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Aetiologies and contributing factors of vulvovaginal candidiasis in Abidjan (Cote d'Ivoire)



Étiologies et facteurs favorisant les candidoses vulvovaginales à Abidjan (Côte d'Ivoire)

A. Konaté^{a,*}, W. Yavo^a, F.K. Kassi^{a,c}, V. Djohan^a,
E.K. Angora^a, P.C. Barro-Kiki^a, H. Bosson-Vanga^a,
F. Soro^a, E.I.H. Menan^{a,c}

^a Department of Parasitology, Mycology and Zoology, Felix Houphouët-Boigny University, BPV 34, Abidjan, Cote d'Ivoire

^b Parasitology and Mycology Laboratory, University Hospital of Yopougon, 21 BP 632, Abidjan 21, Cote d'Ivoire

^c Parasitology and Mycology Laboratory of Centre of diagnosis and research on AIDS and opportunistic diseases, 01 BPV 13, Abidjan, Cote d'Ivoire

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Summary

Aim of the study. — In order to update the data and contribute to optimizing the management of vulvovaginal candidiasis, we conducted this study to determine their etiology (and hence the sensitivity of the isolated fungal organisms) and the factors contributing to their occurrence in Abidjan (Cote d'Ivoire).

Patients and methods. — This cross-sectional survey involving 400 women with clinically vulvovaginitis was conducted from May to July 2011. It was carried out at the health centre for venereal diseases located at the National Institute of Public Hygiene in Abidjan. After a swab collecting, direct examination and culture on Sabouraud Chloramphenicol and Sabouraud Chloramphenicol Actidione media were implemented to research yeasts. After identifying yeast species through blastesis tests and auxanogram, its in vitro susceptibility to amphotericin B, 5-fluorocytosine, clotrimazole, miconazole, econazole and ketoconazole was assessed.

Results. — As a whole, 172 patients suffered from vulvovaginal candidiasis *i.e.* an overall prevalence of 43%. *Candida albicans* was most frequently isolated (82.5%) followed by

* Corresponding author.

E-mail address: abykonate@yahoo.fr (A. Konaté).

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C. glabrata (10.5%). *C. albicans* and *C. tropicalis* were resistant to the 5-fluorocytosine (respectively 24.65 and 33.33%). Other molecules have shown excellent activity on all yeasts isolated. Type of housing, type of underwear and patients personal history were statistically associated with the presence of vulvovaginal candidiasis (respectively $P = 0.003$; 0.010 ; 0.022). **Conclusion.** — Vulvovaginal candidiasis is relatively frequent in Abidjan and antifungal compounds are in general still effective for treatment. Being knowledgeable of risk factors for this vulvovaginitis will ensure better prevention of their occurrence.

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Résumé

But de l'étude. — En vue d'actualiser les données et contribuer à une optimisation de la prise en charge des candidoses vulvovaginales, nous avons mené cette étude qui visait à déterminer leurs étiologies (et par tant la sensibilité des germes aux antifongiques) et les facteurs favorisant leur survenue à Abidjan (Côte d'Ivoire).

Patientes et méthodes. — Cette étude transversale portant sur 400 femmes présentant cliniquement une vulvo-vaginite a été menée de mai à juillet 2011. Elle a été réalisée au dispensaire antivenérien sis à l'Institut national d'hygiène publique d'Abidjan. Suite à un prélèvement par écouvillonnage, un examen direct et une culture sur milieux Sabouraud Chloramphénicol et Sabouraud Actidione Chloramphénicol ont été mis en œuvre afin de rechercher les levures. Après une identification, des espèces de levures à partir du test de blastèse et de l'auxanogramme, leur sensibilité a été évaluée vis-à-vis de l'amphotéricine B, de la 5-fluorocytosine, du clotrimazole, du miconazole, de l'éconazole et du kétoconazole.

Résultats. — Au total, 172 patientes ont présenté une candidose vulvo-vaginale soit une prévalence globale de 43 %. *Candida albicans* était plus fréquemment isolé (82,5 %) suivi de *C. glabrata* (10,5 %). *C. albicans* et *C. tropicalis* étaient résistants à la 5-fluorocytosine (respectivement à 24,65 et 33,33 %). Les autres molécules ont présenté une excellente activité sur l'ensemble des levures isolées. Le type de logement, le type de sous-vêtements et les antécédents personnels des patients étaient statistiquement associés à la présence de candidose vulvo-vaginale (respectivement $p = 0,003$; $0,010$; $0,022$).

Conclusion. — Les candidoses vulvovaginales sont relativement fréquentes à Abidjan et les molécules antifongiques demeurent, en général efficaces pour leur traitement. La connaissance des facteurs de risque de ces vulvo-vaginites permettra d'assurer une meilleure prévention de leur survenue.

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Introduction

Vulvovaginal candidiasis (VVC) is an infectious damage of the vulva and vagina by *Candida* yeasts [8]. It ranks second after bacterial vaginosis [2]. This is a common reason for consultation in gynaecology and it can affect 8.8 to 63% of symptomatic women [5,14,18,22,24,29–31]. VVC affects 70–75% of women of childbearing age, at least once in their lives [17]. It is estimated that 75% of women will experience *Candida* vaginitis at least once in their lifetime and 40 to 50% of them suffer from more than one episode, and 5–8% will develop recurrent vulvovaginal candidiasis (RVVC), which could be characterized by the occurrence of at least four episodes proved for one year [25,28,32,35]. The VVC is responsible of a significant discomfort in patients and poses a serious problem to clinicians and biologists [2]. During the last decade, there was an increase in its incidence and a significant increase in the rate of species of non-*albicans* *Candida* that have been especially implicated in the occurrence of RVVC. These pose a therapeutic problem requiring the search of contributing factors and effective treatment of cases [8,14,35].

The occurrence of VVC is favored by many risk factors, which are hormonal changes during pregnancy, use of oral

contraceptives, local factors such as lack of hygiene, iatrogenic factors, and some general factors such as diabetes [6,15]. However, their roles remain controversial in the literature [5,14,30].

In Cote d'Ivoire, similar studies have reported variables prevalence of 45.14% in 1995 [20] and more recently in 2006 and 2012 respectively 29.4 [1] and 38.7% [10]. In order to update the data and contribute to optimizing the management of VVC, we conducted another study to determine their etiology (and hence the sensitivity of the isolated fungal organisms) and the factors contributing to their occurrence in Abidjan (Cote d'Ivoire).

Patients and methods**Patients**

This cross-sectional study was conducted for experimental purposes over a 3-month period (May 2011-July 2011) at the Anti-Venereal Health Centre of the National Institute of Public Hygiene (NIPH) in Abidjan. The various laboratory tests were conducted at the DAV laboratory and Parasitology-Mycology Laboratory of the Diagnosis and Research Centre on AIDS and opportunistic diseases (CeDRÉS).

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