Transmission of psoriatic arthritis by allogeneic bone marrow transplantation for chronic myelogenous leukaemia from an HLA-identical donor

SIR, Psoriatic arthritis (PA) is defined by the association of typical skin lesions with oligoarticular or polyarticular peripheral arthritis, or spondylarthropathy. Autoimmune mechanisms possibly triggered by infectious agents are thought to be involved in the pathogenesis. There is strong evidence for the contribution of a genetic factor [1]. Five patients with PA, who underwent allogeneic bone marrow transplantation (BMT) for neoplastic disorders, achieving long-term remission of PA thereafter, are reported in the literature [2, 3]. Ablation of the patient’s immune system following conditioning chemotherapy plus BMT seems to eradicate autoreactivity in these patients. On the other hand, patients who developed autoimmune disorders, i.e. autoimmune haemolytic anaemia, autoimmune thrombopenia and Hashimoto’s autoimmune thyroiditis, following allogeneic BMT are also reported [4, 5]. So far there has only been reported one patient who acquired PA soon after BMT from a donor suffering from PA [6]. We report on another patient, who developed PA following allogeneic BMT from his HLA-identical brother suffering from psoriasis.

A 43-yr-old patient with Philadelphia chromosome-positive chronic myelogenous leukaemia (CML) was admitted for allogeneic BMT. There was no history of psoriasis. On clinical examination, no psoriatic skin or nail lesions nor signs of arthritis were detected. HLA-B27 was negative. After treatment with hydroxyurea for 6 months followed by conditioning therapy with busulfan (4 × 4 mg/kg body weight) and cyclophosphamide (2 × 60 mg/kg body weight), BMT from his HLA-identical brother was performed. The donor suffered from psoriatic skin lesions. Cyclosporin A (CSA) was administered for graft-versus-host disease (GvHD) prophylaxis. Three months after BMT, an acute GvHD grade 3 involving skin and liver occurred and treatment with prednisone 2 mg/kg was initiated. Immunosuppression was stopped 1 yr after BMT. Subsequently, the patient developed psoriatic lesions on the scalp, retroauricularly and typical psoriatic nail lesions. One month later, he complained of pain in the metacarpophalangeal (MCP) and proximal interphalangeal (PIP) joints and morning stiffness of 1 h. Clinical examination showed synovitis of several MCP and PIP joints. Laboratory tests including erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) were normal. Rheumatoid factor and antinuclear antibodies were not detectable. Serological markers for viruses of the herpes family, measles, mumps, HIV, parvovirus, and hepatitis B and C were negative. Radiography of the hands showed a small erosion at the distal interphalangeal joint (DIP) of the third left phalanx and bony decalcifications adjacent to the PIP of both hands (Fig. 1). The presence of polyarthritis, psoriasis and the absence of rheumatoid factor led to the diagnosis of PA. Subsequently, treatment with non-steroidal anti-inflammatory drugs (NSAIDs) and sulphasalazine (SASP) (1 g 2 ×/day) was initiated. Now, 2 yr later, the
patient presents with mild, occasional arthralgia, clinical synovitis has completely resolved and laboratory markers are within normal limits. The patient remains in complete haematological and cytogenetic remission of his CML now 3 yr after BMT.

This case suggests that autoimmune diseases can be transferred via BMT. A viral aetiology of the symptoms seems very unlikely because of negative serological markers and the course of >2 yr. One could speculate that specific autoreactive T-cell clones were transferred from the donor to the BMT recipient. Interestingly, the psoriasis in our patient appeared soon after cessation of immunosuppression with CSA, which suppresses T-cell proliferation through inhibition of interleukin-2 production. This is another hint at the pathogenetically important role of T lymphocytes in PA.

In adults, thymic function is reduced, and negative and positive selection, which takes place during thymic T-cell development at the time of immune reconstitution following allogeneic BMT, can be insufficient [7]. For achieving immunocompetence after BMT, de novo T-cell ontogenesis is required. In our patient, failure of negative selection processes might have led to autoreactivity and consecutive psoriasis. Therefore, we cannot exclude de novo development of autoimmunity in our patient.

The molecular basis of this process remains unclear in detail. Further investigations in patients with concomitant autoimmune diseases transplanted for neoplastic disorders and patients acquiring autoimmune diseases soon after BMT are of interest.

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