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ORIGINAL ARTICLE

Prevalence of polycystic ovarian syndrome in women aged 15 to 25 in a general private office

Prevalencia del síndrome ovario poliquístico en mujeres de 15 a 25 años en un consultorio privado general

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ABSTRACT

Introduction: polycystic ovary syndrome is known as a metabolic endocrine disorder most common among women of reproductive age. Polycystic ovary syndrome has been linked to gynecological, endocrinological, cardiovascular and metabolic problems.
Objective: to describe the prevalence, clinical and epidemiological characteristics of polycystic ovary syndrome in patients attending a general private clinic in the period from October 2022 to May 2023.
Methods: the study was an observational, descriptive, cross-sectional study. All patients with polycystic ovary syndrome who attended the medical office were included, corresponding to 200 patients with polycystic ovary syndrome.
Results: the median age was 30 years, 51,85 % were single, 54,32 % were students, 79 % had a body mass index outside the reference range, and 29,99 % suffered one or more miscarriages. The most striking clinical feature was hirsutism in 67,90 %. The most frequent complications in decreasing order were obesity, infertility and thyroid disease. The established treatment in most women was lifestyle change and pharmacological treatment in 56,76 %.
Conclusions: patients diagnosed with polycystic ovary syndrome presented two or more clinical characteristics in each of them, the majority presented at least one complication, the most striking being obesity.

Keywords: Polycystic Ovary Syndrome; Hyperandrogenism; Obesity; Infertility; Prevalence.

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RESUMEN

Introducción: el síndrome de ovario poliquístico es conocido como un trastorno endocrino metabólico más común entre las mujeres en edad reproductiva. El síndrome de ovario poliquístico se ha relacionado con problemas ginecológicos, endocrinológicos, cardiovasculares y metabólicos.
Objetivo: describir la prevalencia, las características clínicas y epidemiológicas del síndrome de ovario poliquístico en pacientes que acuden a consultorio privado general en el periodo de octubre 2022 mayo 2023.
Métodos: el estudio fue observacional descriptivo de corte transversal. Fueron incluidas todas las pacientes con síndrome de ovario poliquístico que acudieron al consultorio médico, que corresponden con 200 pacientes con síndrome de ovario poliquístico.
Resultados: la mediana de edad fue de 30 años, el 51,85 % eran solteras, 54,32 % estudiantes, el 79 % presentó índice de masa corporal fuera del rango de referencia y el 29,99 % sufrió uno o más abortos. La característica clínica más llamativa fue hirsutismo en un 67,90 %. Las complicaciones más frecuentes en orden decreciente fueron obesidad, infertilidad y enfermedad tiroidea. El tratamiento establecido en la mayoría de las mujeres fue cambio del estilo de vida y farmacológico en un 56,76 %.
Conclusiones: las pacientes diagnosticadas con síndrome de ovario poliquístico presentaron dos o más características clínicas en cada una de ellas, la mayoría presentó por lo menos una complicación siendo la más llamativa la obesidad.

Palabras clave: Síndrome de Ovario Poliquístico; Hiperandrogenismo; Obesidad; Infertilidad; Prevalencia.

INTRODUCTION

Polycystic ovary syndrome (PCOS) is an endocrine and metabolic condition that mainly affects women of reproductive age. It is characterized by the presence of hyperandrogenism associated with oligo-anovulation, resulting in the formation of ovarian cysts and various clinical symptoms. The diagnosis of PCOS can be complicated due to the heterogeneity of its signs and symptoms, leading to delays in its identification, especially in adolescents. In addition, the lack of common diagnostic criteria for this population makes early detection even more difficult.

The National Institutes of Health (NIH) has established the consensus definition of PCOS as hyperandrogenism associated with oligoanovulation. However, different diagnostic criteria have been proposed, such as those of the Rotterdam Consensus, which have led to varying prevalence estimates, ranging from 4 % to 15 %. This shows the need for greater understanding and knowledge about PCOS and its impact on the young population.

PCOS can have significant consequences on the physical and emotional health of young women who suffer from it. Among the most common symptoms are menstrual disorders, hirsutism, acne, alopecia and other changes in body image. These manifestations can affect self-esteem and generate states of anxiety or depression in some patients.

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In this context, an investigation is proposed to determine the prevalence of PCOS in young women, specifically in the age range of 15 to 25 years, who attend private general practices. The study will focus on identifying the risk factors associated with the development of PCOS, the most common signs and symptoms, and early detection in this medical context. In addition, it will seek to promote adherence to treatment to avoid irreversible complications and improve patients' quality of life.

The National Institutes of Health (NIH) has agreed on the definition of polycystic ovary syndrome as hyperandrogenism associated with oligo-anovulation. In its literature review it states that Polycystic Ovary Syndrome (PCOS) is a lifelong disorder that shows first signs before the onset of puberty and sometimes as premature adrenarche. Because the signs and symptoms are heterogeneous and tend to change over time, diagnosis tends to be delayed.[1]

There is a lack of common criteria for the diagnosis of this pathology in adolescents, where the criteria used for adult patients may provide an erroneous diagnosis due to the different physiological situations that may vary in young groups, as well as evidence that insulin resistance is not always related to obesity, however, cardiovascular risks are increased by plasma alteration of inflammation and lipid markers.[1]

In the study: "Diagnostic criteria for polycystic ovary syndrome" and, considering the norms of the National Institute of Health of the United States (INS-EU), they determined that the prevalence of polycystic ovary syndrome (PCOS) is estimated between 4-10 %, but taking the Rotterdam Consensus of 2004 as a basis, this can be doubled. In Australian women, for example, an incidence of 8,7 ± 2 % has been reported using the INS-U.S. criteria, but using the Rotterdam Consensus criteria it increased to 11,9 ± 2,4 %.[2]

In the "Epigenetics of polycystic ovary syndrome" research, it was determined that there is a relationship between genetic factors and PCOS in which infertile women had elevated testosterone levels in serum and follicular fluids that were associated with significant alterations in the methylation pattern of different genes. Hyperandrogenism produces epigenetic modifications in the PPARG1, NCOR1 and HDAC3 genes of granulosa cells. These results showed us that these genes are probably involved in ovarian dysfunction in PCOS. They proposed that polycystic ovary syndrome (PCOS) is fully related to metabolic syndrome; they conducted the study in 57 people where there was a prevalence of 29,2 % with PCOS, of this number 35,2 % presented an increase in systolic blood pressure; 47,5 % of the women had hyperglycemia and 29,41 % hypertriglyceridemia.[3]

Another point to take into account is the type of clinical manifestations presented in women with Polycystic Ovary Syndrome since it tells us that the most frequent manifestations are amenorrhea with 31,4 %, dysmenorrhea with 24,42 % and those that occur less frequently are infertility with 4,26 % and hirsutism with 3,49 %. The study showed that 40,3 % of the patients who underwent laboratory tests were diagnosed with polycystic ovary syndrome and 75 % of the women who underwent ultrasound also suffered from polycystic ovary syndrome. Other repercussions of PCOS can be manifested on the psychological level. Stress states appear as a frequent comorbidity especially in young women, likewise this group of patients consider their body self-image as not acceptable due to physical changes that are a syndromic manifestation of polycystic ovary, which converge in states of low self-esteem or anxiety for this same group. Although depressive states are very frequent.[4]

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The Instituto de Investigación en Psicología y Salud "Sanitas", in its documentary study, mentions that a lower rate of depression has been seen in adult women, particularly in those who ascend academically, and shows a relationship in which this condition can decrease by at least 20 % for each academic level achieved. In recent research there is little evidence that specifically relates PCOS with alterations in cognition, however, several researchers agree that adolescents with PCOS had a decreased cognitive function in relation to those healthy patients. Likewise, it was concluded by means of comparative studies that when comparing 22 healthy women with 29 with PCOS, they did not show a decrease in verbal function, whose presence was positive in those with PCOS who also obtained reduced scores in parameters that evaluated memory. In a study they demonstrated in 30 adolescents with obesity and overweight, and with polycystic ovary syndrome (PCOS), how the nutritional recommendation changes their dietary habits, being assessed by means of body weight, waist circumference (WC) and body mass index (BMI).[5]

The data established that 70 % of the adolescents added to the nutritional suggestion and 50 % lost weight. The adolescents who decreased their weight established eating habits with a hypocaloric diet and consuming more meals per day, according to the nutritional recommendation. Waist circumference (WC) decreased eloquently, however, body weight did not obtain the same results after the implementation of a hypocaloric diet. In a descriptive study where 258 clinical histories were analyzed, the factors found were: women in the second decade of fertility, people living in urban areas, unmarried, high school education and employed.[6,7]

Polycystic ovary syndrome is a pathology that generates multiple problems, mainly in the young population, and for this reason it should be understood. It can be underdiagnosed or misdiagnosed, and this variability in clinical presentation and the lack of knowledge about this condition among both health professionals and the general population delays its identification.[8]

The objective of this research was to determine the prevalence of polycystic ovary syndrome (PCOS) in women aged 15 to 25 years seen in private general practices during the period October 2022 to May 2023.

METHODS

Cross-sectional descriptive observational study, since we sought to determine the prevalence of PCOS at a specific time.

Target population: Women aged 15 to 25 years who attended the private clinic during the study period.

Sample size and selection: A non-probabilistic purposive sample selection was established, since patients with an established diagnosis of Polycystic Ovary Syndrome were sought, resulting in a total of 200 patients,

Variables: The main variable to be measured was the presence or absence of PCOS diagnosis in the women in the sample. Data on risk factors, signs and symptoms, treatment strategies, preventive measures, and demographic characteristics could also be collected.

Data sources: Data are collected from medical records and electronic medical records implemented in that medical center.

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Data collection instruments: A structured form was used to record data related to age, marital status, parity, comorbidities and diagnosis.

The principles of medical ethics and the postulates of the Declaration of Helsinki were taken into account.

RESULTS

Microbiology

The relationship between microbiology and polycystic ovary syndrome (PCOS) is a developing area of research. It has been suggested that the composition of the gut microbiota may influence the onset and severity of PCOS, due to its impact on inflammation, metabolism, and hormone regulation.[9]

Some studies have observed differences in the composition of the gut microbiota between women with PCOS and those without the condition. It has been proposed that certain types of bacteria may be associated with insulin resistance and inflammation, common factors in PCOS. However, the exact relationship between the microbiota and PCOS is not yet fully understood.[10,11]

In addition, the possible influence of the vaginal microbiota on PCOS has been investigated. Changes in the vaginal microbiota may affect a woman's reproductive and hormonal health. Some studies have suggested that women with PCOS may have an altered vaginal microbial composition, but more research is needed to establish clear links.

It is important to keep in mind that research in this field is relatively new and continues to evolve. Although there are indications that microbiology may play a role in PCOS, more research is needed to fully understand the relationship and its potential impact on the diagnosis and treatment of this condition.

Pharmacology

Some of the common pharmacological approaches include[12,13,14]

- Oral contraceptives: Combined hormonal contraceptives (containing estrogen and progestin) can regulate menstrual cycles, reduce androgen levels, and improve symptoms such as acne and hirsutism.
- Anti-androgens: Medications such as spironolactone or flutamide can block the effects of androgens and reduce symptoms of hirsutism, acne and hair loss.
- Medications to induce ovulation: For women who wish to conceive, medications such as clomiphene citrate or letrozole may be prescribed to stimulate ovulation.
- Insulin Sensitizers: Metformin is a medication used to improve insulin sensitivity and control blood sugar levels. It may be useful for women with PCOS and insulin resistance.
- 5-alpha-reductase inhibitors: Medications such as finasteride may help reduce body hair growth by blocking the conversion of testosterone to a more active form called dihydrotestosterone.
- Diabetes medications: In cases of severe insulin resistance or type 2 diabetes, medications may be prescribed to improve blood sugar control.

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It is important to keep in mind that treatment may vary according to the individual symptoms and needs of each patient. In addition, side effects and drug interactions should be considered when choosing a drug treatment. It is always advisable to discuss the options with a healthcare professional before starting any treatment.

Pathology

Hormonal condition affecting women of reproductive age. It is characterized by hormonal imbalances that cause a series of symptoms and changes in the ovaries. Although no definitive cause is known, it is believed that genetic and environmental factors play a role in its development.

The main features of PCOS include: (15,16,17)

- Menstrual irregularities: women with PCOS may have irregular or absent menstrual cycles due to lack of regular ovulation.
- Excess androgens: The body produces elevated levels of androgen hormones (such as testosterone), which can cause symptoms such as acne, excess facial and body hair (hirsutism) and male pattern hair loss.
- Polycystic ovaries: The ovaries can develop multiple small cysts surrounding undeveloped follicles. These cysts are an accumulation of eggs that have not matured properly.
- Insulin resistance: Many women with PCOS also have problems with insulin sensitivity, which can increase the risk of type 2 diabetes and make weight control difficult.
- Metabolic changes: PCOS may be associated with an increased risk of obesity, hypertension, dyslipidemia (disorders in blood lipid levels) and metabolic syndrome.

Diagnosis is based on clinical criteria, which include the presence of several of these features. There is no definitive cure for PCOS, but treatment may involve lifestyle changes (diet and exercise), medications to regulate menstrual cycles, control androgenic symptoms, and improve insulin sensitivity. The treatment approach depends on the specific symptoms and goals of each patient.

Genetics

Although the exact cause of PCOS is not fully understood, a genetic component has been identified that may contribute to the development of the condition.

- Family Heredity: There is evidence that PCOS may have a hereditary component. If you have a family history of PCOS, you may have an increased risk of developing the condition. Studies have shown that daughters of women with PCOS are more likely to develop the condition, suggesting a genetic predisposition.
- Genetic variants: Certain genetic variants have been identified that may be associated with an increased risk of developing PCOS. These variants could be related to hormone regulation, ovarian function and insulin resistance, which are common features of PCOS.
- Hormone imbalances: Genetic variants can influence how the body regulates hormones such as insulin, luteinizing hormone (LH) and follicle-stimulating hormone (FSH). These hormones play a crucial role in ovulation and ovarian function. Genetic changes may contribute to the hormonal imbalances that characterize PCOS.
- Insulin resistance: Insulin resistance is a common component of PCOS and is thought to be genetically related. Individuals with certain genetic predispositions may have an

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increased likelihood of developing insulin resistance, which can lead to the development of insulin resistance.

- Gene-environment interaction: Although genetic factors can influence susceptibility to PCOS, it is also important to consider the interaction between genes and the environment. Factors such as diet, lifestyle and other environmental factors may interact with genes to influence the manifestation and severity of PCOS

Analysis and interpretation
The total number of patients with Polycystic Ovary Syndrome who attended the Gynecology and Obstetrics service of the private practice was 200.

Of the patients, 51,85 % reported being single, 38,27 % reported being married and 9,88 % reported being in a common-law relationship. Of the patients, 54,32 % were students, 28,39 % reported being housewives and 17,28 % of them were employed in permanent jobs. Of the patients studied, 59,26 % live in the urban area and the rest live in the rural area.

33,33 % of the patients with PCOS attended the Gynecology and Obstetrics service for oligomenorrhea, 32,11 % attended for desire of gestation, 17,28 % presented amenorrhea and only 8,64 % attended for hypermenorrhea and the same percentage for those who attended for a gynecological check-up. In 67.90 % of the women with PCOS, hirsutism was the most frequent clinical characteristic in the patients, 32,96 % presented alopecia, followed by acne in 59,25 % of the patients.

Of the patients with PCOS, 43,20 % were obese type I, 20,98 % had a BMI within the normal range and 17,28 % were overweight. Regarding comorbidities, the most frequent were obesity in 61,72 %, secondary infertility in 27,16 %, thyroid disease in 23,25 % of them, followed by HT in 19,75 % and type 2 DM in 18,55 %. Ultrasound diagnosis of bilateral polycystic ovary was found in 53,09 % of the women.

Among the most frequently manifested family pathological diseases were arterial hypertension in 30,86 %, diabetes mellitus type 2 in 23,46 %, obesity in 11,11 % and 3,70 % with dyslipidemia.

In 56,76 % of the patients with PCOS were indicated a treatment based on a correct diet, physical exercise and adequate pharmacological treatment, in 38,27 % of them were indicated only pharmacological treatment and 4,93 % did not follow the appropriate treatment.

DISCUSSION

Polycystic Ovary Syndrome (PCOS) is a complex endocrinopathy that encompasses multiple signs and symptoms including menstrual disturbances, which occur in approximately 2/3 of adolescent and young adult women, and can manifest as oligomenorrhea, primary or secondary amenorrhea and/or dysfunctional uterine bleeding, acne, signs of virilization, obesity, hirsutism, ultrasound findings of polycystic ovary, cardiovascular and dysmetabolic disorders defined by dyslipidemia, insulin resistance, obesity and hypertension.[1, 5,12]

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The consensus on polycystic ovary syndrome does not consider insulin resistance as a mandatory factor to establish the diagnosis, however, it has been known for decades that this syndrome has a high prevalence of glucose intolerance and type 2 diabetes mellitus, in this research a value close to 20 % of patients with hyperglycemia in PCOS carriers was found.[6]

PCOS is independent of obesity and diabetes, with which it is associated with relative frequency and can aggravate them. Similar results with respect to obesity are reflected in this study, which shows a high proportion of overweight/obesity in patients with PCOS, This could be explained by a lower adherence to the nutritional interventions that are part of the treatment of metabolic syndrome and PCOS, a variable that was not considered at the time of the study but that is contemplated since in addition to the metabolic syndrome they have another pathology which in this case is PCOS that leads to cosmetic and fertility alterations.[7,8]

Most of the patients with PCOS present some degree of alteration in cholesterol, triglycerides and glucose, as well as association to cardiovascular pathologies such as arterial hypertension, which is similar to what was found in this study, these alterations lead to a higher cardiovascular risk, as well as to develop Diabetes Mellitus.

CONCLUSIONS

The information obtained through this research can also be of use to medical students and health professionals by providing them with relevant knowledge about polycystic ovary syndrome and its impact on the young population. By promoting adherence to treatment and early detection, it provides more effective medical care and improves the quality of life of patients affected by this pathology.

Conflicts of interest
The authors declare that there are no conflicts of interest.

Authorship contribution
All authors declare their participation in conceptualization, data curation, formal analysis, research, methodology, project management, resources, software, supervision, validation, visualization, writing - original draft, writing - revision and editing.

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