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Research Article

Prevalence of Diagnosed Endometriosis Among Infertile Women in Yaounde, Cameroon: A Cross-Sectional Survey -

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ABSTRACT

Background: Endometriosis is one of the major causes of female infertility throughout the world. Although a study reported the prevalence of female infertility in Yaoundé (Cameroon), there is a lack of information regarding the prevalence of endometriosis among infertile women in this city and the associated socio-demographic and clinical characteristics; hence the design of this study.

Methods: A 15-years cross-sectional registry-based retrospective and descriptive study was carried out in two reference hospitals of the city of Yaoundé including Gyneco-Obstetric and Pediatric Hospital and, General Hospital. Data of patients who consulted for a need of pregnancy from the 1st January 2003 to the 31st December 2017 were collected and analyzed using SPSS software. The prevalence of endometriosis was calculated and associated socio-demographic and clinical characteristics were studied.

Results: Out of 166 infertile women who underwent coelioscopy, 56 suffered from endometriosis, giving a prevalence of 33.7% and an annual incidence of 3.7. Fallopian form (39.3%) was more prevalent. The average age of the studied population was 30.21 ± 4.9 years with 46% ranged from 25-29 years old. Twenty-five percent of these patients were asymptomatic and 46.4% showed an infertility period of 4 to 6 years. Furthermore, 53.5% of the patients presented primary infertility.

Conclusion: The present study shows that endometriosis is a condition diagnosed in most of women consulting for infertility in the city of Yaoundé. However, only few patients underwent laparoscopy, meaning that this prevalence could vary.

Keywords: Prevalence of endometriosis; female infertility; Yaounde

INTRODUCTION

Female infertility is commonly defined as inability to get pregnant after one year of regular and unprotected sexual intercourse [1]. Approximately 186 million people are suffering from infertility with about 10-18% of couples (80 millions) declared infertile worldwide [2-4]. In Sub-Saharan Africa, the prevalence of infertility varies from 20 to 40% [5]. According to Belley Priso, et al. [6], the prevalence of infertility is not clearly known in Cameroon, probably due to cultural, ethical and religious reasons. However, it is believed to range between 20-30%. Moreover, a study reported that female infertility accounts for about 30% in couples consulting for infertility in Yaoundé Central Hospital [7]. Causes of female infertility include ovulatory dysfunctions, polycystic ovarian syndrome, bilateral stenosis, uterine abnormalities and endometriosis [8,9]. Endometriosis is a gynecological disorder in which endometrium-like tissue (glandular epithelium and stroma) survives outside the uterus, commonly in the peritoneal cavity [10]. About 30-45% causes of female infertility are due to endometriosis in the world [11]. This pathology is generally asymptomatic or associated with chronic pelvic pain, dysmenorrhea, dyspareunia or irregular uterine bleeding [12,13]. Although echography and magnetic resonance imaging are used to diagnose the disease, coelioscopy remains, nowadays, a standard confirmation diagnosis of endometriosis lesions. Although Nana, et al. [7] reported the prevalence of female infertility in Yaounde, the prevalence of endometriosis among these women remains unknown. This study was therefore designed to determine the intra-hospital prevalence of endometriosis among infertile women in two reference hospitals of Yaounde (Cameroon) and to describe their socio-demographic and clinical characteristics.

METHODS

Study design

It consisted of a cross-sectional and registry-based retrospective descriptive study from the 1st January 2003 to the 31st December 2017. Data were collected in two reference hospitals of the city of Yaounde (Cameroon) including General Hospital and Gyneco-Obstetric and Pediatric Hospital. Their selection was based on their technical capacity to perform coelioscopy, a direct way to identify endometriosis lesions.

Study population

The study population was made up of reproductive age women who consulted for infertility during the study period. The files of patients who underwent coelioscopy during consultation were studied and those with incomplete data were excluded from the study.

Data collection

Data were collected between October to December 2018. From all patients files having performed coelioscopy, the clinician decision on the diagnosis, socio-demographic (age, profession, education level and marital status) and clinical (duration of infertility and symptoms) parameters were collected.

Data analysis

Data were computed and analyzed using Social Package for Social Scientists (SPSS) software. The prevalence of endometriosis among infertile women was determined and, its demographic and clinical characteristics were studied.

Ethical consideration

This study was carried out in accordance with the ethical authorization N°00829/CRERSHC/2018 delivered on August 28th, 2018 by the Centre Regional of Ethic Committee for Human Health Research (CRECHH) in Yaoundé, Cameroon.

Statistical analysis

Data are presented as frequencies and percentages using version 10.1 SPSS software.

RESULTS

Out of the 636 files of women consulting for infertility in both hospitals, 166 underwent coelioscopy examination (26.1%). These selected files were considered for the study.

Prevalence of endometriosis among infertile women

A total of 56 patients who underwent coelioscopy were suffering from endometriosis, giving an intra-hospital prevalence of 33.7% with an annual incidence of 3.7 new cases diagnosed. In addition, three forms of the disease were recorded in this study, the fallopian form (39.3%), the ovarian (35.7%) and the pelvic forms (25%) (Figure 1).

3.2. Socio demographic characteristics of infertile women with endometriosis

The age of the patients included in this study ranged from 20 to 42 years old, with an average of 30.21 ± 4.9 years. Most (42.9%) of the infertile women with endometriosis were aged between 25-29 years, followed by those aged between 30-34 years (35.7%). Concerning the marital status and the profession, 60.7% of patients were married and 35.7% of them were managers (Table 1).

Clinical characteristics of infertile women with endometriosis

Data in table 2 shows that the incidence of the disease was elevated (46.4%) along the first five years of the study period. This value decreased to height (14.3%) new cases during the following 5 years and increased by 2.5 times (35.7%) in the last five years. Regarding the duration of infertility, results show that twenty-six (46.4%) infertile

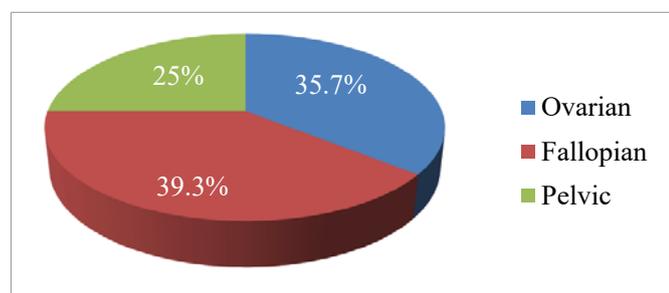


Figure 1: Different forms of endometriosis diagnosed in infertile women in Yaoundé from 2003 to 2017.

Table 1: Socio-demographic characteristics of infertile women with endometriosis in Yaoundé from 2003 to 2017.

Characteristics	Frequency (n)	Percentage (%)
Age groups		
20-24	6	10.7
25-29	24	42.9
30-34	20	35.7
35-39	2	3.6
40-42	4	7.2
Education level		
Primary school	18	32.1
Secondary school	12	21.5
University	26	46.4
Marital status		
Single	22	39.3
Married	34	60.7
Occupation		
Unemployed	8	14.3
Student	6	10.7
Informal job	16	28.6
Mild job	6	10.7
Managers	20	35.7

Note- Unemployed: women with no job; **Student:** secondary and University; **Informal jobs** include: trader, florist, hairdresser and dressmaker; **Mild jobs:** secretary, nurse, soldier, policewoman and registrar; **Managers:** teacher, reporter, barrister, banker, accountant, engineer, doctor, veterinary and coach.

Table 2: Clinical characteristics of infertile women with endometriosis in Yaoundé from 2003 to 2017.

Characteristics	Frequency (n)	Percentage (%)
Incidence variation, 5 years		
2003-2007	26	46.4
2008-2012	8	14.3
2013-2017	22	39.3
Duration of infertility		
Average, years	4.54 ± 2.3	
1 to 3	20	35.7
4 to 6	26	46.4
7 to 9	8	14.3
10 to 12	2	3.6
Pelvic pain symptoms		
Asymptomatic	14	25
Chronic pelvic pain	38	67.4
Dysmenorrhea	26	46.4
Dyspareunia	14	25
Gynecological history		
Miscarriages	24	42.9
Irregular periods	10	17.8
Nulliparity	30	53.6

women with endometriosis experienced a period of infertility running from 4 to 6 years, and two (3.6%) of them experienced at least 10 years of infertility. Our results also showed that 25% of the patients were asymptomatic. In symptomatic patients, chronic pelvic pain was the most common symptom (67.4%). In addition, twenty-four (42.9%) infertile women with diagnosed endometriosis experienced miscarriage and 53.6% suffered from primary infertility.

Results also show that, during the first three years of infertility, the most reported symptoms of endometriosis was dysmenorrhea (32.1%) and dyspareunia (14.3%). After 4 to 6 years of infertility, patients were either asymptomatic (17.9%) or were suffering mainly from chronic pelvic pain (17.9%) and dysmenorrhea (14.3%) (Table 3).

Table 4 shows that most patients (21.4%) with the pelvic form of endometriosis experienced miscarriages and 14.3% of them were nulliparous. The majority of patients with the tubal form of endometriosis were nulliparous and 14.3% of them had irregular periods. In women with the ovarian form of endometriosis, 21.4% of them were nulliparous while 17.8% experienced miscarriages.

DISCUSSION

Endometriosis as other gynecological affections remains poorly considered in Cameroon. This cross-sectional and registry-based retrospective and descriptive survey was performed in two reference hospitals of the city of Yaoundé to determine the intra-hospital prevalence of endometriosis among infertile women and to describe their socio-demographic and clinical characteristics.

Results showed that the prevalence of endometriosis was 33.7% among infertile women. This result is different from the observations of Meuleman, et al. [11] who reported a prevalence of endometriosis of 47% among infertile women in Belgium but, close to 30% reported by D'Hooghe, et al. [14] in the same country. In addition, our results

Table 3: Proportion of symptoms according to the duration of infertility among women with endometriosis in Yaoundé from 2003 to 2017.

Endometriosis symptoms	Duration of infertility, n (%)			
	1 to 3	4 to 6	7 to 9	10 to 12
Years,				
Asymptomatic	4 (7.1)	10 (17.9)	0 (0)	0 (0)
Chronic pelvic pain	6 (10.7)	10 (17.9)	4 (7.2)	0 (0)
Dysmenorrhea	18 (32.1)	8 (14.3)	0 (0)	2 (3.6)
Dyspareunia	8 (14.3)	2 (3.6)	2 (3.6)	0 (0)

Table 4: Gynecological history according to endometriosis form.

Gynecological parameters, n (%)	Pelvic	Tubal	Ovarian
Miscarriages	12 (21.4)	2 (3.6)	10 (17.8)
Irregular periods	2 (3.6)	8 (14.3)	0 (0)
Nulliparity	8 (14.3)	10 (17.8)	12 (21.4)

showed that only 26% of patients underwent coelioscopy diagnosis. This result is different from 50% reported by Mahesh and Ahmed [15] in the United States of America. Our results thus indicate a limited use of coelioscopy as a diagnostic method for endometriosis, probably because of the high cost of this method and would at least partially justify the relatively low prevalence of endometriosis among infertile women observed in this study, in comparison with the observations made by Meuleman, et al. [11] and D'Hooghe, et al. [14] in Belgium. The incidence of the disease considerably decreased during the second five year running from 2008 to 2012 and increased between 2013 and 2017. This variation could derive from nonsystematic diagnosis of endometriosis in infertile patients, the cost being the limiting factor. The average age of women at diagnosis was 30.21 ± 4.9 years with 42.9% ranged between 25-29 years old. These values were almost the same with those reported by Alborzi, et al. [16] in Iran, and reflect the indicated interval of high maternity. In our series, 46.4% of patients had higher education level. Fourquet and collaborators [17] reported similar observations in the United States of America where 43.7% of women with diagnosed endometriosis had higher education level. This result is probably the fact that well-educated women are more informed and are more likely to afford diagnosis cost. This could also explain the high prevalence of managers in this series.

Twenty-five percent of women experienced no symptoms while chronic pelvic pain, dysmenorrhea and dyspareunia were the most prevalent symptoms recorded in this study. These results are in accordance with the literature which reports these three types of symptoms for endometriosis including pelvic pain, dysmenorrhea and dyspareunia [18].

In this study, a majority (46.4%) of women presented an infertility period of 4 to 6 years. This late consultation situation could be explained by the taboo around sex-related illnesses and the use of herbal medicine as first therapeutic option. In fact, African populations generally start by herbal medicine to solve their health problems and consult if the problem persists [19]. Miscarriages were reported in twenty-four (42.9%) infertile women with diagnosed endometriosis. This value is closed to that obtained from Puerto Rico by Fourquet, et al. [17]. In fact, according to the literature, the ectopic endometrium and inner myometrium of these women have been demonstrated to have structural and functional abnormalities including, abnormal expression of genes that are critical for the

local synthesis of estrogens and response to progesterone and also the alteration of oxidative stress response with the presence of inflammatory mediators and apoptotic makers [20,21]. Because of these abnormalities, endometriosis has been associated with defective deep placentation and obstetrics adverse outcomes [20]. Several studies reported a correlation between endometriosis and higher risk of spontaneous abortion [22-24] Due to limited number of patients performing coelioscopy, these results could vary if the technic is used as the systematic female infertility diagnostic tool.

CONCLUSION

This study reveals that endometriosis is a major contributing factor to infertility in Cameroon. However, the insufficient hospitals equipment and the diagnosis cost are serious barriers to address.

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