photopatch testing in 7 controls with 5% and 10% amitriptyline was negative.

Comment

Phototoxic reactions may be difficult to distinguish from photoallergic reactions, though the former tend to be more obvious after 1 day (2). In this patient, the unirradiated side remained negative while the irradiated side showed a positive reaction 2 days post irradiation, thus suggesting photoallergy to amitriptyline. Photosensitivity to alprazolam is very rare, with only 1 case having been reported (3), and is unlikely here as the photopatch test was negative.

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Local reactions after subcutaneous injections of *β*-interferon

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Case Report

A 36-year old woman was treated with subcutaneous (s.c.) injections of *β*-interferon (Betaferon®) for multiple sclerosis. By the 14th of 22 injections, she noticed a transient erythema (appearing after 3–5 days), and after 5 non-consecutive injections (4 in the arm, 1 in the abdomen), she showed infiltrated, red, vesicular, itchy lesions at all 5 injection sites, which healed in 3–4 weeks. She never experienced these reactions when the injections were made in the thighs.

She was patch tested with the European standard series (fragrance mix +, Amerchol L-101 +, wool wax alcohols ?+), Betaferon® (−), isopropanol-impregnated tissue, used before and after injection (−), and isopropanol (−). An intradermal (i.d.) test with Betaferon® was negative after 20 min, but positive after 2 days.

Discussion

The most common adverse reaction to s.c. injections of *β*-interferon (*β*-IF) is local erythema and infiltration (1) at the injection site (65%) (2). Local necrosis has also been reported (2, 3). Similar reactions with *α*-interferon are well-known. Although, clinically, an allergic reaction is suspected, no specific allergic reaction Types I or IV has yet been found. The immediate i.d. reactions are reproducible in healthy control subjects (4), though they are negative after injection of less than 200,000 IU/ml *β*-IF, so this is the recommended test concentration for predicting an IgE-mediated hypersensitivity (4). The reactions do not occur after each injection and can disappear after a few months (3). They are currently thought to be local non-specific inflammatory responses (3, 4) to *β*-IF, and to be influenced by the depth of the injection, which is why the injection site is important in eliciting the symptoms. In general, symptoms often occur after injections in the arms or thighs, and less frequently after those in the buttocks or abdomen, although our patient never had reactions after injections in the thigh. After the patient learned to inject herself properly, the symptoms faded away.

Schering (the supplier of Betaferon®) now provides a long injection needle, recommends not refrigerating the solvent, and advises the application of ice cubes after injection to minimize the local reaction.

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