

Short Communication

Absence of gold sodium thiosulfate contact hypersensitivity in rheumatoid arthritis

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Gold is a well-established treatment for rheumatoid arthritis (RA), though therapy may be discontinued in up to 45% of patients due to side-effects (1), of which mucocutaneous reactions are the most common.

It has been suggested that the cutaneous side-effects of systemic gold therapy are due to previously existing, unrecognized gold allergy (2). A number of studies have suggested a high frequency of hypersensitivity to gold sodium thiosulfate (GST) (3–7), and skin hypersensitivity to this salt has been proposed as a marker of gold allergy (8–10). We wished to establish whether positive patch tests to GST correlated with concurrent gold therapy, or with a history of mucocutaneous reactions to gold.

Patients and Methods

The study was approved by the local ethics committee. 55 patients with RA requiring 2nd-line drugs were recruited. 20 were receiving treatment with oral or i.m. gold at the time of study, 15 had previously received gold but stopped due to mucocutaneous symptoms (9 with rash, 6 with rash and mouth ulcers), and 20 had never received gold-containing therapies. Patients who were not receiving treatment with gold were being treated with either azathioprine, antimalarials, methotrexate or non-steroidal anti-inflammatory drugs. A history of joint disease, previous and current therapy, gold exposure and symptoms suggestive of nickel, fragrance or colophony allergy were noted.

Patients were patch tested on the forearm, to minimize patient inconvenience, with gold sodium thiosulfate 0.5% and 0.05% pet., using Finn Chambers on Scanpor tape. Patches were removed after 2 days and read daily from day (D) 2 to D 7.

The minimally-useful sensitivity of the GST patch test was assumed to be 50% (i.e., 1 in 2 patients with a history of gold sensitivity should have a positive test) and the resulting sample size, based on a 2-sample 2-sided *t*-test with a significance level of 5% and a power of 95%, was 20 patients with and without a history of gold sensitivity.

Results

The mean age of patients was 52 years (range 22–77 years), 47 female and 8 male. 2 patients gave a history

suggestive of nickel allergy, 2 were sensitive to fragrances and 1 had sticking plaster allergy. 39 females and 4 males regularly wore gold jewellery; no patients had gold dental restorations or a history of occupational contact with gold.

1 patient who had never received gold therapy had a positive patch test to GST 0.5% pet. on D 5. There were no other positive patch tests.

Discussion

It is clear that patch testing with GST 0.5% and 0.05% pet. does not detect previous or current gold exposure in this group of patients. The gold salt used in therapy is gold sodium thiomalate, but this was not used for patch testing as it is thought to be less sensitive than GST (9, 10) in detecting gold allergy. Other gold salts such as potassium thiocyanaurate, which is included in some dental patch test series (11), rarely produce positive patch test reactions and hence were also not tested.

Immunosuppressant drugs may have prevented patch test reactions to GST. Patch testing with GST may stimulate a different form of immune reaction than systemic gold, or mucocutaneous gold reactions may simply not have an immune basis (12, 13). Lack of reaction may have been due to cutaneous anergy in rheumatoid patients.

The negative results in this study provide additional evidence for there being limited clinical application for patch testing with this gold salt (7, 14).

References

1. Van Gestel A, Koopman R, Wijnands M et al. Mucocutaneous reactions to gold: a prospective study of 74 patients with rheumatoid arthritis. *J Rheumatol* 1994; 21: 1814–1819.
2. Möller H, Björkner B, Bruze M. Clinical reactions to systemic provocation with gold sodium thiomalate in patients with contact allergy to gold. *Br J Dermatol* 1996; 135: 324–327.
3. Björkner B, Bruze M, Möller H. High frequency of contact allergy to gold sodium thiosulfate. *Contact Dermatitis* 1994; 30: 144–151.
4. McKenna K E, Dolan O, Walsh M Y, Burrows D. Contact

- allergy to gold sodium thiosulfate. *Contact Dermatitis* 1995; 32: 143–146.
5. Sabroe R A, Sharp L A, Peachey R D G. Contact allergy to gold sodium thiosulfate. *Contact Dermatitis* 1996; 34: 345–348.
 6. Rasanen L R, Kalimo K, Laine J et al. Contact allergy to gold in dental patients. *Br J Dermatol* 1996; 134: 673–677.
 7. Fleming C J, Forsyth A, MacKie R M. Prevalence of gold contact hypersensitivity in the west of Scotland. *Contact Dermatitis* 1997; 36: 302–305.
 8. Fowler J F. Selection of patch test materials for gold allergy. *Contact Dermatitis* 1987; 17: 23–25.
 9. Bruze M, Björkner B, Möller H. Skin testing with gold sodium thiomalate and gold sodium thiosulphate. *Contact Dermatitis* 1995; 32: 5–8.
 10. Rasanen L R, Kalimo K, Laine J et al. Contact allergy to gold in dental patients. *Br J Dermatol* 1996; 134: 673–677.
 11. Axell T, Björkner B, Fregert S, Niklasson B. Standard patch test series for screening of contact allergy to dental materials. *Contact Dermatitis* 1983; 9: 82–84.
 12. Svensson A, Theander J. Skin rashes and stomatitis due to parenteral treatment of rheumatoid arthritis with sodium aurothiomalate. *Ann Rheum Dis* 1992; 51: 326–329.
 13. Goldermann R, Schuppe H-C, Gleichmann E et al. Adverse immune reactions to gold in rheumatoid arthritis: lack of skin activity. *Acta Dermato.venereologica* 1993; 73: 20–22.
 14. Bruze M, Edman B, Björkner B, Möller H. Clinical relevance of contact allergy to gold sodium thiosulfate. *J Am Acad Derm* 1994; 31: 579–583.