Scientific Research Publishing

Open Journal of Endocrine and Metabolic Diseases, 2022, 12, 266-282
https://www.scirp.org/journal/ojemd
ISSN Online: 2165-7432
ISSN Print: 2165-7424

Epidemiological Aspects and Results of the Management of Polycystic Ovary Syndrome at the CNHU-HKM of Cotonou

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How to cite this paper: Hode, A.K., Denakpo, J.L., Hubert, D.A., Dakin, M. and Techeme, E. (2022) Epidemiological Aspects and Results of the Management of Polycystic Ovary Syndrome at the CNHU-HKM of Cotonou. *Open Journal of Endocrine and Metabolic Diseases*, **12**, 266-282.
https://doi.org/10.4236/ojemd.2022.1212020

Received: July 26, 2022
Accepted: December 27, 2022
Published: December 30, 2022

Abstract

Introduction: Polycystic Ovarian Syndrome (PCOS), also known as Stein Leventhal Syndrome, is one of the common endocrine diseases affecting women of childbearing age and the leading cause of anovulatory infertility worldwide. The aim of this study was to describe the clinical, paraclinical and therapeutic aspects of PCOS at the University Clinic of Obstetrics and Gynaecology of the National Hospital and University Centre Hubert Koutoukou MAGA of Cotonou (CNHU). **Patients and Method:** The study was doing in the University Clinic of Gynecology and Obstetrics of the CNHU-HKM. This was a descriptive and analytical longitudinal study with retrospective and prospective data collection over a period of 7 years from January 2015 to December 2021. It focused on women of childbearing age seen in gynecological consultation. **Results:** The frequency of PCOS was 2.53%. The mean age of the patients was 27.28 ± 6.55 years. They were educated for the most part with a university level in 43.8% of cases. Obstetrically they were nulligest (45.63%) and nulliparous in 60% of cases. The history of spontaneous miscarriages was found in 61.11%. The main reasons for consultation were menstrual disorders (51%) followed by the desire for pregnancy (40.6%). Clinically, obesity (30%), overweight (33.1%), high blood pressure (20.63%), hirsutism (24%) and acne (27%) were noted. All the women had micropolycystic ovaries in ultrasound. Testosterone was elevated in 61% of cases. Phenotype D was found in 45.63% of patients. All these patients were put under lifestyle and dietary measures, Metformin (13.80%) and estrogen-progestogen (18.80%). The outcome of the treatment was assessed by cycle regularity, regression of hirsutism, weight loss, fertility and fertility. The cycle was normalised in most cases with notable regression of physical signs of hyperandro-

genism. The cycle was normalized in most cases with the notable regression of physical signs of hyperandrogenism. We had recorded 25 pregnancies including one miscarriage. The occurrence of pregnancy was obtained in 50% of these women after 12 months and in less than 20% after 24 months. **Conclusion:** PCOS was common in the CUGO of the CNHU-HKM. A population-based epidemiological study seems necessary to better appreciate the risk factors of this endocrine syndrome and its repercussions on fertility and metabolic diseases such as type 2 diabetes, obesity and hypertension.

Keywords

Hirsutism, Spaniomenorrhea, Hyperandrogenism, Insulin Resistance, Metformin

1. Introduction

Polycystic ovaries were known almost a century ago as ovarian dystrophy [1]. Stein and Leventhal codified the association between polycystic ovaries, hyperandrogenism, amenorrhea and infertility in 1935 as their eponymous syndrome [2]. They first published the case of 7 women with amenorrhoea, hirsutism, obesity and a peculiar ovarian appearance with a thick, pearly white cortex dotted with small follicles. This symptomatology corresponds to polycystic ovary syndrome (PCOS), the pathophysiological basis of which is hyperandrogenism [3].

Polycystic ovary syndrome (PCOS) is one of the common endocrine diseases affecting women of reproductive age [4] and the leading cause of infertility [5] [6]. Its frequency varies between 5% - 10% in the world population [3] [5] [6] [7]. Diagnostic criteria were specified at the Rotterdam Consensus Conference in 2003 [3]. It is the combination of at least 2 of the following 3 criteria: oligo-ovulation or anovulation, the clinical expression of which is spaniomenorrhoea or amenorrhoea, high levels of circulating androgens and/or physical manifestations of androgen excess and polycystic ovaries on pelvic ultrasound [6]. More than 12 follicles 2 - 9 mm are in size on at least one ovary [1] [3] [8]. PCOS is associated with cardiometabolic risk such as obesity, hyperinsulinemia, dyslipidemia and type 2 diabetes. Insulin resistance and endometrial cancer are also attributed to it [9]. The aetiology of PCOS is still poorly understood, but the interaction of genetic and environmental factors appears to play a fundamental role in its development [10]. Management strategies are defined. Lifestyle modifications including diet and physical activity are the first-line treatment [11]. Then we have pharmacological and surgical management of PCOS patients aiming at restoring ovulation, weight loss, reducing hirsutism. In 2011, a study in Cotonou estimated the frequency of PCOS to be 4.78% in infertile women. The aim of this study was to describe the clinical, paraclinical and therapeutic aspects of PCOS at the University Clinic of Obstetrics and Gynaecology of the National Hospital and University Centre Hubert Koutoukou MAGA of Cotonou (CNHU).

2. Study Methods

The study took place at the University Gynecology and Obstetrics Clinic of the Centre National Hospitalier Universitaire Hubert Koutoukou Maga (CNHU-HKM). It was a cross-sectional study with descriptive and analytical aims with retrospective data collection over a 7-year period from 1er January 2015 to 31 December 2021. The study population consisted of records of patients of child-bearing age seen in gynaecological consultations during the study period. The study population consisted of records of patients with a diagnosis of PCOS. The diagnosis of PCOS is retained based on the existence of at least two of the following criteria: abnormality of the menstrual cycle, existence of clinical and/or biological hyperandrogenism, polycystic ovaries on ultrasound. Not included in the study. Patients with spaniomenorrhoea or amenorrhoea due to another cause were not included in the study. Records of patients with a diagnosis of PCOS did not receive treatment. Incomplete records that could not be used were excluded. We had all records of patients meeting the inclusion criteria during the study period for comprehensive recruitment. We developed a digital survey form. The records were reviewed and the patients were interviewed. Data entry was done directly in KoBoCollect version 1.25.1 during data collection and data cleaning was done after extraction of the database in Excel. The data were analysed using a model built on the IBM SPSS statistical package for social sciences version 21. The description of the sample was done according to the usual statistics: the quantitative variables are expressed in mean, standard deviation or median with the interquartile range (when the distribution is not normal); the qualitative variables in percentage with their 95% confidence interval. The association between the variables was determined by crossing them using Pearson's Chi- square test or by a Fisher's exact test when the conditions were not met, at the 5% significance level. A prevalence ratio (p-value) of less than 0.05 was considered statistically significant for all tests.

3. Results

3.1. Frequency

Over a 7-year period from 1er January 2015 to 31 December 2021, 6323 patients of reproductive age had a gynaecological consultation at the University Clinic of Obstetrics and Gynaecology (CUGO) of the Centre National Hospitalier et Universitaire Hubert Koutoukou Maga (CNHU-HKM) in Cotonou, of which 160 were cases of Polycystic Ovarian Syndrome (PCOS) The frequency of PCOS in our study was gynaecological consultations 2.5%.

3.2. Socio-Demographic Data

Age of patients

The mean age of the patients was 27.28 years with a standard deviation of 6.55 years. The extremes were 12 years and 45 years.

Occupation, Education, Marital status, Place and environment of resi-

dence

The distribution of these variables is summarised in the table (Table 1).

The patients were mostly students in 26.9% of the cases, with most of them having an university education in 43.8% of the cases.

They were married in 35.6% of cases and lived outside Cotonou in 51.3% of cases in urban areas (63.7%).

Table 1. Distribution of patients by occupation, education, marital status, place and environment of residence.

	Number (n)	Percentage (%)
Occupation		
Craftswoman/Worker	12	7.5
Trader	14	8.8
Student	43	26.9
Civil servant	23	14.3
Housekeeper	17	10.6
Liberal profession	5	3.1
Saleswoman	11	6.9
Other	35	21.9
Total	160	100.0
Level of education		
Not in school	23	14.4
Primary	22	13.8
Secondary	45	28.0
Academic	70	43.8
Total	160	100.0
Marital status		
Not specified	1	0.6
Single	55	34.4
Divorced	2	1.3
Married	57	35.6
Free union	45	28.1
Total	160	100.0
Place of residence		
Suburban	40	25.0
Rural	18	11.3
Urban	102	63.7
Total	160	100.0

3.3. Clinical Data

Reason for consultation we have summarised them in Table 2.

The reason for consultation was the desire for pregnancy and spaniomenorrhoea with respective rates of 40.6% and 39.4%, *i.e.* a cumulative rate of 80%.

Acne (27%) and hirsutism (24%) were the main signs of hyperandrogenism in the study. The average weight of the patients was 70 kg ± 15.3 kg, the smallest was 37 kg and the maximum 122 kg (Table 3).

The BMI study found 30.6% of patients with a normal BMI, 33.1% of overweight patients and 30% of obese patients, including 4.4% with morbid obesity. Fat distribution was android in 77 patients, *i.e.* in 48.1% of cases. BP was elevated in 20.63% of cases.

3.4. Paraclinical Data

Ultrasound images of polycystic ovaries were found in all patients in our study. Other associated signs were found on ultrasound in varying proportions (Table 4). These were uterine myomas, adenomyosis and endometrial hypotrophy.

Of the 13 cases where HSG data was recorded, the main abnormalities noted were uterine synechia in 7 of 13 cases and tubal obstructions in 5 of 13 cases.

3.5. Biology

The results of the biological work-up, namely the hormonal and metabolic work- up, are shown in Table 5.

Testosterone testing was performed in only 23 of 160 patients, a 14.4% completion rate. It revealed an increase in testosterone in 14 out of 23 cases.

The FSH level performed in 24 patients showed an elevation of FSH in 5 out of 24 cases LH and prolactin were found in 12 and 21 patients respectively. LH

Table 2. Distribution of patients according to reason for consultation.

Reason for consultation	Number of employees (n)	Percentage (%)
Pregnancy desire	65	40.6
Spaniomenorrhea	63	39.4
Pelvic pain	22	13.4
Metrorrhagia	13	8.12
Amenorrhea	10	6.1
Oligomenorrhea	9	5.5
Menorrhagia	5	3,12
Dysmenorrhea	2	1.2
Referral for PCOS	2	1.2
Dyspareunia	1	0.6
Hirsutism	1	06

was elevated in 5 of 12 and 7 of 21 cases. One patient was able to perform androstenedione which was low. The lipid balance was disturbed.

Fasting blood glucose in 8 patients and high in one case.

Table 3. Distribution of patients according to physical signs.

	Number (n)	Percentage (%)
Signs of hyperandrogenism		
Hirsutism	38	24.0
Acne	42	27.0
Weight (kg)		
<40	2	1.2
40 - 60	39	24.4
61 - 80	84	52.5
81 - 100	31	19.4
>100	4	2.5
Total	160	100.0
Size (m)		
<1.50	6	3.8
1.51 - 1.60	65	40.6
1.61 - 1.70	84	52.5
>1.70	5	3.1
Total	160	100.0
BMI (kg/m²)		
<18.5 Leanness	10	6.3
18.5 - 24.9 (Normal)	49	30.6
25 - 29.9 (Overweight)	53	33.1
30 - 34.5 (moderate obesity)	37	23.1
35 - 39.9 (Severe obesity)	1	2.5
>40 (Morbidly obese)	7	4.4
Total	160	100.0
Distribution of fats		
Android	77	48.1
Gynoid	83	51.9
Total	160	100.0
Blood Pressure		
HTA	33	20.6
Normal	127	77.4
Total	160	100.0

Table 4. Distribution of patients according to imaging data.

	Number of employees (n)	Percentage (%)
Ultrasound signs		
Polycystic ovaries	160	100
Adenomyosis	4	2.4
Endometrial hypertrophy	3	1.9
Hypotrophy of the endometrium	4	2.4
Myomas	14	8.6
PID	1	0.6
HSG		
Endometriosis	1	0.6
Hydrosalpinx	2	1.3
Bilateral proximal tubal obstruction	2	1.3
Unilateral proximal tubal obstruction	3	1.9
Uterine synechia	7	4.4

Table 5. Distribution of patients according to biological criteria.

Biological signs	Number of employees (n)	Percentage (%)
Testosterone (N = 23)		
High	14	61.0
Normal	9	39.0
Low	0	0.0
FSH (N = 24)		
High	5	21.0
Normal	19	79.0
Low	0	0.0
LH (N = 12)		
High	5	42.0
Normal	7	58.0
Low	0	0.0
Prolactin (N = 21)		
High	7	33.0
Normal	13	62.0
Low	1	5.0
Estradiol (N = 12)		
High	3	25.0

Continued

Normal	8	67.0
Low	1	8.0
Progesterone (N = 9)		
High	6	67.0
Normal	3	33.0
Low	0	0
Androstenedione (N = 1)		
High	0	0.0
Normal	0	0.0
Low	1	100
Lipid balance (N = 1)		
Disrupted	0	0.0
Normal	1	100
Blood glucose (N = 8)		
High	1	12.0
Normal	7	87.0
Low	0	0.0

3.6. Treatment Received

Physical activity and a low-calorie diet were observed by 59% and 69% of patients respectively. The main drugs used were estrogen/progestin (18.8%), metformin (13.8%) and progestins (9.7%).

3.7. Prognosis

The menstrual cycle was regularised in 70.8% of cases. The reduction of hirsutism was observed in 23 cases, 76.7%.

As of 31 December 2021, 25 patients in our study have had at least one pregnancy.

3.8. Time to Pregnancy

The evolution of the time to pregnancy for women over 5 years (60 months) of follow-up shows that the probability of these women having at least one pregnancy is 50% after 12 months.

In our sample, the probability of having at least one pregnancy is 50% after 12 months for women who received metformin and 16 months for those who did not receive metformin.

4. Discussion

Micropolycystic ovary syndrome (PCOS) is one of the common endocrine dis-

eases affecting women of childbearing age [4]. According to the WHO, its worldwide incidence is 5% - 10% [12]. The frequency of 2.5% in our study falls within this range. In the first previous study conducted on PCOS in Benin on data from two private clinics in Cotonou, the rate of PCOS was 4.78% [3]. There is great heterogeneity in the frequencies reported in the literature due to the variability of the diagnostic criteria from one study to another.

Indeed, in most African series, the frequency of PCOS is relatively low, 3% in Côte d'Ivoire in 2002 [13] 0.43% in a Malian study in 2020. In European series the frequency of PCOS was 6.8% in Greece [14] and 6.5% in Spain [15]. In the USA it was 4.8% in white women and 8.0% in African-American women. [16].

In the particular case of adolescents, it is not easy to estimate the prevalence of PCOS because of confounding factors with the spaniomenorrhoea-like irregularity of the cycle characteristic of this period of women's lives.

The mean age of our patients was 27.28 ± 6.55 years. This is comparable to the literature data 27.31 ± 5.06 years in 2021 in the series by Mei-Lien Pane *et al.* [17] 26.2 years in Tunisia in 2017 [18] 26.5 years ± 11.5 years in Mali in 2020 [19]. These ages correspond to the maximum period of fertility in women.

In terms of profession/occupation, the patients in our study were mainly pupils/students, civil servants, housewives and shopkeepers in the proportions of 26.9%, 14.3%, 10.6% and 8.8% respectively. No data were found in the literature that would make a direct link between the occupation of the patients and the occurrence of PCOS. However, an indirect link may be possible in the case of occupations that expose the patient to a sedentary lifestyle. In addition, most of the occupations in our study are recognised as being low-income, which could be a limitation to the performance of biological tests, particularly hormonal tests. The high level of university education (43.8%) is a favourable factor in understanding the disease and its management. However, whether the patient is uneducated or has a low level of education, the obstetrician-gynaecologist must provide psycho- education to obtain their support for the treatment.

The two main reasons for consultation in our study were cycle disorders (45.6%) with mainly spaniomenorrhoea (34%) and desire for pregnancy or infertility (40.6%). Spaniomenorrhoea is a consistent disorder suggestive of PCOS. It is found in most studies with variable frequencies, 45% in Morocco in 2019 [20] 82% in Tunisia in 2012 [1] 68.3% in 2020 in France. Higher rates were found in the Mourali series where 82% of patients presented with spaniomenorrhoea. Secondary amenorrhoea was present in 8.7% of patients [1]. It is the translation of the disorder of follicular maturation followed by the absence of ovulation. Infertility is one of the consequences of PCOS. It is expressed on admission by the desire for pregnancy. Infertility is one of the main circumstances of discovery of PCOS in most studies. It was associated with PCOS in 33.5% of cases in France [21] and 42% in Morocco [20].

Other less frequent symptoms were recorded in our study, namely menorrhagia (3.12%) which some authors explain by the relative hyperoestrogenism in

relation to oligoanovulation responsible for endometrial proliferation and thus more significant bleeding during periods [22].

In terms of antecedents, the mean age at menarche was 14 ± 1.94 years in our study. The age at low menarche was 10% and the oldest was 19 years. The occurrence of menstrual disorders such as spaniomenorrhoea in the first years after menarche is frequent and physiological in relation to the immaturity of the hypothalamic-pituitary-ovarian axis, which can persist up to 5 years after menarche [23]. However, for Avvad *et al.*, menstrual irregularities in the first three years after menarche can be considered an early clinical sign of PCOS [24]. This opinion is shared by other authors such as Camina *et al.* who explain the persistence of oligomenorrhoea 2 years after menarche as a diagnostic criterion in the adolescent [25].

Obstetrically, the patients were nulligravida in 65.7% of cases and nulliparous in 60% of cases and had a history of spontaneous miscarriage in 62.5% of cases in our study. A history of spontaneous miscarriage was also found in the 2011 study in Cotonou in a proportion of 69.23% [3]. An epidemiological study in the DRC showed that nulliparous women have a high risk of 1.61 of developing PCOS RR = 1.6. The same observation has been reported in different epidemiological studies on PCOS [26] [27]. A 2020 meta-analysis concluded that PCOS rates in patients with a history of recurrent miscarriage are moderately higher than in the general population. The prevalence in the studies included in this meta-analysis ranged from 9.5% to 25% [28].

Hirsutism and acne, which are clinical signs of hyperandrogenism, were found in our study with respective rates of 24% and 27%. These rates were 47.3% and 45.9% in 2011 in Cotonou.

Hirsutism is the main clinical manifestation of hyperandrogenism in PCOS, 55.6% in the series by Malgorzata *et al.* [29] and 69.3% in 2010 in the DRC study of 300 patients [4]. The different rates of hirsutism reported in the studies may be underestimated. Indeed, this sign is not objective in consultation because most patients resort to hair removal techniques before admission to the consultation.

In addition to the clinical signs of hyperandrogenism, in our study we found signs of overweight, such as obesity in 30% of cases and overweight patients in 33.1% of cases. The fat distribution in our series was android in 77 patients, *i.e.* in 48.1% of cases. In general, overweight is common in PCOS, often with a poor distribution of fat. For most authors, more than half of women with PCOS are obese and this obesity amplifies the symptoms of the disease, particularly if the overweight occurs in adolescence [30]. According to Lim *et al* overweight exacerbates the reproductive disorders of PCOS and exposes to metabolic disorders including hyperinsulinemia, glucose intolerance and an atherogenic lipid profile [31].

Blood pressure was elevated in 20.7% of cases in our series. A cohort study in Australia of 9508 women followed from 2000 to 2015 showed that women with PCOS are likely to develop hypertension in early adulthood, independent of

BMI, with a prevalence of 16.37% [32]. According to Sahli *et al*, hypertension is common in PCOS, occurs at a younger age than in the general population, is favoured by android obesity [33].

On the biological level, testosteronemia was only performed by 23 patients in our study, *i.e.* a proportion of 14.4%. This low rate of testosteronemia is due to the insufficient financial means of the patients or their spouses, who must themselves finance the diagnostic and therapeutic management of the disease, such as in benign cases where health insurance is not yet a reality. In 14 out of 23 cases the testosterone level was elevated. The absence of evaluation of biological hyperandrogenism is a diagnostic deficiency [34].

The same is true for other biological tests, particularly blood glucose, which was performed on 8 out of 160 patients and revealed hyperglycaemia in 1 case, a consequence of insulin resistance. According to Makhlouf *et al.* 30% to 40% of women have impaired glucose tolerance, and more than 10% will have type 2 diabetes in their forties [35].

Also the exploration of dyslipidaemia, only one patient was able to perform the lipid panel which came back normal. According to the literature, dyslipidaemia is a common metabolic abnormality in PCOS. Low HDL cholesterol and high LDL cholesterol and triglyceride levels have been observed in some PCOS studies in relation to insulin resistance syndrome and hyperandrogenism [36]. This more atherogenic lipid profile was confirmed in a case control study of women with PCOS compared to women without PCOS [37].

The morphological features of the ovaries in PCOS have been well described by ultrasound. All patients in our series underwent pelvic ultrasound which confirmed the diagnosis in all cases. The characteristic ultrasound images of PCOS should not be confused with multifollicular ovaries which are often common in women with menarche less than 8 years. According to the latest recommendations of 2018, in the face of irregular menstrual cycles of the spaniomenorrhoea type and clinical and/or biological signs of hyperandrogenism, a pelvic ultrasound is not necessary to confirm the diagnosis of PCOS, even though ultrasound remains necessary for the identification of the complete disease phenotype [34].

The treatment of polycystic ovary syndrome is based on dietary hygiene measures, drug treatment and in some cases surgery.

Hygienic-dietary measures include a low-calorie diet and physical activity, and are the first line of treatment for PCOS. It is justified by the insulin resistance in PCOS with a prevalence of 60% - 80% according to studies, increasing or increasing the risk of cardiovascular disease and type 2 diabetes [38]. Panidis *et al* recommended that overweight patients with PCOS control their diet by consuming 1200 - 1500 kcal/day and ensure that they engage in moderate exercise for 30 min per day for 3 - 5 days per week [39]. Physical activity and low-calorie diet were prescribed to all patients in our study but were observed in 59% and 69% respectively.

In terms of drug treatment, metformin is the most widely used drug. It is an antihyperglycaemic drug that does not cause hypoglycaemia at normal doses. Many studies have shown the beneficial role of metformin in improving PCOS [40]. Only 22 patients used this drug in our study with beneficial effects on menstrual cycle, weight loss, reduction of hirsutism and pregnancy occurrence.

In addition to metformin, some patients in our study used oestroprogestins (18.8%). The administration of these combined oral contraceptives is intended to put the ovaries to rest with an impact on the regulation of the menstrual cycle.

In order to improve fertility, clomiphene citrate was used in our study in 1.2% of cases. By ensuring follicle maturation and ovulation, this molecule also leads to the regulation of the menstrual cycle, and can therefore be used for this purpose outside the context of pregnancy.

Two patients in our study were put on gonadotropins because of failure of clomiphene citrate treatment. Failure is defined by the authors as the absence of ovulation after 6 months of treatment with clomiphene citrate at an adequate dose [41].

The treatment of PCOS also involves surgery. Ovarian drilling is proposed to patients with PCOS who do not respond to medical treatment (metformin and clomiphene citrate). It can also be carried out during the exploration of infertility. None of our patients has benefited from this treatment.

Only one patient in our study underwent *in vitro* fertilisation. However, the indication for IVF in this patient should be multifactorial and not only related to PCOS.

The effects of treatment on cycle disorders, hirsutism, fertility and metabolic abnormalities are the result of the different therapeutic means used. Thus, thanks to physical activity and a low-calorie diet, weight loss was noted in 64.9% of cases, regularisation of the menstrual cycle in 70.8% of cases and reduction of hirsutism in 76.7% of cases. These hygienic and dietary measures, which should be proposed to patients, are aimed at reducing insulin resistance.

According to Barnard *et al*, a 7% weight loss is likely to restore fertility in obese PCOS patients [40]. These same effects can also be attributed to metformin treatment.

We noted regularisation of the cycle, weight loss, reduction of hirsutism and the occurrence of pregnancy in 50% of the patients who combined the use of metformin with hygienic dietary measures in our study. In 9.1% of the cases the pregnancies resulted in spontaneous miscarriage. Even though this premature termination of pregnancy cannot be attributed to the use of metformin, there is an increased risk of fetal malformation in women who have been exposed to metformin. According to the latest international recommendations in 2018, metformin should be offered as an adjunct to dietary management in women with PCOS whose BMI is greater than 25 kg/m^2 [42]. For some authors, metformin has a more beneficial effect in terms of pregnancy occurrence in combination with clomiphene citrate [39] [43]. In our study, clomiphene citrate resulted in 2 pregnancies. According to the literature, clomiphene citrate allows ovula-

tion to occur in 60% to 80% of cases with pregnancy rates of 15% to 25% per cycle [44].

The beneficial effect of ovarian drilling is discussed, it would allow ovulation to be obtained in 78% of cases and pregnancy in 58% of cases [21]. The mechanism of action of ovarian drilling is still poorly understood. The average time to conception after ovarian drilling is 6 months [22]. In Campo's meta-analysis of 1803 anovulatory PCOS patients, 679 of whom were treated by laparotomy wedge resection, 720 by laparoscopic electrocoagulation, 322 by laser vaporisation and 82 by multiple laparoscopic biopsy, the pregnancy rate was 50% over a two-year observation period [22] [45]. In the study by Fermandez *et al* ovarian drilling was performed laparoscopically in women with PCOS resistant to clomiphene citrate induction therapy. They obtained a spontaneous pregnancy rate of 73% and this rate persists beyond 12 years [46].

The only patient who benefited from IVF was able to achieve a singleton pregnancy with a live birth.

The indication for IVF in the case of PCOS is given in the absence of improvement in follicular maturation, the existence of another associated cause, notably tubal or male, making it necessary to undergo Medically Assisted Reproduction.

5. Conclusion

At the end of this study, which focused on the epidemiological aspects and results of PCOS management at the CUGO of the CNHU-HKM, we came to the following conclusions: PCOS is a frequent female hormonal disorder responsible for infertility by anovulation. Its frequency in our study was 2.53% but far from reflecting the national reality. Despite its multiple repercussions on the life of the woman, in particular reproductive, this disease is very little known in our country by both doctors and patients. In the long term, the metabolic syndrome of insulin resistance that it implies will increase the risk of cardiovascular diseases (hypertension, myocardial infarction), obesity, spontaneous miscarriage, gestational diabetes, type 2 diabetes, dyslipidemia and endometrial cancer. This work at its end, made the state of the art of the management of PCOS at the CUGO of the CNHU-HKM. An epidemiological study in the population seems to us necessary to better appreciate the risk factors of this endocrine syndrome and its repercussions on fertility and metabolic diseases such as type 2 diabetes, obesity and arterial hypertension.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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