and therapeutic aspects at the Urology-Andrology department of Ignace Deen National Hospital. ***Methodology**:* This was a retrospective descriptive study lasting five (5) years, from January 1, 2020, to December 31, 2024. All patient records admitted for male infertility, having clinical observation and at least two sperm analyses during the study period, were included in this study. ***Results**:* We collected 272 records during our study over a period of five (5) years. The average age of patients was 36.50 years (ranging from 20 to 68 years). The 30-39 age group was most represented, accounting for 44.85% (n=122). Risk factors were dominated by smoking and heat exposure, with 30.51% (n=83) and 22.06% (n=60), respectively. Infertility was primary in 74.63% (n=203) of patients and secondary in 25.37% (n=69) of cases. On examination, 68% (n=185) of patients had varicocele. Regarding quantity, the spermogram was abnormal in 95.2%. From a therapeutic perspective, varicocelectomy was performed in 185 patients, representing 68% of cases, compared to 32% of cases (n=87) where spermatogenesis induction and/or dietary supplements were provided for azoospermic patients or those with oligo-astheno-teratospermia (OATS). ***Conclusion**:* The prevalence of male infertility in our study was remarkable. Over a period of 5 years, 272 records were collected in our department. This represents a real public health problem. The sperm profile was dominated by oligoasthenoteratozoospermia.

Keywords: Male infertility, OATS, Azoospermia, Urology, Conakry University Hospital.

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INTRODUCTION

Currently, infertility constitutes a real public health problem due to its prevalence, distribution, and the difficulties related to its management [1]. Nearly 15% of couples face infertility (approximately 60,000 new cases per year in France), of which 20% are strictly of male origin and 40% are mixed, among which a male cause is found [2]. Conjugal infertility in sub-Saharan Africa affects more than 25% of the population [3].

In recent years, there have been major advances in diagnostic and therapeutic aspects, thanks to the improvement of spermogram parameters (concentration, vitality, motility, typical forms), parameters evaluating directly or indirectly the effects of oxidative stress, hormonal assessment and genetic tests, as well as the advent in the therapeutic arsenal of assisted reproductive technology (ART), which has revolutionized the prognosis of infertile couples, some of whom cannot benefit from it due to lack of financial means or do not want to benefit from it for certain considerations, especially religious ones [4].

In our context, the exploration of azoospermic patients was not extended to the search for genetic disorders due to lack of appropriate technical facilities. In Guinea, two (2) studies have focused on male infertility in hospital settings [5-6]. The general objective

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of this study was to contribute to the study of male infertility in its epidemiological, clinical and therapeutic aspects at the Urology-Andrology department of Ignace Deen National Hospital.

METHODOLOGY

This was a retrospective descriptive study lasting five (5) years, from January 1, 2020, to December 31, 2024. All patient records admitted for male infertility, having clinical observation and at least two sperm analyses during the study period, were included in this study.

We excluded from our study all patient records received for male infertility but not meeting the selection criteria. The variables studied were: frequency, age, profession, origin, habits (risk factors), marital status, duration of infertility, consultation delay, type of infertility, association with erectile dysfunction, medical history, clinical background, clinical signs (physical examination results), paraclinical signs (spermiological data, hormonal assessment), treatment (medical, surgical).

RESULTS

We collected 272 records during our study over a period of five (5) years. The average age of patients was 36.50 years (ranging from 20 to 68 years). The 30-39 age group was most represented, accounting for 44.85% (n=122). The most affected professions were merchants (26.84%), civil servants (25%). We found 22.16% of workers. Patients were mostly natives of the capital Conakry, in 74.63% of cases. Most couples were monogamous (215), representing 79.04%, compared to 57 polygamous (20.96%).

Risk factors were dominated by smoking and heat exposure with 30.51% (n=83) and 22.06% (n=60) respectively. In the majority of cases, patients had an infertility duration between 1 to 5 years, representing 39.70% (n=108). In the first five years, 66.18% (n=180) of patients consulted, and 33.82% (n=92) of patients consulted within the first ten years. Infertility was primary in 74.63% (n=203) of patients and secondary in 25.37% (n=69) of cases. In 8.4% of cases, infertility was associated with erectile dysfunction.

Table I: Distribution of patients according to medical history

Medical History	Number	Percentage (%)
Inguinal hernia repair	21	7.72
Orchitis	11	4.04
Hydrocele repair	2	0.74
Scrotal trauma	2	0.74
Orchidectomy	2	0.74
Cryptorchidism	1	0.37
Spermatic cord torsion	1	0.37

The comorbidities found were hypertension and diabetes with 9.92% (n=27) and 5.15% (n=14) respectively. On examination, 68% (n=185) of patients had varicocele. The second pathology found was testicular hypotrophy affecting 16.54% of patients, followed by epididymal anomalies, namely cysts and nodules with 5.51% (n=15) and 2.20% (n=6) of cases respectively.

Regarding quantity, the spermogram was abnormal in 95.2%. Among these patients, we noted 33.82% (n=96) cases of severe oligospermia below 5 million sperm/ml and 28.30% (n=77) cases of azoospermia. We noted 14% hypovolemia (n=38) which was associated with azoospermia.

Table II: Distribution of patients according to spermiological profile

Spermogram	Number	Percentage (%)
Oligoasthenoteratozoospermia	84	31
Azoospermia	30	11
Oligozoospermia	18	6.6
Oligoasthenonecrozoospermia	77	28.30
Necrozoospermia	61	22.42
Teratozoospermia	2	0.68
TOTAL	272	100

Hormonal assessment, which only involved FSH measurement, was performed in 97 patients for azoospermia or severe oligospermia below 5 million sperm/ml, representing 35.5%.

Table III: Distribution of patients according to microorganisms found in sperm

Microorganisms	Number	Percentage (%)
Chlamydia Trachomatis	14	5.14
Staphylococcus epidermidis	5	1.83
Mycoplasma hominis	2	0.73
E. coli	2	0.73
Ureaplasma Urealyticum	1	0.36

From a therapeutic perspective, varicocelectomy was performed in 185 patients, representing 68% of cases, compared to 32% of cases (n=87) where spermatogenesis induction and/or dietary supplements were provided for azoospermic patients or those with oligo-astheno-teratospermia (OATS).

DISCUSSION

Couple infertility currently constitutes a real public health problem due to the gradual increase in the annual number of patients consulting for desire for children. Long considered a taboo subject in our society, it was managed by traditional healers. Today we are witnessing a reversal of this practice with the arrival of diagnostic and therapeutic means in our health facilities [1].

Thus, we collected 272 records during our study over a period of five (5) years. This result proves that male infertility is not negligible in our context. The average age of patients was 36.50 years (ranging from 20 to 68 years). The 30-39 age group was most represented, accounting for 44.85% (n=122). This result is similar to that of T.O Diallo *et al*. [7] who found an average age of 37.2 years (ranging from 23 to 63 years). The 30-39 age group was most represented.

The most affected professions in our study were merchants (26.84%), civil servants (25%). We found 22.16% of workers. This result is contrary to that of L. Niang *et al*. [1] in Dakar in 2009, where the most representative professions were office executives (13.6%), military personnel (13.4%). We found 5% of drivers.

Patients were mostly natives of the capital Conakry, in 74.63% of cases. This could be explained in our context by the underutilization of healthcare facilities by populations from the interior of the country in favor of traditional practitioners. Most couples were monogamous (215), representing 79.04%, compared to 57 polygamous (20.96%). T.O Diallo *et al*. [7] reported a comparable result with 76.7% of monogamous patients versus 23.3% polygamous.

In our context, polygamous men whose one wife has had one or more children, regardless of the age of the youngest, consider themselves fertile and ignore the occurrence of secondary infertility. They almost universally believe in their minds that this is not possible. This could explain this tendency of monogamous over polygamous men.

In our study, risk factors were dominated by smoking and heat exposure with 30.51% (n=83) and 22.06% (n=60) respectively. A study conducted in Morocco with Mohammed Frikh *et al*. [8] revealed that the most frequently found infertility risk factors were smoking followed by varicocele and infection.

In the majority of cases, patients had an infertility duration between 1 to 5 years, representing 39.70% (n=108). In the first five years, 66.18% (n=180) of patients consulted, and 33.82% (n=92) of patients consulted within the first ten years. In Senegal, L. Niang *et al*. [1] found great variability in extremes ranging from 1 to 30 years.

The low variability in our context could be explained by the reduction of certain considerations that took sexual life as a taboo subject on one hand, and on the other hand, populations in recent decades have been informed and sensitized by Urologist/Andrologist doctors through the media about sexual life and couple infertility, which has tripled the number of consulting patients in this field.

Infertility was primary in 74.63% (n=203) of patients. This rate varies according to studies and ranges between 56.41 and 81.7% [9-8-1-7]. In our series, infertility was associated with erectile dysfunction in 8.4% of cases. Shindel AW *et al*. noted in their study that the prevalence of erectile dysfunction is twice as high in the population of infertile men (15 to 22%) compared to men of the same age (7 to 9%) [10].

Medical history was dominated by inguinal hernia repair in 7.72% of cases. This result is close to that found by Mohammed Frikh *et al*. in Morocco [8]. The comorbidities found were hypertension and diabetes with 9.92% (n=27) and 5.15% (n=14) respectively. These low percentages confirm the literature data where it is noted that comorbidities are almost present in elderly subjects compared to the preferred age for consultations for couple infertility which is generally in our context between 27 and 35 years.

On examination, the largest number of patients had varicocele, considered the leading cause of male infertility, in 68% (n=185). This result is confirmed by certain authors [1-7-11]. Moreover, it was complicated by azoospermia in 23 patients. Sperm parameters were

altered with high frequency quantitatively, followed by motility and to a lesser degree vitality. The association of sperm parameter abnormalities was found in 42% of patients with OATS in particular in almost half of the patients. The latter constitutes the most frequent abnormality in the general population [12]. It would affect up to 30% of infertile men [13].

The elevated and low FSH rate, noted in 53 cases representing 54.63% of our severe oligospermic and azoospermic patients, suggests a central secretory origin, pituitary or peripheral, testicular.

The infectious assessment in our study revealed various microorganisms that can lead to vas deferens obstruction and post-infectious spermatogenesis disturbances. The dominant microorganism was Chlamydia Trachomatis with 14 cases, representing 5.14%. We do not have a laboratory for genetic testing. Several studies have identified the different microorganisms involved, particularly: Chlamydia trachomatis, Ureaplasma urealyticum and Mycoplasma genitalium, Mycoplasma hominis, Neisseria gonorrhoeae, Gardnerella, Trichomonas vaginalis, Staphylococcus aureus, coagulase-negative Staphylococcus, Streptococcus, Corynebacterium, E. coli. Recently, tuberculosis has also been reported by Benbella *et al*. (2017) as an infection at risk of infertility. Similarly, Liu *et al*. (2013) added hepatitis B virus to microorganisms that disrupt sperm quality through an autoimmune phenomenon [8].

CONCLUSION

The prevalence of male infertility in our study was remarkable. Over a period of 5 years, 272 records were collected in our department. This represents a real public health problem. In our context, men are now aware of their share of responsibility in couple infertility. Risk factors were dominated by smoking and heat exposure. Varicose dilation was the dominant physical sign on examination. The spermiological profile was dominated by oligoasthenoteratozoospermia. From a therapeutic perspective, varicocelectomy was performed in 185 patients, representing 68% of cases, compared to 32% of cases (n=87) where spermatogenesis induction and/or dietary supplements were provided for azoospermic patients or those with oligo-astheno-teratospermia (OATS).

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