Topical dinitrochlorobenzene (DNCB) for alopecia areata: Revisited

Sir,

Treatment of alopecia areata with topical immunotherapy by contact sensitizers is an effective and accepted therapeutic modality in the treatment of chronic severe alopecia areata.[1,2] The contact sensitizers used in alopecia areata are dinitrochlorobenzene (DNCB), diphenyl-cyclopropenone (DPCP)[3] and squaric acid dibutyl ester (SADBE). We used DNCB in the treatment of chronic resistant alopecia areata.[4]

DNCB powder was dissolved in acetone and diluted in appropriate concentrations of 0.001%, 0.01%, 0.05%, 0.1%, 0.5%, 1%, 1.5% and 2% solutions. Solution was stored in dark bottles until use in room temperature. DNCB was applied using cotton buds. Sensitization was done by applying 2% DNCB over 4 x 4 cm area on back during the first visit. After 1 week, weekly applications of DNCB were done starting with lowest concentration (0.001%) to the affected area of hair loss. Patients were advised to avoid washing the area and protect it from sunlight for 48 hours. Applications of DNCB were repeated weekly with increasing concentrations. Aim was to produce moderate eczema. Mild to moderate eczema was maintained by titrating the DNCB concentrations. The patients were advised to inform about any side effects during the treatment period. If there was no sensitivity after 12 weeks, it was considered as treatment failure and the patient was withdrawn from the study.

A total of 22 patients were included in the study. The total duration of the study was 6 months. All the patients completed the study period. Out of 22 patients, 2 patients had only beard involvement, 8 had only scalp, 3 had ophiasis pattern, 5 had alopecia totalis and 4 had alopecia universalis. Complete hair growth with terminal hairs was seen in 8 (36.36%) patients and 4 patients did not respond at all. Remaining 10 patients had variable response. Side effects observed during the study period were hyperpigmentation, irritation, fever and lymphadenopathy. Six months of follow-up was done in 20 patients, 2 patients were lost to follow-up. Two patients with complete hair growth developed patchy hair loss after 3 months during the follow-up period.

The only disadvantage of DNCB is its mutagenicity by Ames test. However, drugs like norfloxacin, isoniazid and psoralen with ultraviolet A (PUVA) treatment, textile dyes and fumes of oils have also been found mutagenic by Ames test.[5-7] The most potent mutagenic agent in early trials of Ames test is parsnip juice. DNCB was found non-carcinogenic when fed in large doses in rats, mice, guinea pigs and man. Happle and Edternacht *et al*,[5] had a good response with DNCB. The effect was seen in all 7 patients with moderate hair loss, in 12 out of 13 patients with extensive hair loss and in 14 out of 23 patients with alopecia areata totalis. Treatment was successful in 26 out of 31 patients with a history of duration of disease 5 years or less and 7 out of 12 patients with history of more than 5 years. There is renewed interest in the immunomodulatory effects of topical DNCB in patients with human immunodeficiency virus (HIV) infection and systemic lupus erythematosus.[7] During almost 10 years of topical DNCB therapy in HIV patients world wide, the only reported side effect has been localized dermatitis at the application

site.[8] We believe that in view of the reports of efficacy of DNCB therapy,[9,10] DNCB requires a relook as an option in alopecia areata rather than other contact sensitizers that are available only with difficulty and are expensive.[11]

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