

DOI: <https://doi.org/10.36489/saudecoletiva.2021v11i65p6128-6137>

Fungal dermatoses in basic health care

Dermatosis fúngicas en la atención básica de salud

Dermatoses fúngicas na atenção básica de saúde

ABSTRACT

Fungal dermatoses are infections that occur on the skin caused by fungi. Furthermore, there are several fungal infections, however, within the scope of primary health care there are four prevalent pathologies: Malassezia. Candidiasis, dermatophyte infections and dermatophyte reactions. The present study aimed to analyze how fungal dermatoses are treated in primary health care. Thus, a bibliographic review was carried out, privileging the analysis of the content of several articles with evident results in the literature, covering the COCHRANE (Cochrane Libraly), PUBMED databases containing the Medical Literature Analysis and Retrieval System on-line (Medline), SCOPUS, Web of Science and Scielo. It is concluded that knowledge of fungal dermatoses allows a more accurate diagnosis and a more appropriate treatment. In addition to pointing out the practices in primary care related to dermatology, this survey sought to clarify about fungal dermatoses so that interested professionals could deepen their knowledge.

DESCRIPTORS: Dermatitis; Fungal Diseases; Primary Health Care.

RESUMEN

Las dermatosis fúngicas son infecciones que se presentan en la piel provocadas por hongos, además existen varias infecciones fúngicas, sin embargo, dentro del ámbito de la atención primaria de salud existen cuatro patologías prevalentes: Malassezia. Candidiasis, infecciones por dermatofitos y reacciones por dermatofitos. El presente estudio tuvo como objetivo analizar cómo se tratan las dermatosis fúngicas en la atención primaria de salud. Así, se realizó una revisión bibliográfica, privilegiando el análisis del contenido de varios artículos con evidentes resultados en la literatura, cubriendo las bases de datos COCHRANE (Cochrane Libraly), PUBMED que contienen el Medical Literature Analysis and Retrieval System on-line (Medline), SCOPUS, Web of Science y Scielo. Se concluye que el conocimiento de las dermatosis fúngicas permite un diagnóstico más certero y un tratamiento más adecuado. Además de señalar las prácticas en atención primaria relacionadas con la dermatología, esta encuesta buscó esclarecer sobre las dermatosis fúngicas para que los profesionales interesados pudieran profundizar sus conocimientos.

DESCRIPTORES: Dermatitis; Enfermedades por hongos; Primeros auxilios.

RESUMO

As dermatoses fúngicas são infecções que ocorrem na pele ocasionada por fungos. Ademais, existem diversas infecções fúngicas, entretanto, no âmbito da atenção básica de saúde apresentam-se quatro patologias prevalentes: Malassezia. Candidíase, infecções por dermatófitos e reações dermatofíticas. O presente estudo teve como objetivo geral analisar como é realizado o tratamento de dermatoses fúngicas na atenção básica de saúde. Dessa forma, foi realizada a revisão bibliográfica privilegiando a análise do conteúdo de diversos artigos com resultados evidentes na literatura abarcando as bases de dados COCHRANE (Cochrane Libraly), PUBMED que contém a Medical Literature Analysis and Retrieval Sistem on-line (Medline), SCOPUS, Web of Science e Scielo. Conclui-se que conhecimento das dermatoses fúngicas permite um diagnóstico mais preciso e um tratamento mais adequado. Além de apontar as práticas na atenção básica relacionadas à dermatologia, este apanhado buscou esclarecer sobre as dermatoses fúngicas para que os profissionais interessados aprofundem seus conhecimentos.

DESCRITORES: Dermatoses; Doenças por Fungos; Atenção Básica de Saúde.

RECEIVED ON: 01/11/2021 APPROVED ON: 02/17/2021

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INTRODUCTION

Dermatology is a specialty dedicated to the diagnosis and treatment of diseases that affect the skin. It also covers diseases that affect the skin and mucous membrane attachments. In this sense, escorted by the progress of Medicine, Dermatology has presented in the last decades, great quantitative and qualitative growth.¹ In addition, several studies have shown that skin diseases have a considerable impact on the quality of life of patients, highlighting the tendency to depression⁴, because dermatoses are identified as stressors, regardless of where they are located.⁵

In accordance with the Brazilian Society of Dermatology² the incidence of dermatoses is high and 8.8% who seek care in basic health units (UBS) did so due to fungal dermatosis. In addition, the search for medical care due to skin problems is significant, reaching about 10% to 36,5% of consultations.³ However, there is a tendency of the population not to value the information related to skin care, mainly due to the low lethality of these pathologies, underestimating its importance as a public health problem.³

Dermatological diseases may be infectious or not. When the cause is infectious, the most common aggressors are bacteria, viruses and fungi.⁶ The main causative agents of fungal infections are the filamentous fungi, called dermatophytes, the non-dermatophyte filaments and yeasts of the genus *Candida* and *Malassezia*.⁷

Although little addressed, the topic of fungal dermatoses requires attention because of the possible consequences to the patient in the absence of treatment and, mainly, their impact on quality of life.

Thus, the present study aims to analyze how fungal dermatoses are treated in primary health care. Therefore, the following are presented as specific objectives: to talk about fungal dermatoses; list the diagnoses and; report on

the treatments prescribed within the scope of primary health care.

Based on the arguments presented, this research proposes to seek the answer to the following question: How can Primary Health Care contribute to improving the prevention and treatment of fungal dermatoses?

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METHODS

This is a descriptive study with a qualitative approach, carried out through content analysis of several articles as a theoretical framework for data research. The research was carried out covering the COCHRANE (Cochrane Library), PUBMED databases containing the Medical Literature Analysis and Retrieval System on-line (Medline), SCOPUS, Web of Science and SCIELO.

As inclusion criteria, scientific articles with full text availability, without language restrictions, published between 2010 and 2020 were used. This time cut was established with the objective of basing the research on more recent data. Duplicate articles, those that did not have full text available and those that, after reading, were identified as not related to the topic were excluded.

The search strategy for this research used the following descriptors: "dermatoses"; "Fungi"; "dermatology"; "primary attention"; "Skin diseases" in Portuguese and English. The searches were performed using the MeSH Terms combination with the Boolean operators OR and AND. The selected studies were read, analyzed, compared and the results were presented in a conceptual way.

39 articles were found that met the eligibility criteria. Of these articles, 31 were selected that addressed dermatoses caused by fungi in primary care. The data were presented in a descriptive way, aiming to elucidate the relevant aspects that involve the object of study.

RESULTS

Initially, it is important to emphasize that the skin is an organ that although it presents resistance is susceptible to trauma and infections. In this sense, the intact stratum corneum appears as a protein barrier located on the skin surface, which prevents the entry of pathogens.¹⁰

Regarding infections, they can be classified as primary or secondary, according to the existence of an entry point prior to the infection; acute or chronic according to its duration and can also be mono or poly microbial. 11 Already the dryness of the skin is a factor that prevents colonization and growth of fungi, since heat and humidity are essential for its development.¹²

With regard to fungi, it is important to note that they have great versatility to adapt and high contamination capacity.

In addition, approximately 300 species of fungi are reported as pathogens of animals causing mycoses, hypersensitivity, mycotoxicosis and mycism.⁸

The patients most likely to have fungal dermatoses are immunosuppressed patients, the most affected due to their resistance to most available antifungals, obese people, due to the excess of skin folds and diabetics.¹³

Next, the main diseases caused by fungi in the general population will be presented. In addition, the performance of the Family Health teams in preventing and treating these diseases will also be portrayed.

Malasseziosis

Malasseziosis is a superficial mycosis caused by yeasts of the genus *Malassezia* as a result of an inflammatory reaction and/or due to hypersensitivity to antigens or fungal products.¹⁴ The genus *Malassezia* comprises thirteen different lipophilic yeast species.¹⁵

Regarding the diagnosis, *Malassezia* infections are generally asymptomatic and may cause itching or skin irritation. In addition, the lesions consist of small, discreet patches, which tend to be darker than the surrounding skin in light-skinned patients and hypopigmented in dark-skinned patients.¹⁶

Such lesions usually coalesce, forming broad plaques of different colors, ranging from white to light brown. The scraping of the lesions produces fine scales. This infection usually affects the upper part of the trunk, upper limbs, groin and abdomen. Most lesions exhibit yellowish fluorescence under Wood's light.¹⁷

Pityriasis Versicolor

Pityriasis Versicolor (PV) is a disease caused by one of the species of *Malassezia*. This dermatosis causes lesions that are located on the neck, face, back and upper limbs.¹⁶ *Malassezia* species are part of the normal skin microbiota and are usually found in hair follicles in seborrheic areas and with the presence of

lipids, where the yeast transforms into its parasitic form like a pseudohyphae.¹⁷

The diagnosis of PV is made through culture and molecular analysis.¹⁷ In patients with tinea versicolor, the lesion must be scraped and analyzed to identify the presence of pseudo-hyphae and yeasts. The form of yeast prevails in folliculitis and is easily seen in purulent samples of pustule. The biopsies of these lesions show the presence of yeasts around and inside the hair follicles, accompanied by neutrophilic inflammation.¹⁸ The culture of the organism from the folliculitis pus is more efficient for the diagnosis, since these yeasts are part of the normal flora of the skin.¹⁷

The treatment of tinea versicolor and folliculitis caused by *Malassezia* involves the application of selenium sulfide-based shampoo. In the case of tinea versicolor, the scaling is resolved promptly, but the disappearance of pigmentary changes can take weeks to months.²⁰

Candidiasis

Candidiasis or candidosis is related to a different set of infections caused by several genera of *Candida*, most of which are caused by the species *Candida albicans*. However, non-*C. albicans* *Candida* (NCAC) species, such as *Candida glabrata*, *Candida tropicalis* and *Candida parapsilosis* are often identified as human pathogens.¹⁹

Conditions that allow infection of the skin caused by this fungus include hot and humid weather; tight, synthetic underwear; poor hygiene; immunodepression by diabetes, HIV, use of corticosteroids and other drugs that weaken the immune system; pregnancy, obesity or use of antibiotics.²⁰ It is important to note that rare cases of immunodepression can cause *Candida* to invade deeper tissues, as well as blood, and cause systemic candidiasis with a risk of death.²³

Candidiasis as fungal dermatosis is shown as one of the most common cases reported in primary health care. It also tends to occur in moist areas of the

skin and can cause rashes, flaking, itching and swelling.¹⁹ The areas usually affected are the mucosa of the mouth, the groin, the armpits, the spaces between the fingers and toes, the uncircumcised penis, the skin fold under the breasts, the nails and the skin folds in the stomach area.²¹

Dermatophytes

Infections caused by dermatophytes are called tinea. Dermatophytes are fungi that feed on the protein keratin, which is a component that forms the outer layer of human skin and makes up the structure of hair and nails. A nail infection is called tinea unguium or onychomycosis. The infection can occur in several places including the feet (*Tinea pedis*); beard area (*Tinea Barbae*), body (*Tinea corporis*), groin (*tinea cruris*); scalp (*Tinea capitis*).²⁵ These three species that cause dermatophytoses are easy to spread and generate serious public health problems, where efforts are concentrated on measures to prevent their spread.²⁵⁻²⁸

Symptoms of an infection caused by dermatophytes may vary depending on your location. When the inflammation is small and the infected areas itch a little, the border is scaly and slightly raised, with the intermittent appearance of plaques throughout the body. When the inflammation is more severe, large and small spots appear with liquid or an inflamed plaque on the scalp with kerion.²⁶ Transmission can occur directly or indirectly, through materials contaminated with parasitic skin scales.²⁵⁻²⁶

The diagnosis can be confirmed by microscopy or sample culture. The ideal method of obtaining samples from the skin is to scrape the scaly lesions.²⁵⁻²⁷

FHS practices

The Ministry of Health²⁹ elucidates that the Family Health Strategy (FHS), which was previously called the Family Health Program (FHP) was created in order to reorganize Primary Care (PC)

and promote the quality of life of the population. In this context, the proximity of the health team to users allows a more appropriate approach, which ensures greater adherence to the treatments and interventions proposed.

The Family Health Team solves most of the population's health problems. However, if the patient needs more advanced care, the FHS makes this referral. Thus, care can be performed at the health unit or at home, facilitating care through prior registration.²⁹

Furthermore, the role of the community agent is shown to be fundamental, because because he belongs to a certain community, he knows the issues, health needs and culture of that population. When well oriented, the agent will be a facilitator of the relationship between the team and the community.

In this sense, the FHS must be able to carry out the previous diagnosis and carry out the subsequent follow-up of prevalent conditions, such as fungal infections. In addition, actions aimed at prevention and health promotion must be implemented, as determined by the FHS precepts.²⁹

DISCUSSION

Dermatosis, in general, represents a high demand in the basic health network.²⁻³⁻⁶⁻⁹ Thus, doctors working in Primary Care must be qualified to attend to dermatological diseases, diagnose them and adopt the best conduct.

Regarding skin diseases caused by fungi, it is noteworthy that these have as their main causative agents the filamentous fungi, called dermatophytes, the non-dermatophyte filaments and yeasts of the genus *Candida* and *Malassezia*.⁶⁻⁸

It was observed that allergies, fungal dermatoses and acne are homogeneously distributed²⁻⁸, with a predominance of mycoses in males and allergies in females, which contradicts the findings of Petry et. al.¹⁹, whose research reported the incidence of fungal dermatoses, specifically pityriasis versicolor in the female public.³

Malassezia is usually the result of an inflammatory reaction due to hypersensitivity to antigens or fungal products.¹⁴⁻¹⁵⁻¹⁶⁻¹⁸ *Candida* is a yeast that resides in the digestive tract, in the female genital organ and in the mouth, but does not usually cause injuries, but under certain conditions, it can cause

infections in the mucous membranes and wet areas of the skin.¹⁹⁻²⁰⁻²¹

Anthropophilic dermatophytes are the most common cause of cutaneous fungal infections. Studies point out specific characteristics for each type of dermatophyte according to region, ethnicity and age, but more research needs to be carried out. There is also a high incidence of dermatophyte reactions that can be defined as allergic reactions to the fungus in different areas of the initial infection.¹⁴⁻²⁴⁻²⁵⁻²⁶⁻²⁷

Regarding the analysis of dermatoses, it is customary to make cultures for microscopic tests in order to identify the fungus to determine the best drug approach. In relation to treatments, fungal infections are usually treated with antimycotic drugs, for topical use and include creams, gels, lotions, solutions or shampoos or they can be administered orally.⁷⁻²⁴⁻²⁷⁻²⁸

In addition, it is perceived that it is essential to carry out continuous training of health agents so that family health teams can develop an adequate work to prevent these diseases.

The elaboration of this analysis allows health professionals who work in the FHS to know a little more about these infections, keeping an eye on guiding patients and family members regarding the prevention practices for treating fungal dermatoses.

CONCLUSION

It can be inferred that the FHS team needs to be attentive to guide patients in relation to fungal dermatoses, given that they are treatable, so that there is no recurrence. In this sense, such guidance from health professionals with the family can provide a better quality of life in the long term and reduce the recurrence of this pathology, that is, the multi professional team plays a fundamental role in the prevention and control of the population's skin diseases.

Thus, it is highlighted that the family health specialist is able to identify

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and treat the diseases mentioned in this study, however, if this professional does not have security in the diagnosis, referral to a dermatologist is recommended in order to obtain an adequate and efficient treatment. ■

REFERENCES

1. De Araújo, R. S., & Amorim da Costa, E. M: Importância do conhecimento em dermatologia para atendimento à população ribeirinha do Rio Amazonas. *Revista De Saúde*. 2016; 7(2); 04-07.
2. Sociedade Brasileira de Dermatologia: Levantamento inédito mostra como está a pele dos brasileiros. Acesso em: 19 de set. 2020. Disponível em: <http://fantastico.globo.com/Jornalismo/Fantastico/download/O,,1916-1,00.doc>.
3. Williams, H. C.: *Epidemiology of skin disease. Rook's Textbook of Dermatology*. Ninth Edition; 2016; 1-17.
4. Urasaki, M. B. M., Mandelbaum, M. H. S., & Gonçalves, R.: Impactos psicossociais associados às manchas gravídicas. *Cogitare Enfermagem*; 2013; 18(4); 655-662.
5. Gascón, M. R. P., Ribeiro, C. M., Bueno, L. M. D. A., Benute, G. R. G., Lucia, M. C. S. D., Rivitti, E. A., & Festa Neto, C.: Prevalence of depression and anxiety disorders in hospitalized patients at the dermatology clinical ward of a university hospital. *Anais brasileiros de dermatologia*; 2012; 87(3); 403-407.
6. Petruzzi, M. N. M. R., Cherubini, K., Salum, F. G., & Figueiredo, M. A. Z. D.: Risk factors of HIV-related oral lesions in adults. *Revista de saúde publica*; 2013; 47(1); 52-59.
7. Tavares, E., Catorze, M. G., Galhardas, C., Pereira, M. J., Sá, O. B., & Rocha, M. M. Panorama epidemiológico da infecção por dermatófitos na área de influência do Hospital Distrital de Santarém. *RPDI-Revista Portuguesa de Doenças Infecciosas*; 2012; 8(1).
8. REIS-GOMES, Angelita et al. Dermatopatias fúngicas: aspectos clínicos, diagnósticos e terapêuticos. *Acta veterinaria brasileira*; 2012; v. 6; n. 4; 272-284.
9. BERNARDES, C. A. et al. Diagnóstico e condutas dermatológicas em uma unidade básica de saúde. *Revista Brasileira de Educação Médica*; 2015; v. 39; n. 1; 88-94.
10. Addor, Flavia Alvim Sant'Anna; AOKI, Valeria. Barreira cutânea na dermatite atópica. *Anais Brasileiros de Dermatologia*; 2010; v. 85; n. 2; 184-194.
11. Labrada, D. B. (2018). Comportamento e prevenção de doenças na pele na Unidade Básica de Saúde (UBS) Vila Americana. Universidade Federal de Santa Catarina; 2018; Florianópolis.
12. Sociedade Brasileira de Dermatologia. Micose. Acesso em: 01 de set. 2020. Disponível em: <https://www.sbd.org.br/dermatologia/pele/doencas-e-problemas/micose/14/>
13. Peman, J., & Salavert, M. Invasive fungal disease due to *Scedosporium*, *Fusarium* and mucorales. *Revista iberoamericana de micologia*; 2014; 31(4); 242-248.
14. Meredith, A. Dermatoses. In *BSAVA Manual of Rabbit Medicine*; 2014; BSAVA Library; 255-263.
15. Neves, J. J. A., Paulino, A. O., Vieira, R. G., Nishida, E. K., & Coutinho, S. D. A. The presence of dermatophytes in infected pets and their household environment. *Arquivo Brasileiro de Medicina Veterinária e Zootecnia*; 2018; 70(6); 1747-1753.
16. Rasi, A., Naderi, R., Behzadi, A. H., Falahati, M., Farehyar, S., Honarbakhsh, Y., & Akasheh, A. P. *Malassezia* yeast species isolated from Iranian patients with pityriasis versicolor in a prospective study. *Mycoses*; 2010; 53(4); 350-355.
17. Petry, V., Tanhausen, F., Weiss, L., Milan, T., Mezzari, A., & Weber, M. B. Identificação de espécies de malassésia na pitiríase versicolor em um serviço de dermatologia do sul do Brasil. *Anais Brasileiros de Dermatologia*; 2011; 86(4); 803-806.
18. Framil, V. M. D. S., Melhem, M. S., Szeszs, M. W., Corneta, E. C., & Zaitz, C. (2010). Pitiríase versicolor: isolamento e identificação das principais espécies de *Malassezia*. *Anais Brasileiros de Dermatologia*; 2010; 85(1); 111-114.
19. Silva, S., Negri, M., Henriques, M., Oliveira, R., Williams, DW, & Azeredo, J. *Candida glabrata*, *Candida parapsilosis* e *Candida tropicalis*: biologia, epidemiologia, patogenicidade e resistência antifúngica. *FEMS microbiology reviews*; 2012; 36 (2); 288-305.
20. Calderone, RA, & Clancy, CJ (Eds.). *Candida e candidíase*. American Society for Microbiology Press; 2011.
21. Mayer, FL, Wilson, D., & Hube, B. Mecanismos de patogenicidade de *Candida albicans*. *Virulence*. 2013; 4 (2); 119-128.
22. De Rossi, T., Lozovoy, MAB, da Silva, RV, Fernandes, EV, Geraldino, TH, Costa, IC, & Felipe, I. Interações entre *Candida albicans* e hospedeiro. *Semina: Ciências Biológicas e da Saúde*; 2011; 32 (1); 15-28.
23. Giolo, M. P., & Svidzinski, T. I. E. Fisiopatogenia, epidemiologia e diagnóstico laboratorial da candidemia. *Jornal Brasileiro de Patologia e Medicina Laboratorial*. 2010; 46(3); 225-234.
24. Bitencourt, R. P. Ocorrência de *Candida* em alicates de cutícula em centros de estética; 2015.
25. Summerbell, R. C. *Trichophyton*, *Microsporum*, *Epidermophyton*, and agents of superficial mycoses. *American Society of Microbiology*; In *Manual of Clinical Microbiology*; 2011; 10th Edition; 1919-1942.
26. Padhye, AA e Summerbell, RC. Os dermatófitos. *Microbiologia e infecções microbianas de Topley & Wilson*; 2010.
27. Abd Elmegeed, ASM, Ouf, SA, Moussa, TA, & Eltahlawi, SMR. Dermatófitos e outros fungos associados em pacientes atendidos em alguns hospitais no Egito. *Revista Brasileira de Microbiologia*; 2015; 46 (3); 799-805.
28. Dalla Lana, D. F., Batista, B. G., Alves, S. H., & Fuentesfria, A. M. Dermatofitoses: agentes etiológicos, formas clínicas, terapêutica e novas perspectivas de tratamento. *Clinical and biomedical research*; 2016; Vol. 36; n. 4; 230-241.
29. Brasil. Ministério da Saúde. Estratégia Saúde da Família. Acesso em: 19 de set. 2020. Disponível em: <http://www.saude.gov.br/acoes-e-programas/saude-da-familia/sobre-o-programa>