**Case Report**

**Anovulatory infertility in Yenagoa, Bayelsa State; a review of 120 cases**

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**ABSTRACT**

Background: Hormone profiles are key to the management of patients with infertility as it can point out an ovulation with ease. Methods: We reviewed the hormone profile results of 120 women who had infertility. Results: The mean age was 32.66 ± 5.51 and 62.4% (77/120) had mid-luteal progesterone values suggestive of anovulation. The WHO type 2 anovulatory infertility was the commonest form of anovulatory infertility. There was a significant association between anovulation and serum prolactin levels (p=0.01) but not obesity (p=0.30). Conclusions: An ovulation may be commoner than it is thought to be and more research is needed in this area so that primary preventive measures can be instituted.

**Keywords:** Anovulatory Infertility, Hormone profile, Yenagoa

**INTRODUCTION**

Infertility which is the inability of a couple to achieve pregnancy after 12 months or more of unprotected intercourse (Zegers-Hochschilda et al., 2009) has been identified as a public health problem in Nigeria (Akinloye and Truter, 2011).

Among the female factors responsible for infertility, utero-tubal abnormalities are thought to be most common in Nigeria and little attention has been given to the disorders of ovulation which may be responsible for 15-20% of cases of infertility (Hamilton, 2012).

For ovulation to occur, gonadotrophin releasing hormones (GnRH) are secreted in a pulsatile manner from the hypothalamus and travel through the hypophyseal vessels to the anterior pituitary gland where it leads to the production of follicle stimulating hormone (FSH) and luteinizing hormone (LH). FSH and LH interact with the ovary in the ‘two cell, two gonadotrophin’ hypothesis. This process leads to the selection of a dominant follicle from which ovulation occurs. Interactions between the hypothalamus and anterior pituitary, hypothalamus and ovaries, pituitary and ovaries occur in a back and forth manner (Hamilton, 2012; Monga and Dobbs, 2011).

The World Health organisation has classified disorders of ovulation to include; type 1 - hypothalamic failure in which the gonadotrophin levels are low and oestrogen levels are also low, type 2 –hypothalamic pituitary dysfunction in which gonadotrophin and oestrogen levels are within normal ranges and type 3- ovarian failure in which gonadotrophin levels are elevated and oestrogen levels are low (Hamilton, 2012).

A hormone profile assay is one of the investigations requested during the assessment an infertile couple and a progesterone level of 4ng/ml is considered as an indicator of ovulation although the true marker of an ovulation is pregnancy (Ogedemgbe, 2005).
METHODS

This is a review of the hormone profile results of one hundred and twenty women who were investigated for infertility between 1st January and 31st December 2015 at the gynaecology clinic of the Niger Delta University teaching Hospital Okolobiri, Bayelsa state.

For women who had regular menstrual cycles, a first blood sample was taken between days 2-5 of the menstrual cycle and FSH, LH, estradiol, and prolactin were assayed for. A second blood sample for progesterone assay was collected at the mid luteal phase. For those who did not have a regular menstrual cycle, a single random sample was collected for assay of all the hormones listed. Occasionally, a thyroid function test and testosterone were requested for patients when indicated. Those results were not considered for this review. A prolactin value greater than 26ng/ml was considered to be elevated.

Blood samples were analysed by the ELISA method and results were analysed using SPSS 20.

RESULTS

The ages of women included in this study ranged between 21 and 47 with a mean age of 32.66 ± 5.51. There were no underweight patients in this study. Women with a normal body mass index made up 35% (42/120) of the study population. Overweight women constituted 30.8% (37/120) and 34.2% (41/120) were obese.

Women with a progesterone value of 4ng/ml were considered to have ovulated in that menstrual cycle and made up 35.8% (43/120). The remaining 64.2% (77/120) had progesterone values suggestive of anovulation.

There was no association between ovulation and body mass index (p= 0.30), but there was a significant association between ovulation and prolactin levels (p= 0.01).

No patient in this study had WHO type 1 anovulation. Most patients (60/77) had WHO type 2 anovulation, some (7/77) had WHO type 3 anovulation and the rest (10/77) had hyperprolactinaemia.

DISCUSSION

Anovulation is more common in women who are at the extremes of the reproductive cycle. It becomes worrisome when a woman who is desirous of getting pregnant is found to be anovulatory.

Factors that are known to contribute to anovulation include hypothalomo-pituitary disorders, ovarian disorders and endocrine disorders (Ogedemgbe, 2005). Anovulation in this study was found to be as high as 64.2%. This figure is higher than other reported figures of 40.9% and 42.2% (Olatunji and Sule-Odu, 2003) in other studies from Nigeria. A constant limitation to studies on infertility in Nigeria is that there is hardly a distinction between the different contributors to female factor infertility and this study was no different. The hysterosalpingograms of patients who underwent hormone profiles could not be obtained. Other information that could not be obtained in this study include the parity of the patient and the cycle length of each patient.

There was no correlation between obesity and anovulation in this study. However, women who are obese are known to have anovulatory problems and are counselled to embark on weight loss measures to improve their chances of conceiving (Van der Steeg et al., 2008).

Prolactin levels in this study had a significant association with anovulation. Elevated prolactin levels can cause infertility by interfering with the pulsatile release of the GnRH from the hypothalamus. It can also cause pituitary and ovary dysfunction. Prolactin levels may be elevated by sleep, eating, stressful conditions, chest trauma, nipple stimulation among others (Klufo, 2005). Hyperprolactinaemia may manifest as galactorrhea and this has been demonstrated to occur in as many as 77% of participants of a hospital based study (Jeremiah et al., 2009). Prolactin levels of up to 100ng/ml or more require follow up with imaging studies. A thyroid function test may be requested for women with hyperprolactinaemia as hypothyroidism has been associated with the condition.

Most anovulatory patients in this study were classified as having the WHO type 2 type of anovulation. This type of anovulation is to be the more common of the three types. Polycystic ovarian syndrome (PCOS) has been shown to be a predominant cause of type 2 anovulation (Okohue et al., 2013). An attempt to find a link between PCOS and anovulation in this study was unsuccessful as the poorly specific LH, FSH ratio was the only tool available to us and majority of the patients with WHO type 2 an ovulation had a ratio of 1 or less.

Irradiation, chemotherapy or autoimmune disorders may be responsible for WHO type 3 anovulation which was noted in some (10/77) of our study participants. The classification into ovarian failure or early menopause depends on the age at which ovarian function ceased. These women will require donation of an ovum from a suitable donor for them to be able to achieve their reproductive aspirations. Ovum donation like many other aspects of assisted reproductive techniques is fraught with medico-legal and ethical challenges and these need to be considered when counselling the client.
CONCLUSION

Anovulatory infertility may be commoner than it is thought to be in our environment. The recipe for an epidemiologic shift that will lead to disorders of ovulation overtaking tubal factors as the leading cause of female infertility is present in our environment. The diagnosis of anovulatory infertility may be greeted with a sigh of relief as pharmacologic manipulation of the Hypothalamo-pituitary ovarian axis may be all that is required. On the other hand, things may not be so simple especially in cases where an ovum donation is required.

REFERENCES


