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The prevalence of hyperprolactinemia among fertility clinics attendees in Anyigba, North Central Nigeria

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Abstract
Introduction: Every Gynecologist knows that managing infertility goes with great expectations from the client thus identifying the cause and addressing it promptly reduces anxiety and despair. Infertility affects affect 14 to 15% of married couples and between 60 to 80 million couples worldwide [1, 4].
30% of infertility is due to male factors, 35% due to female, 15% attributable to both and 15% remain unexplained [4]. Hyperprolactinemia is one of the known causes of infertility in couples. This study examines its prevalence among infertile couples attending Gynecology clinics in two hospitals.
Methods: This is a retrospective study in Kogi State University Teaching hospital and Neighbour Multicare hospital and Women Welfare Centre in Anyigba, Kogi State, and North Central Nigeria. One hundred and ninety nine women who sought medical attention in the gynecology clinics of these facility between March 2016 and/February 2019 included in the study. Detailed history and clinical examination were conducted and documented. They were investigated including estimation of serum prolactin levels in a standardized laboratory. The results obtained were inputted into the computer software; Statistical package for Social Sciences (SPSS) version 20 and analyzed.
Results: 199 cases of infertility were studied. 134 (67%) cases were primary infertility while 65 (33%) were secondary infertility. 157 cases of infertility (79%) had prolactin levels of 25ng/l and below while 42 (21%) have prolactin levels above 26ng/l (hyperprolactinemia). Among the cases of infertility with hyperprolactinemia, 33 (17%) have primary infertility while 9 (4%) have secondary infertility.
Conclusion: Hyperprolactinemia is a condition seen in a significant population of infertile women and is capable of protracting their infertility. Fertility services provider should take cognizance of this and consider prolactin assay as part of their investigation of infertility among infertile women.

Keywords: Hyperprolactinemia, infertility, Kogi, Nigeria

1. Introduction
In the African society, marriages are largely considered successful if the woman conceives and deliver children. Often the man is not viewed with any fault if this fails to happen. The woman may even suffer domestic violence as a result of this. Every Gynecologists knows that managing infertility goes with great expectations from the client thus identifying the cause and addressing it promptly reduces anxiety and despair.
Infertility affects affects14 to 15% of married couples and between 60 to 80 million couples worldwide [1, 4], 30% of infertility is due to male factors, 35% due to female, 15% attributable to both and 15% remain unexplained [4].
Hyperprolactinemia is one of the known causes of infertility in couples. This study examines its prevalence among infertile couples attending Gynecology clinics in two hospitals.

2. Materials and Method
This is a retrospective study in Kogi State University Teaching hospital and Neighbour Multicare hospital and Women Welfare Centre in Anyigba, Kogi State, North Central Nigeria.
One hundred and ninety nine women who sought medical attention in the gynecology clinics of these facility between March 2016 and/February 2019 included in the study after excluding infertility associated other female factors, women on drugs that affect prolactin level or diagnosed with pituitary or urogenital anomaly.
Detailed history and clinical examination were conducted and documented. They were investigated including estimation of serum prolactin levels in a standardized laboratory.
A blood sample was collected for prolactin assay taking precaution to avoid excessive venipuncture stress.

The results obtained were inputted into the computer software; Statistical package for Social Sciences (SPSS) version 20 and analyzed using frequencies and further evaluation by the Chi Square test. Probability (P) values less than 0.05 were taken as statistically significant.

3. Results

199 cases of infertility were studied. 134 (67%) cases were primary infertility while 65 (33%) were secondary infertility.

Table 1: Distribution of cases by age and types of infertility.

Types of Infertility	Age range in Years							Total N %
	Less than 20	21 -25	26 -30	31 -35	36 -40	41 -46	Greater than 46	
Primary	4	22	48	17	27	14	2	134(67)
Secondary	0	8	20	14	5	18	0	65(33)
Total	4	30	68	31	32	32	2	199(100)

Table 1 shows the age group 21 to 35 years has the highest number of infertile females who attended clinics, 129 (65%). It also shows that fewer persons below the age of 20 years and above the age of 46 years attended the fertility clinics.

Table 2: Levels of prolactin among the types of infertility.

Level ng/l	Type of Infertility		
	Primary	Secondary	Total
Less than 5	15	9	24
5-25	86	47	133
Greater than 25	33	9	42
Total	134	65	199

Table 2 shows the prolactin levels obtained for the 199 clients and the types of infertility. 157 cases of infertility (79%) had prolactin levels of 25ng/l and below while 42 (21%) have prolactin levels above 26ng/l (hyperprolactinemia). Among the cases of infertility with hyperprolactinemia, 33 (17%) have primary infertility while 9 (4%) have secondary infertility.

Table 3: Levels of prolactin versus duration of Infertility among the fertility clinic attendees.

Prolactin level ng/l	Duration of in fertility			Total
	Less than 5 years	5-10 years	Above 10 years	
Less than 5	11	4	9	24
5-25	91	40	2	133
Greater than 25	27	13	2	42
Total	129	57	13	199

$P < 0.05$

Table 3 shows duration of infertility and the prolactin levels among the clients. The duration varies from less than 5 years, 5 to 10 years and above ten years. These variations are seen in both the normoprolactinemic and Hyperprolactinemia clients.

4. Discussion

Table 1 shows the distribution of the infertile women who attended the gynecology clinic into various age brackets and the type of infertility they have.

This study in table 1 shows that the age ranges of the clients is mainly 21 to 46 years with only 6 outliers. Majority of the attendees are in the 26 to 30 years age bracket. Only 4 attendees are below the age of 20 years while 2 are above of 46 years. That majority of the cases of infertility were in the age group of 26 to 30 years is in keeping with similar studies in the past[1]. This is the age were majority of couples interested in procreation desire pregnancy and seek medical services if fecundity is delayed.

The study (Table 2) showed that among the attendees 134 representing 67% were cases of primary infertility while 65 representing 33% were cases of secondary infertility. These finding is closely similar to the studies of Grawal M *et al.* (2013) [1] and Ikechebelu *et al.* (2003) [5].

In the present study (table 2) the serum prolactin level was raised in 21% of the infertile women who were clinic. This is higher than the study of Grawal M *et al.* [1] but similar to Olooto W *et al.* and Partibha D *et al.* [7, 8]. Various factors affect prolactin levels in humans. In Africa were having a child has a high premium the stress levels could be higher for a woman seeking to have a child because of family pressure. The various stress level could account for prolactin level variations [9].

In this study (table 3), the levels of proteins cross tabulated with the durations of infertility ranging from less than 5 years, 5 to 10 years and above 10 years. The chi Square test has a P value less than 0.05 indicating significant relationship between increasing prolactin level and infertility.

The variability in the duration across levels of prolactin shows that high prolactin may not be acting alone in the condition of infertility in infertile women attending fertility clinics.

This study shows that hyperprolactinemia is not an uncommon finding among infertile women in gynecology clinics and overlooking prolactin assay may delay solution.

To establish a diagnosis of hyperprolactinemia, it is recommended that a single measurement of serum prolactin that yields a level above the upper limit of normal (25ng/l) confirms the diagnosis [10].

This sample collection must be without excessive venipuncture stresses as this is known to alter the serum prolactin level and capable of producing equivocal results.

Prolactin suppresses luteinizing hormone and follicle stimulating hormone production. This can result in oligomenorrhea, amenorrhea, and anovulation. This scenario can lead to infertility [12, 13, 14]. Women with hyperprolactinemia may present with galactorrhea.

Apart from stress, other causes of hyperprolactinemia include use of medications, renal failure, hypothyroidism[15], intense exercise, polycystic ovary syndrome (PCOS), Psychotropic drugs, psychological stress, drugs like estrogen, verapamil, methyl Dopa, opioids, chest wall lesions, and parasellar tumours [3, 14]. Sometimes, the cause of hyperprolactinemia is unknown. This is called idiopathic hyperprolactinemia.

Infertile women with hyperprolactinemia should receive treatment with bromocriptine [11, 3] or cabergoline or pergolide to lower the level of prolactin and increase their chances of conception and sustenance of the pregnancy [3, 8].

Routine check of serum prolactin levels of women attending clinic for infertility would help identify this group women for medical intervention.

5. Conclusion

Hyperprolactineamia is a condition seen in a significant

population of infertile women and is capable of protracting their infertility. Fertility services provider should take cognizance of this and consider prolactin assay as part of their investigation of infertility among infertile women.

Declaration
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Conflict of interest: None declared

Ethical approval: The study was approved by the institutional Research and ethics committee.

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