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ORIGINAL ARTICLE/ARTICLE ORIGINAL

Oropharyngeal candidiasis and oral yeast colonization in Iranian Human Immunodeficiency Virus positive patients

Candidose oropharyngée et colonisation orale à levures chez des patients iraniens VIH positif

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KEYWORDS
Oropharyngeal candidiasis;
HIV;
Candida;
Risk factors

Summary
Objectives. — Oropharyngeal candidiasis is the most frequent fungal infection in HIV patients. The aims of this study were to evaluate the prevalence of oropharyngeal candidiasis and to determine the factors associated with oropharyngeal candidiasis and to appreciate the oral yeast colonization among Iranian HIV positive patients.
Patients and methods. — One hundred and fifty Iranian HIV positive patients were examined. Oral samples were obtained and cultured on CHROMagar™ and Sabouraud's dextrose agar. TCD_4 lymphocyte count/percentage was measured and patients were categorized. Patients were evaluated for some risk factors of oropharyngeal candidiasis and oral *Candida* colonization.
Results. — Sixty percent of patients presented an oropharyngeal candidiasis and the carriage rate of yeasts was 77.2%. The most frequent isolated *Candida* was *Candida albicans* 50.2% and *Candida glabrata* 22%. Patients were suffering from thrush (38%), perleche (20%), erythematous (4.7%), and esophagitis (12%). Significant difference in TCD_4 count, gender, antifungal therapy, smoking, and intravenous drug user, between patients with and without clinical sign was observed. No significant difference in oral colonization and oropharyngeal

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candidiasis between patients who received HAART and those who have not received it were observed.
Conclusion. — Factors such as TCD_4 count, antifungal therapy, gender, smoking and intravenous drug users are important risk factors for oropharyngeal candidiasis in Iranian HIV positive patients. Denture wearing and age are predisposing factor for oral colonization.

MOTS CLÉS
Candidose oropharyngée ;
VIH ;
Candida ;
Facteur de risque

Résumé
Objectifs. — La candidose oropharyngée est l'infection fongique la plus fréquente chez les patients VIH positif. Les objectifs de cette étude sont d'évaluer la prédominance des candidoses oropharyngées, de déterminer les facteurs associés et d'évaluer la colonisation orale à levures chez des patients iraniens VIH positifs.
Patients et méthodes. — Cent cinquante patients iraniens VIH positif ont été examinés. Les prélèvements oraux ont été ensemencés sur CHROMagar™ et sur milieu de Sabouraud. Le dénombrement/pourcentage des lymphocytes TCD4 compte/pourcentage de lymphocyte a été réalisé et les malades ont été catégorisés. Les facteurs de risque de candidose oropharyngée et de colonisation orale à *Candida* ont été évalués.
Résultats. — Soixante pour cent de malades ont présenté une candidose oropharyngée et le taux de portage de levures a été de 77,2 %. Le *Candida* le plus fréquemment isolé était *Candida albicans* (50,2 %) et *Candida glabrata* (22 %). Le muguet buccal (38 %), la perlèche (20 %), l'érythème (4,7 %), et l'œsophagite (12 %) ont été observés chez ces patients. Des différences significatives ont été obtenues entre les malades avec et sans signe clinique dans le nombre de TCD_4, le sexe, la thérapie antifongique, les fumeurs et les utilisateurs de drogues par voie intraveineuse. Aucune différence significative n'a été observée entre les malades qui ont reçu HAART et ceux qui n'ont pas reçu dans la colonisation orale et la candidose oropharyngée.
Conclusion. — La numération des lymphocytes TCD_4, la thérapie antifongique, le sexe, les fumeurs et les utilisateurs de drogues par voie intraveineuse constituent des facteurs de risques importants pour la candidose oropharyngée. Le port de dentier et l'âge sont des facteurs prédisposants pour la colonisation orale.

Introduction

Oropharyngeal candidiasis (OPC) is the most common human fungal infection that is known as common opportunistic oral cavity infection in immunocompromised patients. Risk factors include smoking, dentures, diabetes, salivary gland dysfunction, age, broad spectrum antibiotics and corticosteroids therapy, malignancies, Sjögren's syndrome, adrenal suppression and AIDS [1,2,15].

OPC is the most frequent fungal infection in HIV patients. OPC was being observed in 90% of the patients during the course of HIV infection especially in advanced HIV infections [11,12,29].

Although HAART has caused a reduction in prevalence of opportunistic infections including candidiasis, the emergence of antifungal resistant isolates of *Candida* species has been reported which resulted in increasing of OPC in these patients [14].

OPC frequently caused by *Candida albicans*, is one of the most common AIDS defining fungal opportunistic infection in HIV positive individual and was among the initial manifestation of HIV induced immunodeficiency to be recognized [4,14,23].

A higher prevalence of oral *Candida* colonization can be noted as a predisposing factor for the subsequent development of clinical candidiasis. The diagnosis of OPC is usually made on the basis of clinical manifestations. The isolation and identification of the responsible yeast becomes more necessary for the choice of adequate therapy.

C. albicans is the most frequent species as etiologic agent of OPC, but other *Candida* species including *C. tropicalis*, *C. glabrata*, *C. dubliniensis*, *C. parapsilosis*, and *C. krusei* were isolated from of these patients [6,36].

Pseudo membranous candidiasis (thrush), Erythematous candidiasis, angular chelitis (perleche), chronic hyperplasic and esophagitis are clinical forms of OPC which are observed in HIV infection [2].

Islamic republic of Iran with more than 70 million populations has less than 50000 HIV positive patients. There are few data about fungal infections in HIV positive patients in Iran, and these data will be necessary to help guide preventive strategies such as antifungal prophylaxis and early empirical therapy. The objective of this study was to determine the prevalence of OPC and oral yeast colonization among HIV patients in Iran and to evaluate the factors associated with the occurrence of OPC and the relationship between the stage of HIV infection and oral candidiasis.

Patients and methods

Patients

The patients for this study were composed of 150 Iranian HIV positive men and women in Iranian Research Center for HIV/AIDS, Imam Khomeini Hospital, Tehran, Iran (IRCHA); they were outpatients who came to receive treatment. The HIV infection was confirmed by ELISA and western blot techniques.