Polycystic ovarian syndrome: diagnostic challenges in resource-poor settings (Ugandan perspectives)

Francis Pebalo Pebolo, Auma Anna Grace, Alobo Gasthony

Corresponding author: Francis Pebalo Pebolo, Department of Reproductive Health, Gulu University Faculty of Medicine, Gulu, Uganda. pebalopebolo@gmail.com

Received: 05 Oct 2020 - Accepted: 18 Jan 2021 - Published: 29 Jan 2021

Keywords: Polycystic ovarian syndrome, Uganda, infertility, laboratory

Polycystic ovarian syndrome: diagnostic challenges in resource-poor settings (Ugandan perspectives)

Francis Pebalo Pebolo¹,², Auma Anna Grace², Alobo Gasthony³

¹Department of Reproductive Health, Gulu University Faculty of Medicine, Gulu, Uganda, ²Department of Nursing and Midwifery, Lira University Faculty of Health Sciences, Lira, Uganda, ³Department of Obstetrics and Gynaecology, Lira University Faculty of Health Sciences, Lira, Uganda

Corresponding author

Francis Pebalo Pebolo, Department of Reproductive Health, Gulu University Faculty of Medicine, Gulu, Uganda

Copyright: Francis Pebalo Pebolo et al. PAMJ Clinical Medicine (ISSN: 2707-2797). This is an Open Access article distributed under the terms of the Creative Commons Attribution International 4.0 License (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Cite this article: Francis Pebalo Pebolo et al. Polycystic ovarian syndrome: diagnostic challenges in resource-poor settings (Ugandan perspectives). PAMJ Clinical Medicine. 2021;5(41). 10.11604/pamj-cm.2021.5.41.26386

Available online at: https://www.clinical-medicine.panafrican-med-journal.com//content/article/5/41/full
Abstract

Polycystic ovarian syndrome is the most common cause of anovulatory infertility accounting for up to 40% of the reasons for visiting a doctor. The Ugandan government has recognized infertility as a major problem affecting over five million people, yet polycystic ovarian syndrome is not included in the Ugandan Clinical Guidelines, hence it’s not part of the Uganda minimum healthcare package. Lack of guidelines means diagnosis is a challenge and many cases have delayed or no diagnosis. Early diagnosis is good for awareness of associated risks such as infertility, dysfunctional uterine bleeding, endometrial cancer, obesity, diabetes, dyslipidemia, hypertension, and cardiovascular diseases. Clinical laboratories are handy in the diagnosis as well as follow-up of PCOS cases and in most rural settings, these are lacking, confounded by the lack of skilled frontline workers such as gynecologists and reproductive endocrinologists.

Perspectives

Perspective in PCOS diagnosis and challenges in Uganda: polycystic ovarian syndrome (PCOS) is the most common cause of anovulatory infertility affecting 5-13% of women of reproductive age [1]. Anovulation affects up to 76% of women with PCOS, accounting for up to 40% of cheap presentation to doctors [2,3]. PCOS is a genetically-determined primary ovarian disorder resulting in hypersecretion of androgens which starts in fetal life. The typical clinical and biochemical features are the effects of exposure to androgen excess at or before puberty [4]. It is one of the biggest challenges in reproductive medicine due to its complexity, progression aspect, and the consequences as it entails in women’s lives: from adolescence to post-menopause [5]. The standard of care of PCOS in a resource-poor setting may be challenging owing to the limitation in laboratory infrastructures, and the relevant personnel. The 2004 Rotterdam criteria are by far the most commonly used diagnostic criteria in the diagnosis of PCOS and requires the presence of at least two out of the following three features: clinical and/or biochemical hyperandrogenism, chronic oligo-ovulation, and polycystic ovarian morphology, after exclusion of other endocrine disorders, such as hyperprolactinemia, thyroid dysfunction late-onset congenital adrenal hyperplasia, or androgen-secreting tumors [6]. The initial evaluation of patients suspected of PCOS may include, at a minimum: a testosterone panel (total and free or bioactive testosterone) and dehydroepiandrosterone sulfate, thyroid-stimulating hormone (TSH), prolactin, and 17-hydroxyprogesterone (17-HP). A transvaginal sonogram should also be performed in all patients, both to assess for the presence of polycystic ovaries and to evaluate the endometrial thickness as a screen for excessive endometrial thickening, determining the need for an endometrial biopsy. An estimated 30% of PCOS patients will merit an endometrial biopsy, either because they demonstrate amenorrhea or have an endometrial thickness of greater than 7 mm on ultrasonography [7]. Metabolic evaluation including basal and 2-h glucose and insulin levels after the oral administration of 75g glucose and a lipid profile should also be performed in all patients with PCOS, considering the high prevalence of glucose intolerance, hyperinsulinemia, and metabolic syndrome among these women [7]. Laboratory medicine is essential for disease detection, surveillance, control, and management. However, access to quality-assured laboratory diagnosis has been a challenge in low-income and middle-income countries (LMICs) resulting in delayed or inaccurate diagnosis and ineffective treatment with consequences for patient safety [8]. Most low-income countries have their laboratories concentrated in town areas. In Laos People’s Republic, laboratories are only present in the capital, Vientiane [9]. This is not any different from Uganda where most of the health center level IVs, general hospitals, and some of the Regional Referral Hospitals do not have functional hormonal assays. It is therefore, a common practice that many Ugandans source prescribed tests through
private laboratories that are located mainly in major towns. Distance to access care points and poverty create inequality and inequity in PCOS care in the country. Large scale effort has been implemented in purchasing medical products to help reduce mortality in many low resource settings. The dominant purchaser of medical products may be the United Nations (UN) agencies (e.g. United Nations International Children's Emergency Fund (UNICEF), United Nations Development Programme (UNDP), United Nations Population Fund (UNFPA)); major international not-for-profit aid agencies (e.g. Bill and Melinda Gate's Foundation and Cooperative for Assistance and Relief [10]. This kind of funding may not be available for PCOS, a condition that predominantly causes infertility, as if infertility is not looked at as a problem amidst high fertility.

The acquisition of a major contract with a nationalized health-care system will necessitate successful integration into their procurement system [10]. The Ugandan government has recognized infertility as a major problem affecting an estimated five million people and it’s included in the Uganda national policy guidelines and service standards for sexual and reproductive health and rights [11]. Amidst all this, PCOS management is not included in the Uganda clinical guidelines and as such, it’s not one of the conditions to be managed under the Uganda Minimum Healthcare Package yet anecdotal evidence shows that quite a significant number of women who present with anovulatory infertility in Uganda have features of excess androgens, a key feature of PCOS. PCOS should be viewed as a complex metabolic disorder that requires a global therapeutic approach since it is a risk factor for diseases such as diabetes and endometrial cancer and possibly cardiovascular disease [10]. Diagnosis of PCOS makes the patient aware of possible fertility concerns, dysfunctional bleeding, endometrial cancer, obesity, diabetes, dyslipidemia, hypertension, and theoretical increased risk of cardiovascular diseases [12]. Most developing nations have extreme shortages of trained medical personnel [9]. This leads to task shifting to less skilled less knowledgeable providers such as the clinical officers and some non-specialist physicians. In some settings as high as 75% of cases are not diagnosed due to the variability of patient presentation and lack of providers’ knowledge [12]. Compounding shortage of trained personnel is the recruitment effort by non-governmental organizations and programs, which tends to divert health professionals from frontline practice into their projects by offering them higher salaries and benefits [9].

Conclusion

In conclusion; much as the true prevalence of PCOS in Uganda is unknown, anecdotal data shows that the condition is quite prevalent among infertile women in the country. The difficulties in the diagnosis may be related to incomplete evaluation as required by 2004 Rotterdam diagnostic criteria due to the lack of laboratory facilities and standard ultrasound scanning modalities. The cost of laboratory evaluations has created inequality in PCOS care. What remains unresolved is whether there will be a cheaper way of evaluating PCOS patients in low resource settings.

Competing interests

The authors declare no competing interests.

Authors' contributions

All the authors have read and agreed to the final manuscript.

References

1. Gurkan Bozdag SM, Dila Zengin, Erdem Karabulut, Bulent Okan Yildiz. The prevalence and phenotypic features of polycystic ovary syndrome: a systematic review and meta-analysis. Human Reproduction. 2016;31(12): 2841-2855. PubMed | Google Scholar
2. Legro RS. Diagnosis and treatment of polycystic ovary syndrome: an endocrine society clinical practice guideline. J Clin Endocrinol Metab. 2013;98(12): 4565-92. PubMed | Google Scholar
3. Fica S. Insulin resistance and fertility in polycystic ovary syndrome. J Med Life. 2008;1(4): 415-22. PubMed | Google Scholar
4. Franks S, Berga SL. Does PCOS have developmental origins? Fertility and Sterility. 2012;97(1): 2-6. PubMed | Google Scholar
5. Soares Júnior JM, Baracat MC, Maciel GA, Baracat EC. Polycystic ovary syndrome: controversies and challenges. Revista da Associação Médica Brasileira. 2015;61(6): 485-7. PubMed | Google Scholar
6. Rotterdam ESHRE/ASRM-Sponsored PCOS consensus workshop group. Revised 2003 consensus on diagnostic criteria and long-term health risks related to polycystic ovary syndrome (PCOS). Human Reproduction. 2004;19(1): 41-47. PubMed | Google Scholar
7. Azziz R, Marin C, Hoq L, Badamgarav E, Song P. Health care-related economic burden of the polycystic ovary syndrome during the reproductive life span. The Journal of Clinical Endocrinology & Metabolism. 2005;90(8): 4650-4658. PubMed | Google Scholar
8. Nkengasong JN, Yao K, Onyebujoh P. Laboratory medicine in low-income and middle-income countries: progress and challenges. Lancet (London, England). 2018;391(10133): 1873-1875. PubMed | Google Scholar
9. Benediktsson H, Whitelaw J, Roy I. Pathology services in developing countries: a challenge. Archives of Pathology & Laboratory Medicine. 2007;131(11): 1636-1639. PubMed | Google Scholar
10. Abbas JJ. Improving health-care delivery in low-resource settings with nanotechnology: challenges in multiple dimensions. Nanomedicine. 2017;4: 1849543517701158. PubMed | Google Scholar
11. Sajjabi AT. Message from the government of Uganda. ESHRE Monographs. 2008. PubMed | Google Scholar
12. Wolf WM, Wattick RA, Kinkade ON, Olfert MD. Geographical prevalence of polycystic ovary syndrome as determined by region and race/ethnicity. International Journal of Environmental Research and Public Health. 2018;15(11): 2589. PubMed | Google Scholar