

COSMODERM TIMES

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Dear Doctor,

Greetings from Micro Labs. We are happy to bring you "COSMODERM TIMES" which contains latest and interesting news in the field of Dermatology.

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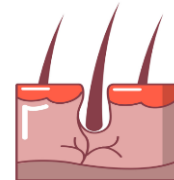
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Should you require any article or, medical information, please feel free to contact us medicalservices@microlabs.in

Looking forward to your valuable feedback.

Best Regards,

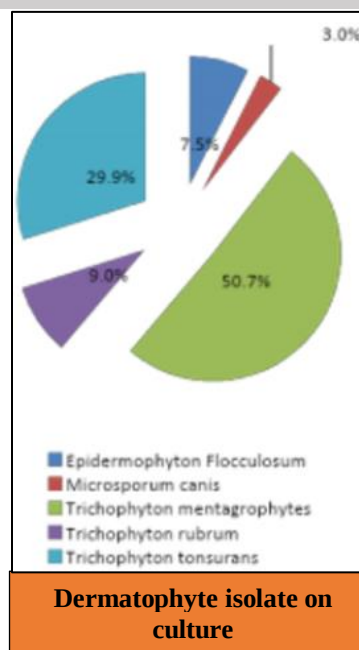
Medical Team, Micro Labs Limited



CLINICOMYCOLOGICAL STUDY OF SUPERFICIAL DERMATOPHYTOSIS: A CROSS SECTIONAL STUDY

Introduction

Dermatophytosis is a fungal infection caused by different genera of fungi having the ability to invade and multiply within keratinized tissue like hair, skin, and nails ¹. The causative agents of the dermatophytosis is divided into 3 genera: Epidermophyton, Microsporum and Trichophyton. The infections caused by these pathogens are generally cutaneous and restricted to the non-living, cornified layers of the skin. Since these infections are often confused with other skin disorders, it is important to make early diagnosis for better management. Dermatophytosis is a matter of concern because of their character of chronicity of the disease, relapses and poor QOL.² Specific culture media might be actually utilized to eliminate the growth of quickly growing contaminated moulds which might hinder the acknowledgment of dermatophytes. Identification of the fungal species is epidemiologically very important to know the source of infection and to prevent its transmission. ¹

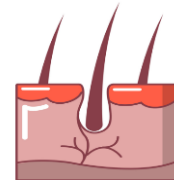


Objective

This study aimed to identify the clinical pattern of dermatophytosis prevalent to isolate and to identify the change in trend in the causative organism of dermatophytosis.

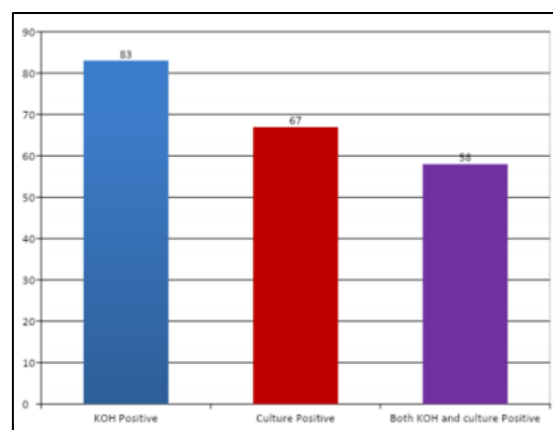
Materials and Methods:

This study enrolled 150 patients attending outpatient department, of which 101 were males and 49 females, of age group 21-30 years, diagnosed with superficial dermatophytosis. Samples were collected and examined for KOH direct microscopy and for fungal culture on Sabouraud's Dextrose Agar as well as on Dermophyte Test Medium. The Quantitative variables were present in the form of mean and SD and the Qualitative variables were present in the form of frequency and percentage. For comparing the frequency between different groups, chi-square test was applied, with p-value less than 0.05.



Results:

Of total enrolled patient, 58 patients showed positivity to KOH microscopy as well as fungal culture and 25 more samples showed positivity to KOH microscopy but negativity to culture. Around, 9 samples were positive to fungal culture but negative to direct microscopy. Trichophyton mentagrophytes was the most Predominant fungal species isolated on culture (50.7%) while next common species isolated was T. tonsurans (29.9%). No significant



Showing concordance and discordance between KOH and Fungal culture positivity

association was found between dermatophyte isolate on culture and clinical type. Among subjects with Tinea faciei, Tinea cruris and Tinea corporis, Trichophyton mentagrophytes and Trichophyton tonsurans were the most common species isolated

Conclusion

Compared to female, the number of male patient with superficial dermatophytosis were more and T. corporis was the commonest clinical type found. Majority of patients were in the third decade and came within a duration of 1 month to 6 months of getting infection. In patients diagnosed with tinea corporis, tinea cruris, tinea pedis and tinea manuum, T. mentagrophyte was the most predominant species isolated

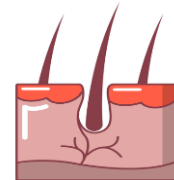
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Evaluation of total Antioxidant, Oxidant status and oxidative stress index in Patients with Female pattern hair loss

Introduction

Androgenic alopecia is a common Female pattern hair loss and considered to be the most common dermatological disorder with a multifactorial pathogenesis. Oxidative status, androgens, growth factors, age, genetic susceptibility, racial factors and follicular miniaturization has been known as the common pathogenesis of several skin and hair diseases, including Female pattern hair loss. Limited success has been obtained with the treatment of Female pattern hair loss. Different treatment methods like hair growth supporters and androgen metabolism modulators have shown limited success which suggest that other pathogenic pathways may be considered. ¹



Insufficient antioxidant protection or excessive production of reactive oxygen species give rise to oxidative stress, which plays an important role in skin cancers, cutaneous aging and many inflammatory skin diseases such as Androgenic alopecia.² It is also believed that Lymphocytes-generated reactive oxygen species are closely correlated with the pathogenesis of a variety of inflammatory skin disease and Female Pattern Hair Loss as well.¹

Objective

This study was aimed to investigate the levels of oxidative stress biomarkers in patients with Female pattern hair loss with varying severities.

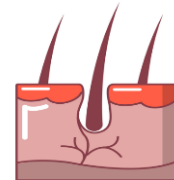
Methods

This study enrolled a total of 56 Female pattern hair loss patients between the ages of 18 and 50 years. Diagnosis of the patients were based on clinical examination and trichoscopic evaluation. Different stages of female pattern genetic hair loss were described according to Ludwig classification: type 1 (mild), type 2 (moderate), and type 3(extensive). Of the total evaluated patients, 17 patients were classified as mild, 20 were classified as moderate, and 19 patients were classified as extensive.

Around, 47 healthy, unrelated female participants with mean age of 20.0 ± 3.3 years were selected as controls. It was made sure that neither the patients nor the controls had received any topical or systemic drug therapy for at least 3 months before blood collection and none of them had any other coexistent disease. After 10–12 h of fasting, 5 ml of peripheral blood was collected in EDTA tubes. Plasma was separated by centrifugation at 2000 rpm for 5 min and stored at -80°C in aliquots for further use.

Results

	FBHL (n=56)	Controls (n=47)	F	P
CAT (U/ml)	0.4 ± 0.2	0.6 ± 0.1	46.72	$<0.0001^{**}$
SOD (U/ml)	28.1 ± 9.5	59.9 ± 3.8	506.45	$<0.0001^{**}$
TAC ($\mu\text{mol}/\text{ml}$)	1.2 ± 0.4	1.9 ± 0.2	172.47	$<0.0001^{**}$
MDA (nmol/ml)	1.4 ± 0.3	0.6 ± 0.1	369.45	$<0.0001^{**}$
CAT, catalase; FBHL, female pattern hair loss; MDA, malondialdehyde; SOD, superoxide dismutase; TAC, total antioxidant capacity. ^{**} Highly statistically significant difference.				
Levels of oxidative biomarkers in patients with FBHL and controls				



Plasma levels of Malondialdehyde in Female pattern hair loss were significantly higher as compared with that of the controls, whereas activities of the antioxidant enzymes superoxide dismutase and catalase were lower. Total

	FBHL severity		
	Mild	Moderate	Severe
	<i>n</i> =17	<i>n</i> =20	<i>n</i> =19
CAT (U/ml)	0.4±0.2	0.4±0.2	0.5±0.3
SOD (U/ml)	28.8±8.7	29.5±10.5	22.6±4.5*
TAC (μmol/ml)	1.3±0.3	1.3±0.4	1.1±0.3*
MDA (nmol/ml)	1.3±0.4	1.4±0.2	1.6±0.3*

CAT, catalase; MDA, malondialdehyde; SOD, superoxide dismutase; TAC, total antioxidant capacity.*Statistically significant when compared with mild or moderate FBHL subgroups, respectively.

Correlation analysis of oxidative markers in the plasma of patients with FBHL

antioxidant capacity was also found to be low in patients with Female pattern hair loss as compared with that of the controls. Higher Malondialdehyde levels in the extensive Female pattern hair loss subgroup as compared with that of the mild and moderate subgroups were noted. Furthermore, in the extensive Female pattern hair loss subgroup, a significant negative correlation was observed between Malondialdehyde and catalase levels.

Conclusion

The data suggest that oxidative stress plays a key role in Female pattern hair loss progress, which accelerates hair loss by causing micro inflammation and fibrosis. The recognition of the effect of androgens and associated factors on the hair follicle cycle is important for the development of effective treatment methods and may be employed as a biomarker index to investigate the disease's activity and to monitor its severity.

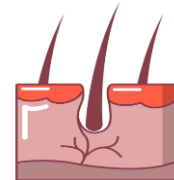
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Potassium Hydroxide Mount Microscopy: A Rapid technique to diagnose superficial fungal infections

Introduction

Onychomycosis, a chronic fungal infection of the nails affecting 5.5% of the population globally and represents 20% to 40% of all nail infections. Globally, the burden of onychomycosis has been raising. Trichophyton species and yeast are considered to be the dominant isolating fungal agents. Fungal culture is the gold standard for diagnosing dermatophytosis but since last two decades' available molecular techniques have improved the diagnostic procedure.



Potassium hydroxide mount of clinical specimen is a commonly used process in dermatology for rapid detection of fungal elements in skin, hair, and nails. Potassium hydroxide is an efficient and readily available alkali and a strong base which helps in softening and clearing of cellular and keratin debris, thus clearing the background and allowing the visualization of fungal elements under a microscope². Cells are collected from the affected sites and are placed on a slide consisting of potassium hydroxide, and examined under a microscope for the growth of the fungus. The mycological diagnosis performed by direct microscopy potassium hydroxide is most cost effective techniques to identify the fungal elements and a routinely performed diagnostic test for the superficial fungal infections.

Objective:

This study aimed to determine the potassium hydroxide sensitivity for the diagnosis of fungal nail infections.

Method

This study enrolled 340 clinically diagnosed patients of Onychomycosis, irrespective of age and gender (males- 220 and females-120). Detailed proforma was filled after consent, containing the nail trauma, personal hygiene and other relevant history were noted. The exclusion criteria of this study were already receiving antifungal and having other systemic diseases. The affected nail was immersed in 20% potassium hydroxide and incubated for 1 hour at 37°C. On microscopy, the presence of fungal components like beaded spherical structure, budding cells and thread like structure) were observed and were considered for positive test.

Results

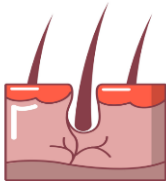
Out of 340 patients, 50% positivity of onychomycosis was observed in age group of 21 to 30-years and potassium hydroxide mount microscopy revealed true positive results in 55.29% cases while 44.71% cases were negative. This study highlighted that potassium hydroxide mount microscopy is a screening tool for fungal infection and is cost effective for ruling out the disease in outpatient department and clinics.

Descriptive analysis of diagnostic methods.

Test	Positive n (%)	Negative n (%)
KOH	188 (55.29%)	152 (44.71%)

Conclusion

According to this study, Potassium hydroxide mount microscopy is an efficient, Rapid, simple and cost-effective technique to diagnose superficial fungal infections even in the primary care and Outpatient department.



Reference:

1. Sipra MW, Jillian KS, Batool T. Performance evaluation of rapid test potassium hydroxide for the diagnosis of onychomycosis. The Professional Medical Journal. 2021 Nov 30;28(12):1793-6.
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Vitamin D receptor polymorphisms in patient with acne vulgaris and disease severity

Introduction

Vitamin D and vitamin D receptor polymorphisms plays an important role in the pathogenesis of Acne Vulgaris. Genetic alterations in vitamin D receptor can lead to defects in gene induction, altering the metabolism of calcium and affecting immune system.¹

Many studies in the recent years have proved the importance of vitamin D and highlighted its involvement in hormonal activity, differentiation and proliferation of cells, and regulation of angiogenesis and apoptosis².

Vitamin D in addition to role as a modulator of calcium metabolism and homeostasis, it affects both the innate and adaptive immune system through its effects on T lymphocytes and B lymphocytes, dendritic cells, and macrophages. However, identifying vitamin D receptors in human sebocytes and modulation of lipid and cytokine production by vitamin D may help to identify the possible association between vitamin D and the development of acne. More evidence and clarification is required regarding the clinically relevant action of vitamin D in the development of acne, and its potential efficacy as a therapeutic agent in acne.³

Objective

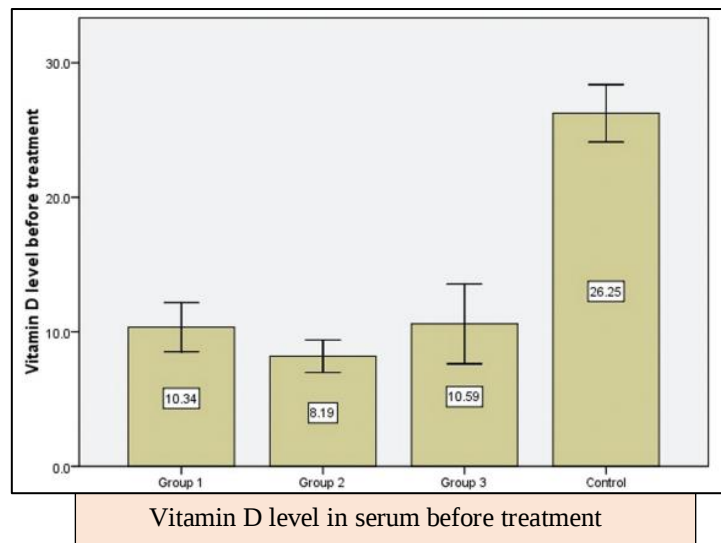
To assess and analyse the role of vitamin D and vitamin D receptor genes in Acne Vulgaris and its association with disease severity.

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Patients and methods

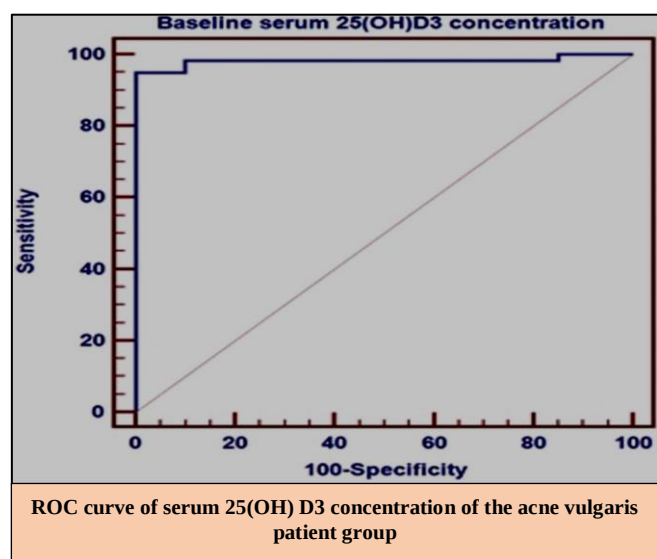


This interventional randomized control trial enrolled total of 600 patients, out of which 300 had acne vulgaris and another 300 were healthy controls. Patients were subdivided into four different groups: group 1 received cholecalciferol 8000 IU/day for 3 months, group 2 applied 1–2 g of topical vitamin D analogue for 3 months, group 3 had no treatment, and group 4 included healthy controls. Skin manifestations were assessed and Serum 25(OH)3 D was measured in all participants before and after treatment. Number of vitamin D R gene polymorphisms were measured. For quantitative parametric data, Independent Student t test was used to compare measures of two independent groups and one-way ANOVA was used for comparing more than two-independent groups with P value less than 0.05. For, quantitative nonparametric data, the Kruskal Wallis test and Mann Whitney test were used to compare more than two-independent groups and Pearson correlation test was used to find out the association between different groups.



Results

Compared to control, Patients with acne showed a statistically significant decrease in serum 25(OH) D3 concentration, with P value of 0.001. Statistically significant difference between patients with acne and controls regarding Taq-1 and Apa-1 genotypes, with P values of 0.001 and 0.026, respectively was recorded and regarding Fok-1 and Cdx-2 genotypes, the results revealed that there was no statistically significant difference between the studied patients and the controls, with P values of 0.690 and 0.113, respectively.





When the results of genotypes were compared with the acne scores, the severity of the disease, and baseline serum 25(OH) D3 concentration in the patient group were as follows: In **Taq-1 genotypes**: There was a highly statistically significant difference, with P value less than 0.001, between Taq-1 genotypes regarding baseline serum 25(OH) D3 concentration in the patient group. In, **Apa-1 genotypes**: There was no statistically significant difference between Apa-1 genotypes regarding baseline serum 25(OH) D3 concentration in the patient group, where P value was more than 0.05. In, **Cdx-2 genotypes**: There was no statistically significant difference between Cdx-2 genotypes regarding baseline serum 25(OH) D3 concentration in the patient group, where P value was 0.326.

Conclusion

This study highlighted that Vitamin D and its derivatives play their biological roles through the vitamin D receptor and low serum 25(OH) D3 levels can be one of the biomarkers for the detection of Acne Vulgaris. Vitamin D receptor polymorphisms (rs731236 for Taq-1, rs7975232 for Apa-1, rs2228570 for Fok-1, and rs11568820 Cdx-2) can be used as effective biomarkers for early detection and treatment for Acne Vulgaris.

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