

Erythematous skin reaction to subcutaneous injection of ribonucleic acid

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Key words: ribonucleic acid; subcutaneous injections; adverse drug reactions; allergic reactions; intradermal test. © Munksgaard, 1999.

Ribonucleic acid is an immunomodulator widely used for the enhancement of immune function in patients with various malignancies. In China, it is also used for the treatment of various skin diseases. Between August and December 1998, 83 patients with eczema, psoriasis, urticaria and herpes zoster were treated with subcutaneous (s.c.) injections of ribonucleic acid (iRNA, Sino-Australia Biological Tech. Co., Ltd, Hagzhou, China) 10 mg every other day for 2 to 4 weeks. The injections were performed on the inner upper arms. Similar erythematous skin reactions were observed in 3 cases.

Case Reports

Case no. 1. A 59-year-old man was treated with s.c. injection of iRNA for eczema. By the 8th injection (16 days after the beginning of the injections), he felt severe itch at the injection site, and round erythematous edematous lesions about 7 cm in diameter were observed around the injection sites on both arms. iRNA was discontinued immediately and the lesions disappeared without any treatment.

Case no. 2. A 25-year-old woman was treated with iRNA for urticaria by the same procedure. Similar round erythematous edematous local reactions also appeared at the 7th injection. iRNA was discontinued and the lesions cleared in about 3 days without treatment.

Case no. 3. A 36-year-old man was treated with iRNA for psoriasis by the same method. A similar lesion was observed at the injection site after a month, which cleared completely 4 days after discontinuation of iRNA.

No systemic reactions were observed in any of the 3

patients. The patients were later patch tested with the standard series of Beijing Medical University and the iRNA injection solution as is (1), with negative results.

Intradermal (i.d.) testing with 1:1000 iRNA dissolved in injection solution was performed in case no. 1, with the injection solution serving as control. A wheal around 2 cm in diameter appeared at 20 min after injection at the iRNA injection site, while no reaction was seen at the control site. The wheal enlarged to 3 cm at 2 h after injection, and turned into a round erythematous edematous skin lesion about 4 cm in diameter at 24 h after the test. The lesion persisted for 3 days and cleared 4 days after the injection.

Discussion

iRNA is a biological product extracted from animal spleen. To our knowledge, erythematous edematous skin reaction to s.c. injection of iRNA has not previously been reported. Its incidence in our patients was 3.6% (3/83). Since iRNA has been widely used in China, with no such reaction reported, we suspect that the reaction is allergic. Both urticarial reaction and erythematous edematous lesions were observed at 30 min and 24–96 h, respectively, after i.d. testing with 1:1000 iRNA, suggesting that both an IgE-mediated reaction and a T-lymphocyte-mediated reaction are involved.

Reference

1. Wahlberg J E. Diagnostic patch tests. In: Rycroft R J G et al. (eds): *Textbook of contact dermatitis*. Berlin: Springer-Verlag, 1992: 241–336.