

Prevalence of Hyperprolactinemia and Socio-Demographic Profile of Hyperprolactinemic Women in Some Gynaecological Clinics in Rivers State, Nigeria.

E. O. Nwachuku and K. I. Green

1. Department of Medical Laboratory Science, Rivers State University; Bio-Tek Diagnostic Services, Port-Harcourt, Nigeria.

2. Department of Obstetrics and Gynaecology, University of Port-Harcourt Teaching Hospital; Greencare Medical Consultants; Port-Harcourt, Nigeria.

Corresponding Author: E. O. Nwachuku

Abstract: Hyperprolactinemia is an extremely common disorder, especially among women of reproductive age, affecting about one-third of infertile women in the world. This study was designed to determine the prevalence of hyperprolactinemia among females in some gynaecological clinics in Rivers State, Nigeria. Serum prolactin levels of 81 infertile females aged between 24-38 attending gynaecological clinics over a period of 3 months were determined. Serum prolactin was assayed using microwell enzyme-linked immunosorbent assay technique. Forty-Three (43) subjects had hyperprolactinemia with mean prolactin values of (25.29 ± 5.13) ($p < 0.0001$) showing a percentage prevalence of 53.09%. Thirty-Eight (38) subjects had normal mean prolactin value of (16.04 ± 2.73) ($p < 0.0001$) showing a prevalence of 46.91%. The percentage prevalence of hyperprolactinemia according to prolactin levels, age group, marital status and occupation were determined. From the results, forty-three (43) of the women with hyperprolactinemia had mild hyperprolactinemia while none had moderate or high hyperprolactinemia. Age group 29-33 had the highest prevalence rate of 39.53% while age group 34-38 had the lowest prevalence rate of 27.91%. The distribution according to marital status showed that 88.37% were married while 11.63% were single. Distribution according to occupation showed that public servants presented with 51.2%, self-employed women 27.9% and housewives 20.9%

Keywords: Hyperprolactinemia, Infertility, Serum Prolactin

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I. Introduction

Infertility can be defined as the inability of a couple to achieve conception after having regular unprotected, well timed sexual intercourse for a one-year duration. It also includes the biological inability of an individual to contribute to conception or a female who cannot carry a pregnancy to the delivery of a live baby. Infertility is often used synonymously with childlessness, both by those affected as well as by demographers. Demographers defined infertility as the inability of a man, woman or couple to participate in reproduction of a live child. Clinicians define it as ("the inability to conceive or impregnate"). (Nordvist., 2016). WHO defined infertility as the inability of couples of full reproductive age to become pregnant, irrespective of the outcome of pregnancy, despite the couple living together and unprotected exposure (In the absence of postpartum, contraception, amenorrhea or breast-feeding). After at least one year of regular intercourse (WHO., 1991).

Fertility is important to all societies. The ability to have children has traditionally been a source of anxiety, pain and shame flagging the worst consequences to couples that are unable to have as many children as they desired, many have grief or emotional injury. For this reason several reports have focused on the causes, prevention and treatment of infertility in the continent (Brunharm et al., 1992).

Fertility is the natural capability to produce offspring. As a measure, fertility rate is the number of offspring born per mating pair, individuals or population. Fertility depends on factors of nutrition, sexual behavior, consanguinity, culture, instinct, timing, economics, endocrine, anatomical, psycho-physiological and immunologic factors. In females, infertility can result through the inability to regulate hypothalamus pituitary-ovarian axis and endometrium implantation of the zygote through the process of fertilization (Omar et al., 2003). In recent years, infertility has received considerable international attention due to social and gynecological problems caused by it worldwide. Several studies on infertility in general and infertility in Nigeria have shown that the prevalence of infertility in Nigeria is on the increase (Emmanuel et al., 2016).

In West Africa, infertility accounts for 20%-46% of reproductive health problems, while the occurrence ranges from 45-65% of gynecological consultation (Emmanuel et al., 2016).

The occurrence of infertility reported in some parts of Nigeria are 4.0%, 15.4% and 48% from Ilorin (North Central), Abakaliki, (South East), and Osogbo (South West) respectively (Panti & Sununu 2014). The prevalence of infertility was reported to be 34.5% among female in Calabar (Isong et al., 2016) and 37.5 in Port Harcourt (Ben-Chioma & Tamuno-Emine, 2015).

A common presentation associated with infertility is hyperprolactinemia. Hyperprolactinemia causes infertility because prolactin inhibits release of gonadotrophin releasing hormone (GNRH) which results in reduced follicle stimulating hormone (FSH) and luteinizing hormone (LH), gonadotrophic insufficiency and anovulation (Israel et al., 2009).

Diagnosis of hyperprolactinemia is made when serum prolactin levels are found on two different occasions to be above the upper limit of the established range for the population (usually 20-25ng/ml) or when the levels of prolactin are increased once with symptoms suggestive of hyperprolactinemia. The etiology of hyperprolactinemia may be physiological or pathological.

II. Materials And Method

The study was carried out in Port Harcourt, the capital of Rivers State, South-South Nigeria. It was a descriptive cross-sectional study. A total of 81 infertile females participants in the reproductive age group of 24-38 years were recruited for the study over a period of 3 months. They were from among the females attending the infertility clinics of the following hospitals; University of Port-Harcourt Teaching Hospital (UPTH), Braithwaite Memorial Specialist Hospital (Port Harcourt), Channel Hospital (Bonny Island), Madonna University Teaching Hospital (Elele), Ropheka Hospital (Port Harcourt) and Greencare Medical Consultants (Port Harcourt). They all had medical history of inability to conceive after a period of one year in spite of regular unprotected sexual intercourse.

Informed written consent was obtained from the participants and questionnaires were administered to obtain medical history and details of physical examination. Infertile females below 24 years and above 38 years of age, had been pregnant before, were physically unwell, on hormone therapy or who declined to give consent were excluded from the study.

Fasting blood samples were collected for sampling from participants with regular menstrual cycles on the second and third days of their menstrual period (follicular phase).

5 ml of venous blood was collected from the subjects in a 5 ml syringe into a plain bottle, allowed to clot and retract. It was spun in the centrifuge at 400rpm for 5 minutes. Serum was harvested into well labeled smaller plain bottles.

Samples were preserved in the freezer of -20°C temperature. This helped to keep the protein matrix of the sample for a longer period until analysis took place.

The serum prolactin was analyzed with the reagent kits using ELISA technique. The normal reference range used for the study is 8-22ng/ml (chemical pathology laboratory UPTH, Port Harcourt) using the same reagent kits. Hyperprolactinemia was categorized as mildly elevated (23-100ng/ml) moderately elevated (101-200ng/ml, high (201-1000ng/ml) and very high (1000ng/ml).

III. Results

The total number of patients with infertility evaluated was 81 females, out of which 43 (53.09%) had hyperprolactinemia as presented in Table 1

Table 1: Prevalence of Hyperprolactinemia among infertile women studied

Infertile Women	n(%)
Normal Prolactin	38 (46.91)
Hyperprolactinemia	43 (53.09)
Total	81 (100)

KEY

n = number of subjects

% = Percentage of subjects studied

Forty-Three, 43 (100%) of hyperprolactinemia females had mild hyperprolactinemia, while none had moderate, high or very high levels of hyperprolactinemia as shown in Table 2

Table 2: Hyperprolactinemia according to serum levels of prolactin

Level of Prolactin (ng/ml)	n(%)
Mildly Elevated (23-100ng/ml)	43 (100)
Moderately elevated (101-200ng/ml)	0 (0)
High (201-1000ng/ml)	0 (0)
Very high (>1000ng/ml)	0 (0)
Total	43 (100)

KEY

n = number of subjects

% = Percentage of subjects studied

Distribution of hyperprolactinemia females according to age group at presentation shows that the largest proportion 17 (39.53%) were in the 29-33 years age group, while the lowest proportion 12 (27.1%) were in the 34-38 years age group as presented in Table 3

Table 3: Distribution of Hyperprolactinaemic women according to age

Age group (years)	n (%)
24-28	14 (32.56)
29-33	17 (39.53)
34-38	12 (27.91)
Total	43 (100.00)

KEY

n = number of subjects

% = Percentage of subjects studied

The distribution of hyperprolactinaemic women according to marital status at presentation shows that the largest proportion 38 (88.37%) were married while 5 (11.63%) were single as presented in table 4

Table 4: Distribution of hyperprolactinemic women according to marital status.

Marital Status	n (%)
Married	38 (88.37)
Single	5 (11.63)
Total	43 (100.00)

KEY

n = Number of subjects

% = Percentage of subjects studied

The distribution of hyperprolactinaemia according to occupation shows public servants with 51.2% self-employed women with 27.9% and housewives with 20.9%.

Table 5: Distribution of Hyperprolactinaemic women according to occupation

Occupation	n (%)
Housewives	9 (20.9)
Public Servants	22 (51.2)
Self-employed women	12 (27.9)
Total	43 (100)

KEY

n = number of subjects

% = Percentage of subjects studied

IV. Discussion

The prevalence of hyperprolactinemia in this study was 53.09% among females with infertility. This prevalence rate is higher than 37%, 33.3% and 36.6%, respectively that was reported for Maiduguri, Egypt and North Western Nigeria (Iris et al., 2003; Elzaki et al., 2013; Akande et al., 2017). These differences might be due to different study population with different underlying etiological factors. However, the prevalence rate in this study was similar to that obtained in Kano with the prevalence rate of 48% (Emokpae et al., 2005) and Isah et al., 2018 (51.7%).

In this study, serum prolactin was mildly elevated in all the patients with abnormal prolactin levels. This agrees with the study of Isah et al (2018) who had 96.8% of patients studied with mildly elevated prolactin levels and 3.2% moderately elevated, but differs from Aguluchukwu et al 2016, who had 63.3% mild, 25% moderate and 11.7% high prolactin levels

The majority of the infertile females with hyperprolactinemia (53.09%) were aged 29-33years. This finding agrees with the study of Roupa et al, in India who had 56.54% in age group 25-34years; and disagrees with that of Akpan et al, in which majority of infertile women were aged 25-29.9 (46%) (Roupa et al, 2009; Akpan et al, 2017). The findings in this study suggest that most infertile females with hyperprolactinemia were in their mid-reproductive age. This may probably be due to late marriages because of a general increase in female education and economic challenges affecting both men and women. It is also possible that, some of these infertile women may have sought for unorthodox means to find solution to their infertility during their early reproductive age.

Majority of the infertile women studied (88.3%) were married. This agrees with the findings of Roupa et al, in their study which showed that 96.4% of the women were married. This is consistent with Nigerian culture which favours having children within marriage and not single parenthood. As a result the diagnosis of infertility only becomes possible in most cases when the women get married and try to have children

Distribution of infertility according to occupation showed that women who worked, constituted 79% of the study population. This could be explained by the fact that women who worked are well informed and have the necessary economic power and are therefore more likely to embark on reproductive assistance from clinics than housewives. The public servants who are likely the most educated women accounted for 51.2% of the population studied. This finding agrees with that of Roupa et al in Egypt, who also found that women who worked accounted for 62.8% of the infertile women studied (Roupa et al, 2009). However our findings disagrees with that of Moumita et al in India (Moumita et al, 2016), in whose study the highest level of infertility was found among housewives (90.7%) while the lowest was among income generating women (9.3%). These differences could be as a result of different study settings in different geographical population.

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