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Epidemiology and Clinical Signs of Gynecological Cancers in an African Country South of the Sahara: Case of the Republic of Benin in 2022

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Abstract

Introduction: Gynaecological cancers are the deadliest of the women's cancers in the Republic of Benin. Late diagnosis is the most common reason. **Objective:** This paper aims to describe the epidemiological characteristics, and clinical and pathological signs of gynaecological cancers treated in the Republic of Benin between 2018 and 2022. **Patients and Methods:** This was a cross-sectional, descriptive, retrospectively collected study of patient data treated between 2018 and 2022 in two university gynaecology departments in Cotonou. All gynaecological cancers that have histological evidence were included. The epidemiological, clinical and pathological characteristics of the cancers were assessed. **Results:** Cervical, endometrial and ovarian cancers were the most common in the proportions of 62.0%, 24.1%, 12.0% and 1.8% respectively. The mean age at diagnosis was 54 years. The victims were uneducated and had low economic power in 81% and 85% of cases, respectively. The consultation was late in 82.1% of cases. Metrorrhagia, postmenopausal metrorrhagia and pelvic cluster headache were the common reasons for consultation for cervical, endometrial and ovarian cancer, respectively. Diagnosis was late in 66.7% (n = 71). The most common histological types were squamous cell carcinoma, endometrioid adenocarcinoma, and serous cystadenocarcinoma for cervical, endometrial, and ovarian cancers, respectively. **Conclu-**

sion: Gynaecological cancers were common and their consultation time was delayed. The diagnosis was made at the advanced stage and there were several reasons for this.

Keywords

Gynaecological Cancers, Epidemiology, Signs, Benin

1. Introduction

Cancers constitute a public health problem [1]. They represent the second cause of death from non-communicable diseases, after cardiovascular diseases. According to GLOBOCAN 2020, the total number of people diagnosed with cancer has almost doubled over the past two decades, from 10 million in 2000 to 19.3 million in 2020 with almost 10 million deaths in 2020. Gynecological cancers represent approximately 19% of all cancers and 50% of cancers in women. The most common were cervical, endometrial and ovarian cancers with a global incidence of 3.1%, 2.2% and 1.6% respectively [2]. In Benin, according to a study carried out in 2020 and based on the Cotonou Cancer Registry, gynecological cancers account for about 61.3% of cancers in women [3]. They are responsible for about 850,000 deaths per year, or 30% of cancer deaths in women. The highest rates of death from gynaecological cancer were recorded in developing countries, especially in Africa [4]. Also, these cancers have a similarity from an epidemiological and diagnostic point of view, which is why it is appropriate to study them in a synoptic way for a better clinical approach.

Sub-Saharan Africa south of the Sahara in general and Benin in particular, presents a worrying situation due to: 1) the absence of real data describing the extent of gynecological cancers, 2) the lack of knowledge of risk factors, 3) the absence of a screening and management program for precancerous cases and 4) late diagnosis in a country with insufficient technical capacity. This context explains the particular severity and poor prognosis of gynecological cancers in sub-Saharan Africa and Benin which face several challenges [5]. This involves mastery of data, good knowledge of risk factors and accessibility to diagnosis and treatment. Also, the study of gynecological cancers in a single study offers a panoramic view of recent and conclusive epidemiological and clinical data making it possible to better define and guide control actions. It is for these reasons that this study was undertaken with the objective of updating the epidemiological and clinical characteristics of gynecological cancers in Cotonou.

2. Patients and Methods

This is a descriptive cross-sectional study with retrospective collection of data from patients treated between January 1, 2018 and June 30, 2022 in the gynecology departments of the Mother and Child Lagoon Hospital and University Cen-

ter (CHU-MEL) and the University Clinic of Obstetrics and Gynecology (CUGO) of the National University Hospital Center (CNHU) HKM of Cotonou. These are two (02) reference centers in gynaecological and breast oncology in the south of Benin. The study population consisted of women admitted for gynaecological pathology. The inclusion criteria were: to be a carrier of a gynaecological tumor, to have histological evidence of the tumor, to have been treated within the study period. Incomplete or unlocated, files were excluded. Gynaecological tumours without histological evidence were not included. The variables studied were socio-demographic, clinical, and paraclinical characteristics. A team of two (02) PhD students in medicine has been set up and deployed per site. With the help of a validated collection sheet, the selected files were counted and entered on a mask generated with the Kobocollect tool. The data analysis was done using R software version 4.1.1. Quantitative variables are expressed as averages with their standard deviation when the distribution is normal. Administrative authorizations have been obtained and the confidentiality of the information collected has been respected.

3. Results

3.1. Frequency

Of 108 cases of gynecological cancers recorded during the period, cervical, endometrial and ovarian cancers represented respectively 62% (n = 67), 24.1% (n = 26), 12 % (n = 13) and 1.8% (n = 2) of gynecological cancers.

3.2. Sociodemographic Characteristics

3.2.1. Age

The average age of the patients was 54 years with extremes of 24 and 82 years. The distribution according to age at diagnosis of gynecological cancer is shown in Figure 1. For the sake of comparison, the two (02) cases of vulvar cancer were excluded from this description.

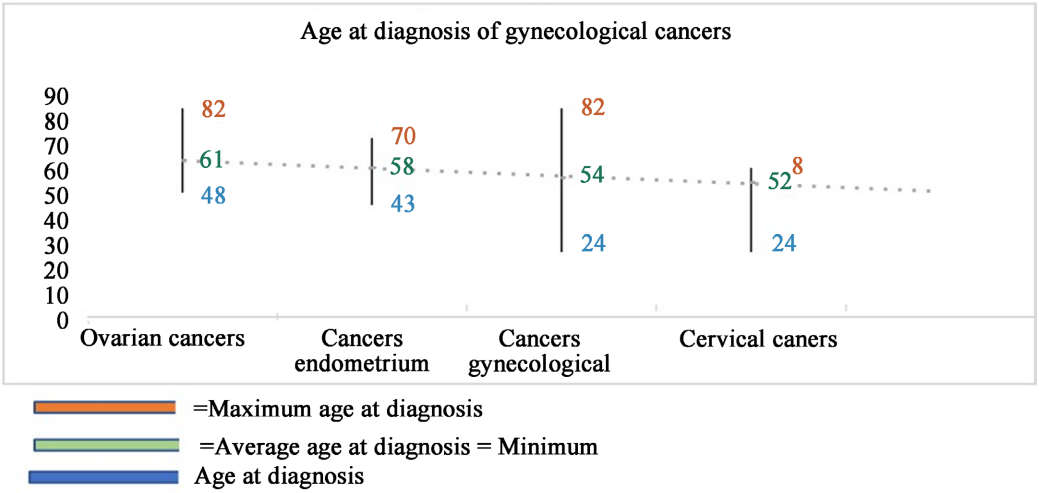

Figure 1. Age at diagnosis of gynecological cancers.

3.2.2. Level of Study and Occupation

The majority, 81.1% (n = 86) of women with gynecological cancer were uneducated compared to 18.9% (n = 20) educated. They were salespeople in 63.2% (n = 67) of cases, unemployed in 21.7% (n = 23) and employees in 15.1% (n = 16) of cases.

3.3. Clinical Characteristics

3.3.1. Physiological

The mean age of menarche was 10 years, 14 years, and 16 years for cervical, endometrial, and ovarian cancers, respectively.

Women with cervical cancer were postmenopausal in 76.1% (n = 51) of cases compared to 80.8% for endometrial cancer and 100% for ovarian cancer.

Menopause was observed before 55 years of age in all patients with cervical cancer, after 55 years (late) in 42.3% of endometrial cancers and in 69.2% (n = 9) of ovarian cancer cases.

3.3.2. Comorbidities to Gynaecological Cancers

The comorbidities of gynecologic cancers are shown in Figure 2. The proportion of hypertension was the same in all three (3) gynecologic cancer subgroups, while obesity was greater in the endometrial cancer subgroup and diabetes was greater in the ovarian cancer group.

3.3.3. Family History of Gynaecological Cancers

A family history of cervical and endometrial cancer was found in 6% and 11.5% of patients, respectively.

There was no family history of ovarian cancer in ovarian cancer patients.

3.3.4. Deadline and Reasons for Consultation

Figure 3 illustrates the reasons and time frame for consultation.

Consultation deadlines

The mean time to consultation after the first symptoms was 8.8 ± 1.8 months with extremes of 01 months and 36 months. The majority, 82.1% (n = 87) of

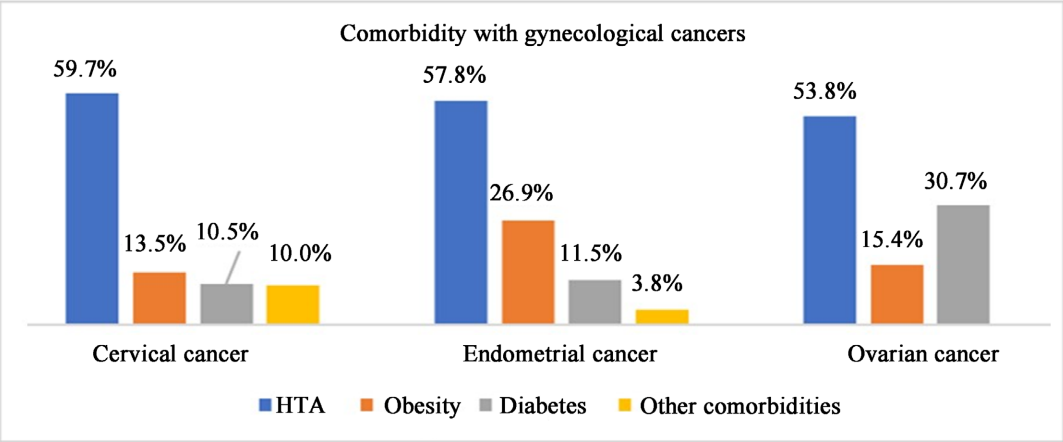

Figure 2. Comorbidity of gynecological cancers.

patients had consulted within 12 months of the onset of the first signs (Figure 3(b)).

Reason for consultation

In the cervical cancer group, metrorrhagia was the most common functional sign, accounting for 71.64% of cases.

In the endometrial cancer group, postmenopausal metrorrhagia was the most common symptom in 73.07% of cases.

In the ovarian cancer group, pelvic pain was the most common symptom in 76.92% of cases (Figure 3(a)).

3.3.5. Physical Signs, Anatomical Clinics and FIGO Classification of Gynaecological Cancers

Table 1 presents the physical, paraclinical and FIGO classification of gynaecological cancers admitted to university gynaecology services in Cotonou between 2017 and 2021.

3.3.6. Physical Signs

Cervical cancer had clinical expression in 97% (n = 103) of cases. Cervical lesions ranged from simple inflammation to necrotic ulceration to budding lesions.

In 65% of cases of endometrial cancer, a cervical lesion was observed.

The vagina was invaded in 59.7%, 53.8% and 61.5% for cervical, endometrial and ovarian cancers respectively. The parameters were invaded in 47.8%, 61.5% and 53.8% of cervical, endometrial and ovarian cancers, respectively.

3.3.7. Pathological Anatomy

Epithelial malignancies were the most common. Squamous cell carci-noma, endometrioid adenocarcinoma and serous cystadenocarcinoma were the most common

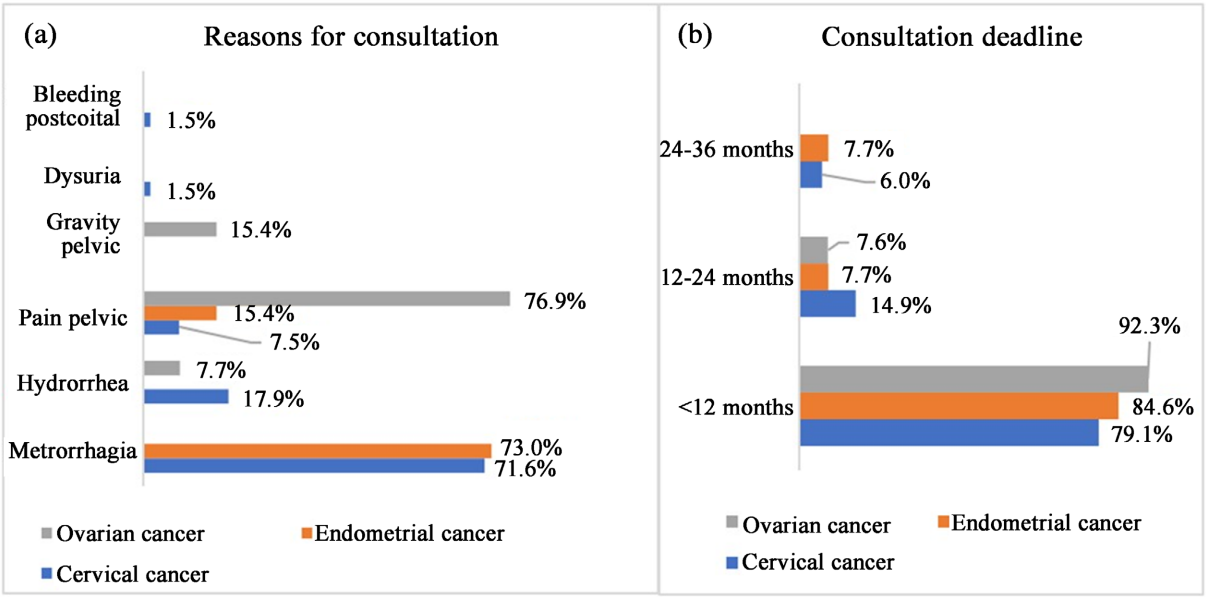

Figure 3. Reasons and consultation period. (a) Reasons for consultation; (b) Consultation deadline

Table 1. Physical, anatomopathological signs and FIGO classification of gynecological cancers admitted to university gynecology departments in Cotonou between 2017 and 2021.

Cervical cancer			Endometrial cancer			Ovarian	Cancer	
Clinical signs								
Signs	**n = 67**	**(%)**	**Signs**	**n = 26**	**(%)**	**Signs**	**n = 13**	**(%)**
Healthy cervix	2	3.0	Healthy cervix	9	34.6	Healthy cervix	13	100
Pathological cervix	65	97.0	Hard collar (touch)	17	65.4	Pathological cervix	0	0
Uninvaded vagina	22	32.8	Uninvaded vagina	12	46.2	Uninvaded vagina	5	38.5
Invaded vagina	40	59.7	Invaded vagina	14	53.8	Invaded vagina	8	61.5
Unspecified	5	7.5	Size uterus normal	8	30.8	Furrow separation	7	53.8
Parameters no invaded	32	47.8				Not furrow separation	6	46.2
Settings invaded	30	44.8	Uterus bulky	18	69.2	Tumor abdominal	7	53.8
Unspecified	5	7.5	Mobile uterus	10	38.5	No tumor abdominal	6	46.2
Invaded rectum	31	46.3	Fixed uterus	16	61.5	Presence of ascites	5	38.5
Rectum No invaded	20	29.8	Settings No invaded	10	38.5	No ascites	8	61.5
Unspecified	16	23.9	Settings invaded	16	61.5	Settings No invaded	6	46.2
			Invaded rectum	12	46.2	Settings invaded	7	53.8
			Rectum No invaded	10	38.5			
			Unspecified	4	15.4			
Pathological examination								
Carcinoma squamous cell	60	89.5	Adenocarcinoma endometrioid	20	77.0	Cystadenocarcino me serous	09	69.2
Adenocarcinoma	7	10.5	Carcinosarcoma	04	15.0	Teratoma immature	02	15.4
			Carcinoma Papillary And serous	02	8.0	Choriocarcinoma	02	15.4
FIGO classification								
Early cancer	18	26.9	Early cancer	14	53.8	Early cancer	5	38.5
Advanced cancer or metastatic	49	73.1	Advanced cancer or metastatic	12	46.2	Advanced cancer or metastatic	8	61.5

Early cervical cancer: FIGO I; advanced or metastatic cancer: FIGO II to IV.

histological types for cervical, endometrial and ovarian cancers at 89.6%, 77% and 69.2% respectively.

3.3.8. FIGO Classification

Cervical cancer, endometrial and ovarian cancer were diagnosed at the advanced or metastatic stage of cancer respectively in 73.1%, 46.2% and 61.5% of cases.

4. Discussion

4.1. Epidemiological Characteristics of Gynecological Cancers

4.1.1. Frequency

In our study, cervical, endometrial, ovarian and vaginal cancers respectively occupy first, second, third and fourth place with a respective hospital prevalence of 62%, 24.1%., 12.3% and 1.8% of cases of gynecological cancers. In 2013, Tonato, *et al.* [6], observed a prevalence of 26.7%, 18.6% and 9.1% respectively for cervical, ovarian and endometrial cancer. This order of prevalence was modified in our series by placing endometrial cancer second behind cervical cancer. Gnangnon F. *et al.* in 2021, thanks to a study of gynecological cancers in the population, 14.9% were observed for cervical cancer, 3.7% for endometrial cancer and 0.3% for ovarian cancer [3]. In France for example, the most common gynecological cancer is endometrial cancer [7] with an incidence in 2018 of 11.2 per 100,000 women. This trend could be explained on the one hand by the existence a better screening and management system for precancerous and cancerous lesions of the cervix in this country unlike in developing countries like Benin; and on the other hand, by the high socio-economic level, thus providing favorable conditions for obesity and diabetes, proven risk factors for endometrial and ovarian cancers.

4.1.2. Risk Factors for Gynecological Cancers

Patients with gynecological cancer were characterized by a low level of education in 81% of cases and a low socio-economic level for the majority in our series. These factors were common to all gynecological cancers in our series. They promote ignorance of individual and collective prevention measures. Risk factors vary from one type of gynecological cancer to another.

1) *Risk factors for cervical cancer*

The average age of patients with cervical cancer was 52 years with an extreme of 24 and 58 years. The most represented age group was that of patients aged 40 to 50 years old, *i.e.* 52.2%. It is a cancer of young women in Africa [5]. In the series by Sando *et al.* in Cameroon [8], the average age of the patients was 52.4 ± 3.8 years.

Several studies in sub-Saharan Africa have reported similar data regarding age at cancer diagnosis [2] [9].

In the cervical cancer group, menarche was early (≤10 years) compared to endometrial and ovarian cancers which had higher average ages at menarche (14 years and 16 years). Multiparity and the notion of sexually transmitted infections, HIV/AIDS and especially human papillomavirus (HPV) infection were risk factors found. There is a close correlation between HPV infection and the occurrence of cervical cancer [10] [11] [12] [13] [14].

2) ***Risk factors for endometrial cancer***

The average age of patients with endometrial cancer was 58 years and patients aged over 65 were the most represented (57.7%). In France, the average age of onset is 55 years with a peak around 70 years [15].

Patients with endometrial cancer were postmenopausal women in 80% of cases, diabetics in 27% of cases, hypertensives in 57.8% of cases and obese in 11.5% of cases. These characteristics are described as risk factors for endometrial cancer. Raglan *et al.* found obesity, nulliparity and menopause as factors strongly associated with endometrial cancer [16]. Hyperestrogenism linked to long-term contraception was also suggested by other studies. According to Sancho-Garnier [2], the relative risk is of the order of 2 to 3 and this risk increases depending on the duration of intake and the dose.

A family history at first degree of endometrial cancer was observed in 11.5% of our patients. LYNCH syndrome, a genetic and hereditary disease with an increased risk of developing ovarian and endometrial cancer, was observed in 5.8% of patients in Algeria in 2019 [17].

3) ***Risk factors for ovarian cancer***

The average age of patients affected by ovarian cancer was 61 years in our series. The latter is the highest observed in the three groups of gynecological cancers. The literature indicates that ovarian cancers were found in women aged 60 to 65 years. In France, the average age of diagnosis of ovarian cancer was 75 years [2]. The link between the relative hyperestrogenism of menopause and the occurrence of this cancer explains its predominance in older women. All patients in our series were postmenopausal. Long exposure to estrogens increases the risk of endometrial cancer in the range of 1.6 to 3 [17]. Patients used contraception in 53.8% of cases. The use of hormone replacement therapy was not found in our series. Ovarian cancer patients were diabetic in 30.7% compared to 10.5% and 11.5% for cervical and endometrial cancer respectively. Diabetes and obesity are risk factors found in the occurrence of ovarian cancer according to several studies, notably that of Khanlarkhani N. *et al.* [18] Also, according to Moller P. *et al.* in 2018, a family history of ovarian, breast, endometrial and colorectal cancer is often observed. BRCA gene mutations and LYNCH syndrome were the most common genetic causes [19]. In our series none of the patients had a family history of ovarian cancer.

4.2. Clinical Characteristics of Gynecological Cancers

4.2.1. Consultation Deadlines

The average consultation time was 8.8 ± 1.8 months for all gynecological cancers. The majority, 82.1% (n = 87), of patients consulted within 12 months. This deadline was late. The low level of education of patients, ignorance, beliefs and the absence of a culture of prevention through screening for gynecological cancers could explain this delay in consultation. According to research by Vidal EA *et al*, in France in 2019, consultation times of more than six months are recorded for uterine cancer and more than five years for vulvar

cancer [20]. Patients consulted early when they had good information about the disease and when they had a good relationship with the doctor [19]. The integration of information and awareness on gynecological cancers into the information package in advanced strategy and in the community environment is an avenue to explore in our context. Also, the advent of community relays with a defined number of households to be covered by the community relay is an opportunity for Benin in the eradication of gynecological cancers, especially in its advanced forms.

4.2.2. Reasons for Consultations

Metrorrhagia was the most frequent reason for consultation for cervical cancer in 71.6% of cases, postmenopausal metrorrhagia for endometrial cancer in 73.0% of cases and pelvic pain in 92.3% of cases for ovarian cancer (**Figure 3(a)**). The appearance of these signs can accelerate the request for consultation. Some patients ignore these signs at the beginning, which extends the consultation time and it is only when their clinical condition deteriorates that they consult. The low economic and educational level provides the basis for this practice. Cooper *et al.*, in the USA in 2013, found in their series that some women who had had the symptoms had declared having waited a period prolonged before consulting or not consulting at all [21].

4.2.3. Physical Signs

Cervical cancer was diagnosed on a deeply modified cervix in 97% of cases. Regular consultation of patients and the implementation of a cervical cancer screening program should enable early diagnosis of cervical cancer or detection of precancerous lesions of the cervix.

Endometrial cancer presented to the clinic by a large uterus in 69.2%, fixed in 61.5%. Ovarian cancer was characterized clinically by a pelvic tumor with abdominal development in 53.8% of cases with a dividing furrow in 53.8% and ascites in 38.5%.

Age is a factor in delaying consultation in our country. Geriatrics is still embryonic and systematic consultation is not developed. According to the study by Zibako, *et al.*, in sub-Saharan Africa, the reasons for the delay in diagnosis were: the unavailability of screening services, delay related to self-medication and weakness of the referral system [22]. Although the physical examination made it possible to establish the diagnosis of the progressive stage, the positive diagnosis of cancer is histological.

4.2.4. Histological Type

Malignant epithelial tumors were the most frequent in our series. Squamous cell carcinoma was found in 89.6% of cases of cervical cancer as in Paulino *et al.* [23] Endometrioid adenocarcinoma was found in 77% of cases of endometrial cancer in our series versus 67.7% in the series by Ndamba *et al.* [8] Serous cystadenocarcinoma was observed in 69.2% of cases in our series as in several other series [24] [25].

4.2.5. Clinical Stage at Diagnosis

Cervical cancer, endometrial and ovarian cancer were diagnosed at advanced or metastatic stages in 73.1%, 46.2% and 61.5% of cases respectively. The discovery at the advanced stage was described by Paulino *et al.*, in Brazil in 2020, who found 60.1% of cervical cancer, 67.2% of ovarian cancer at advanced stages. Gyenwali D. *et al.* noted in their series that 81% of cervical cancers were diagnosed at the late stage. Women who reported their symptoms late, and did so with people other than their husband, were more likely to have a late diagnosis [23] [26].

4.3. Limitations of the Study

The retrospective nature of the study is limiting as some data were missing. The sample size did not necessarily allow for the study of all epidemiological aspects. Analytical epidemiology is not addressed in this study, so risk factors are not studied.

5. Conclusion

Gynecological cancers are frequent reasons for consultation in Benin. Cervical, endometrial and ovarian cancers are respectively the 1st, 2nd and 3rd most common gynaecological cancers in Benin. Patients consulted late for metrorrhagia, postmenopausal metrorrhagia and pelvic pain. Diagnosis was late in the majority of cases for all types of gynecological cancers. The risk factors described in the literature were observed in our patients. The establishment of a cervical cancer screening program and the improvement of communication strategies in advanced strategy is a promising avenue.

Authors' Contributions

The authors contributed to all stages leading to this article, namely: initiation, collection, data analysis, drafting of the article, critical revision of the content and drafting of the article.

Final approval of the version to be published.

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Conflicts of Interest

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

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