INDIAN J DERMATOL VENEREOL LEPROL 1989; 55 : 170-172

NYSTATIN IN PSORIASIS

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The hypothesis of the role of *Candida* in the gut for provoking psoriasis was tested by treating 9 males and 6 females having stable psoriasis with 200,000 units of nystatin orally 4 times a day for a minimum of 6 weeks. Intradermal candidin test and throat swab and stool samples for culture of *Candida* were taken before and twice after (between 4 and 8 weeks) institution of the therapy. Various *Candida* species isolated before therapy in 11 patients, disappeared after the therapy in 6. In the other 5 the colony counts came down. Only scaling became less in 4 patients. More than 50% clearance was noted in 2 patients. No improvement occurred in 9 patients. No obvious correlation between isolation and disappearance of *Candida* and persistence or clearance of lesions was observed. Immediate (Type-1) hypersensitivity response to candidin was positive in only 3 patients. Immediate hypersensitivity to *Candida* antigens or its metabolic products does not appear to have any role in the pathogenesis of psoriasis.

Key words : Nystatin, Psoriasis, Candida, Aetiopathogenic role.

Improvement in psoriasis with oral nystatin therapy was reported by Baker[1] and Crutcher et al.[2] This improvement of the inflammatory bowel disease and psoriasis was thought to be due to the effects on yeasts in the gut microflora.[1] It was reported as early as 1929 by Wachowiak et al[3] that the psoriatics were more likely to carry *Candida* in their intestines and this could enter the circulation and subsequently reach the skin.[4] So the reported effectiveness of nystatin could be due to elimination of *Candida* from the gut and subsequently its reduced entry into the circulation. Rosenberg and Belew[5] suggested that psoriasis is ordinarily the result of the interaction of various microbial products with an abnormally responsive alternate complement pathway. Recently, a dermatosis with early target-like lesions and older psoriasiform lesions has been attributed to bacterial overgrowth in jejunal diverticula. Treatment with tetracyclines and metronidazole reduced the levels of circulating immune complexes and also cleared the skin condition.[6] *Pityrosporum ovale* normally present in the scalp is a potent activator of the alternate complement pathway. It has been demonstrated that heat-killed organisms are capable of evoking a psoriatic response both in rabbits and in patients with psoriasis.[7,8] However, the beneficial response to oral ketoconazole at non-seborrhoeic sites where few *Pityrosporum ovale* reside, pointed again towards the importance of gut flora rather than a local process.

To test the hypothesis of the provocative role of *Candida* in the gut of psoriatics as proposed by Crutcher et al,[2] oral nystatin therapy was tried in patients with stable plaque psoriasis of mild to moderate severity.

Materials and Methods

Fifteen adult patients (9 males and 6 females) between the ages of 20 and 48 years were taken up for study. Duration of the disease varied from 2 to 6 years. No patient was suffering from any other cutaneous or systemic disease, none was taking any drugs which could induce or remit psoriasis. All investigations on urine, stools and blood including electrolytes, liver and renal functions were normal.

Throat swab and stools sample for culture of *Candida* were taken prior to therapy and twice

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more any time between 4 weeks and 8 weeks after the start of treatment. Intradermal candidin test was done with 0.02 ml of 1:500 candidin (Holister Stier Lab) and read after 15 and 30 minutes, 6, 24, 48 and 72 hours. Fifty healthy individuals were also tested with candidin.

Patients were given 200,000 units of nystatin orally 4 times a day for minimum 6 weeks before labelling the patient as treatment failure in the absence of a clinical response. In case of improvement, the drug was continued for 3 months and the patients were followed-up till relapse. No local medication except bland oil if needed was used.

All patients had uncomplicated stable plaque psoriasis of mild to moderate severity (<50% body area involved). Scalp and nails were involved in 15 and 10 patients respectively. None had involvement of mucosae, flexures or joints.

Results

All patients tolerated the drug well. No improvement in psoriatic plaques as regards scaling, erythema and induration was observed in 9(60%) patients after 6 weeks of therapy and the drug was discontinued. In one patient there was considerable (>75%) improvement, the recovery was maintained during the course of the therapy and subsequently for a period of 10 months. In another patient 50% clearance was maintained for a period of 6 months without further therapy. In 4 patients scaling became less but erythema and induration did not improve. The drug was continued for 3 months but without any further improvement.

Pre- and post-treatment investigations on urine, stools and blood were normal in all patients. No growth of yeast of any kind was observed from the throat and stool samples in 4 patients. In the remaining 11 patients initial or subsequent stools (11 patients) or throat (5 patients) samples grew yeast (*C. albicans, C. krusei, C. tropicalis*). In 6 patients the *Candida* isolated initially had disappeared after therapy. In the other 5 it persisted but the colony counts came down markedly in 2, while the fall was not significant in the other 3.

Candida was isolated from the throat of 5 patients. In 3 patients it disappeared after treatment but in the other 2 it had persisted but colony counts came down. In all 5 patients, the same organism was grown as from the stools samples.

Candidin test was positive for immediate hypersensitivity in 3 (20%) patients but negative for delayed (Type-IV) response in all the patients. Out of the 3 patients with positive type-I reaction, *Candida* was grown in one patient only.

In the normal controls the candidin test was positive in 18 (36%) out of 50, but in none the response was of immediate type.

Isolation of *Candida* did not correlate with the severity of disease. Out of the 2 patients who responded, one grew *Candida* initially which did not disappear with nystatin therapy. In the other 4 patients who showed improvement in the form of reduced scaling, yeasts were grown in only 2. In the 2 patients who grew yeast it disappeared in one but persisted in the other after treatment. Of the 6 patients in whom *Candida* disappeared after treatment, one patient showed slight improvement in the form of reduced scaling but no change occurred in the clinical condition of the other five. Significantly, in the only patient out of the 6 who showed improvement as assessed by reduced scaling, the candidin test was negative. Thus, there seemed to be no obvious correlation between the growth of *Candida*, hypersensitivity to candidin and the disease process.

Comments

It is evident from the results that oral nystatin was not very useful in the control of plaque psoriasis. The results are at variance with observations of Baker[1] and Crutcher et al[2] who repor-

ted clearance in all of their patients. As for the hypothesis of elimination of *Candida* from the gut for therapeutic response, significant reduction in *Candida* population was achieved but the expected clearance of psoriatic lesions did not take place. The cutaneous hypersensitivity to candidin responsible for the provcking phenomenon was not found to be more often positive in patients as compared to the controls. Both the parameters combined with the convincing lack of therapeutic response, fail to support the hypothesis that increased *Candida* population provokes the skin to respond by forming psoriatic plaques.

Immediate hypersensitivity to *Candida* antigens or its metabolic products do not appear to have any role in the pathogenesis of psoriasis. The *Candida* in the GIT may at best have some modifying effect on psoriasis, however, we found no convincing correlation between the presence or eradication of *Candida* on the course of the disease.

Acknowledgement

We are grateful to M/s Sarabhai Chemicals for the supply of mycostatin (Nystatin) tablets for the trial.

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