Erectile Dysfunction among Male Infertile Men Attending the Surgical Outpatient Clinic in a Tertiary Hospital in Nigeria over a 7-Year Period—A Single Surgeon’s Experience

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ABSTRACT

Background: There is misconception about male infertility and erectile dysfunction (ED) with poor health seeking behaviour in our clime. This study aims at finding the association between erectile dysfunction and male infertility in Ibadan.

Methods: This was a retrospective comparative study that analysed records of all men with male infertility between May 2016 and April 2023 at the surgical outpatient in a tertiary hospital in Ibadan. Data included demography, social habit, the severity and prevalence of ED, and type of infertility. The data were analysed with a Statistical Package for the Social Sciences (SPSS) version 25. Logistic regression analysed the association between male infertility and erectile dysfunction. A p-value of <0.05 was regarded as statistically significant.

Results: A total of 109 cases of male infertility of which 65 (59.6%) had ED. The overall mean age for primary and secondary infertility were 37.62 ± 6.95 years and 40.62 ± 8.322 years respectively (t = 2.892; p < 0.004). The mean age for absence and presence of ED were 39.08 ± 6.61 years and 39.56 ± 7.94 years respectively (t = 0.340; p = 0.734). There is association between alcohol consumption and ED (χ² = 6.969; p < 0.008). Similarly, statistically significant association between the ED and the type of infertility as mild, mild-moderate, and moderate ED were commoner among men with primary infertility and all men with severe ED had secondary infertility (χ² = 12.283; p < 0.015).

Conclusions: The prevalence of erectile dysfunction among male infertility was 59.6% with statistically significant association between the severity of ED and male infertility. Public awareness is advocated.

Keywords: Erectile dysfunction, Ibadan, Male infertility.

1. Introduction

According to the World Health Organisation (WHO) “Infertility is a disease of the male or female reproductive system defined by the failure to achieve a pregnancy after 12 months or more of regular unprotected sexual intercourse” [1]. The estimated global prevalence of infertility is between 8% and 12% of couples. The male factor contributes approximately 50% of causes of infertility in couples [2]. This contribution of male factor to infertility may even be an underestimate as many men do not readily seek medical help for infertility due to cultural beliefs and male chauvinism [3]. Infertility is both a urological and gynaecological problem worldwide, and it remains a sensitive issue in our environment and a source of social stigma [4]. It is a general misconception, especially in our environment that infertility is mainly associated with the females [5]. However, it is pertinent to note, as reported from meta-analysis that over the past 50 years, there has been a decline in sperm concentration globally and with over 70% decline in the sperm concentration of African men [6]. The possible causes of this mainly include sexually transmitted diseases [7], hormonal abnormalities, excessive...
alcohol consumption, and smoking [8]–[10]. Also implicated from some studies are exposure to pesticides and heavy metals being the principal trigger of decreased sperm concentration [11], [12]. This is particularly important in Africa with a growing population, dwindling economy and the need to increase agricultural yield by applying pesticides and use of unknown components of fertilizer.

Erectile dysfunction (ED) could be defined as the recurrent inability to acquire or sustain an erection of sufficient rigidity and duration for satisfactory coitus [13] ED is the commonest of the three mechanisms of sexual dysfunction in men, with the other two mechanisms being decreased libido and ejaculatory disorders [14]. The prevalence of ED increases with advancing age [15] and it affects 12%–19% of men in the reproductive age group [16]. In a systematic and meta-analysis by Liu et al., a higher prevalence of ED was noted among infertile men compared to fertile men [17]. Anastasiadis et al. reported that ED prevalence ranges from 6.7% to 61.6% for men with infertility [18], while the Practice Committee of the American Society for Reproductive Medicine, reported a range of 18%–89% [19]. Yu et al. [20] reported a prevalence of 30.6% for ED among infertile men in a cross-sectional study.

Globally, there is an observed paucity of studies evaluating for associations between male infertility and ED or simultaneously studying both male infertility and ED. At the time of this study submission, detailed literature search showed no study evaluating both male infertility and ED at our tertiary hospital or any other institution in Nigeria. Takure et al. [21] evaluated erectile dysfunction among men attending surgical outpatients Department in a Tertiary Hospital in South-Western Nigeria, and documented that ED accounted for only 2% of all the urological cases seen during the study period. Infertility is often associated with sexual dysfunction, depression, and low self-esteem [16].

Therefore, this study aims to evaluate the relationship between ED and male infertility at a tertiary hospital in Ibadan.

2. Methods

This was a 7-year (May 2016–April 2023) retrospective study where the cases of male infertility were extracted and analysed. These cases of male infertility were often male partners of infertile women who were referred to the urology clinic from the gynaecology clinics in University College Hospital (UCH), Ibadan, Nigeria. The information retrieved included the demography, type of infertility and severity of erectile dysfunction. The severity of ED was classified using the International Index of Erectile Function (IIEF-5) scores as follows: a score of 22–25 for no ED, a score 17–21 for mild ED, a score 12–16 for mild-moderate ED; a score 8–11 for moderate and a score of 1–7 for severe ED [23].

A quantitative data analysis, using a Statistical Package for the Social Sciences (SPSS) version 25, captured the relevant data and analyzed the variables. The prevalence rate of erectile dysfunction was derived from the cases of male infertility during the study period. Descriptive statistics, such as frequency tables and percentages, were used to describe the collected variables. Means and standard deviations were stated for the continuous variables and compared across groups with the Independent Students’ t-test while categorical variables were described with frequencies and percentages and compared across group with the Pearson’s Chi-squared test or Fisher Exert Test as applicable and p-value of less than 0.05 was interpreted as a statistically significant.

The statistically significant variables were incorporated into the multilevel logistic regression analyses to depict the association between male infertility and ED.

3. Results

A total of 109 complete data were available for the analysis of the patients with male infertility. 65 (59.6%) of these patients had erectile dysfunction. 77 (67%) and 36 (33%) had primary and secondary infertility respectively. Of the total 5,431 patients seen during the study period, 157 of them had erectile dysfunction alone while 65 had erectile dysfunction and male infertility. Overall, 222 males had ED accounting for 4.1% prevalence rate.

The mean age in years for primary and secondary infertility were 37.62 ± 6.95 and 40.62 ± 8.322 respectively and was statistically significant (t = 2.892; p-value 0.004). The mean Body Mass Index (BMI) for primary infertility was 22.39 ± 5.85 kgm⁻² and 24.22 ± 6.01 kgm⁻² for secondary infertility showed no statistical significance (t = 1.486; p-value 0.14) as depicted in Table I. There was no statistical difference for those who smoked cigarettes or not (p = 0.363) or drank alcohol or not (0.137) with either primary or secondary infertility.

Table II shows the socio-demography of the men with male infertility in relations to the absence or presence of ED. The mean age of those without ED was 39.08 ± 6.61 years and for those with ED, it was 39.56 ± 7.94 years with no statistical significance (t = 0.340; p-value 0.734). The BMI for those without ED and with ED were 24.62 ± 3.46 kgm⁻² and 22.74 ± 6.91 kgm⁻² respectively and not statistically significant (t = 1.406; p-value 0.164). 75.6% of men who consumed alcohol had erectile dysfunction while 50% of those who did not consume alcohol were without ED. The consumption of alcohol showed a statistical significance with the development of ED (χ² = 6.969; p = 0.008) while smoking of cigarettes on the other hand, had no statistically significant relationship with ED (χ² = 2.114; p = 0.146).

The relationship between male infertility and ED are depicted in Table III. The mean international index for erectile function-5 domain (IIEF-5) scores for primary and secondary infertility were 19.38 ± 4.32 and 19.64 ± 5.74 respectively and were not statistically significant (t = 0.259; p = 0.076). 73.8% of men with ED had primary infertility while 43.2% of those without ED had secondary infertility but this relationship showed no statistics significance (χ² = 3.139; p = 0.06). However, the severity of ED showed statistical significance (χ² = 11.521; p = 0.02) as most of those with no ED, mild, mild-moderate, and moderate ED had primary infertility while 100% of those with severe ED had secondary infertility.
Multivariate logistic analysis showed a statistical significance ($\chi^2 = 12.283; p-value 0.015$) between the severity of ED and primary or secondary infertility.

4. DISCUSSION

The prevalence of erectile dysfunction (ED) in this study double what was previously reported in Ibadan this may suggest increased awareness of men with ED [21]. The prevalence of ED among the men with infertility was 59.6%. This is much higher than 18.1% in Vietnam, 26.3% in Japan but within the range of 48%–58% reported in a systematic review by Starc et al. [22]–[24].
the lowest being severe ED. This was the observation in our study [26], [27].

Primary infertility was associated with the various degrees of erectile dysfunction in Japan, and erectile dysfunction was predictive of poor semen quality in one-quarter of newlywed men who attended the fertility clinic. They also noted a higher body mass index as a contributory factor to the poor semen quality unlike in our study where the body mass index was not a statistically significant factor for either erectile dysfunction or male infertility [3]. Cigarette smoking was an important cause of erectile dysfunction among Caucasians. However, the incidence of cigarette smoking was very low amongst our study population, and this may explain the lack of causal effects noticed [27].

Alcohol ingestion worsened ED in this study while abstinence did not. This is in congruence to the discontinuation of alcohol that subsequently resulted in an improvement in the erectile function as reported by Karunaran and Michael [28].

5. Conclusion

There is an increase in the incidence of erectile dysfunction among the cohorts of patients attending the urology outpatient clinic. Approximately 60% of infertile men have a coexisting erectile dysfunction. Mild to moderate erectile dysfunction is commoner among the patient with primary infertility while severe ED is exclusive to secondary infertile men. A significant association existed between alcohol ingestion and ED.

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Conflict of Interest

Authors declare that they do not have any conflict of interest.

References