

Azathioprine does not influence patch test reactivity in *Parthenium* dermatitis

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Patch testing is the standard procedure for the diagnosis of contact allergy. Corticosteroids (1) and immunomodulators are believed to suppress patch test reactivity. Thus, it is generally recommended to discontinue these agents before patch testing, which may cause exacerbation of underlying disease. In this study, we examined whether

the use of azathioprine influences patch test reactivity to *Parthenium hysterophorus* extract in sensitized patients.

Methods and Results

We studied 60 clinically diagnosed, patch test-confirmed patients with *Parthenium* dermatitis who were eligible for azathioprine treatment. Patch testing with an aqueous extract of the plant antigen was performed before initiation of azathioprine treatment. The extract was prepared by using 50 g of the dried leaf powder of the plant mixed with 300 ml of distilled water, and kept at room temperature for 24 h. The mixture was then filtered through

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Table 1. Pre-azathioprine and post-azathioprine treatment patch test results

Patch test	Pretreatment patch test		Post-treatment patch test	
	Group 1	Group 2	Group 1	Group 2
Positive, n (%)	25 (100)	22 (100)	24 (96)	21 (95.45)
Negative, n (%)	0 (0)	0 (0)	1 (4)	1 (4.54)

Whatman no. 1 filter paper to obtain the plant extract. Thereafter, Whatman no. 3 filter paper sheets were soaked in an excess of the plant extract for 0.5 h, and dried in air at room temperature for 24 h. Pieces of 1 cm² size were cut from the central part of these sheets to obtain the antigen-impregnated discs, which were used for patch testing. The patch test readings were taken after 48 h, and categorized according to ICDRG criteria (2). This method has been standardized in our laboratory, and the results are reproducible (3).

Of the 60 patients, 47 completed the study. The patients were randomly assigned to one of the two treatment groups: one group (n = 25) received azathioprine weekly as a pulse dose of 300 mg, and the other group (n = 22) received azathioprine 100 mg daily orally, both for 6 months (4). After 6 months of azathioprine treatment, the patch test was repeated. In 45 of the 47 patients, the positive patch test result was reproduced (Table 1), indicating that azathioprine treatment does not influence patch test results much (non-reactive: 4.3%; exact 95%CI: 0–14.5%). During treatment, a significant

improvement of chronic allergic contact dermatitis had been achieved (4).

Discussion

Corticosteroids have been shown to suppress patch test results; for instance, prednisone 20 mg daily administered orally suppressed patch test reactivity to nickel (1). However, insufficient data are available regarding other immunosuppressive agents, resulting in a reluctance of physicians to perform patch tests in patients receiving immunosuppressants. This may result in undue delay in the diagnosis and proper management of allergic contact dermatitis. However, positive patch test reactions have been observed in several patients taking cyclosporine, methotrexate, azathioprine, mycophenolate mofetil, tacrolimus, infliximab, adalimumab, and etanercept (5–7). The effect of azathioprine on patch test reactivity has not been studied well. In our study, patch tests became negative in only 2 of 47 patients after azathioprine treatment for 6 months. As a limitation, a negative result on a sole reading at D2 may result in an underestimation of reproducibility under immunosuppression, if, at a later reading, for example at D4 and/or D7, a patch test that was negative on D2 becomes positive. In conclusion, the study has shown that the effect of azathioprine on patch test reactivity in *Parthenium* dermatitis is limited, and patch tests can therefore be performed in patients receiving azathioprine.

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