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Treatment of psoriasis with etanercept in immunocompromised patients: Two case reports

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Abstract

Tumour necrosis factor (TNF)-α blocking agents have revolutionized the treatment of psoriasis and psoriatic arthritis. Concerns remain about increased susceptibility to infection and onset of malignancies, and the use of TNF-α agents in patients with HIV infection or undergoing immunosuppressant treatment is debated. We report cases of severe plaque psoriasis in a patient with HIV infection and in a liver transplant recipient who were successfully treated with etanercept, an anti-TNF-α agent, without notable side-effects.

Keywords

Antitumour necrosis factor-α agents, comorbidities, etanercept, psoriasis, psoriatic arthritis

Introduction

Tumour necrosis factor (TNF)-α blocking agents have good efficacy and safety profiles,[1] and have revolutionized the treatment of psoriasis and psoriatic arthritis. The main concerns related to these therapies are the increased susceptibility to infectious diseases and the onset of malignancies in treated patients.[2] The use of anti-TNF-α agents in people with HIV infection or those undergoing immunosuppressive therapy (e.g. transplant recipients) is debated, because such treatment could represent an adjunctive risk in those whose immunological status renders them susceptible to infection and malignancy.[3]

Data regarding the use of anti-TNF-α agents in immunocompromised patients are scarce, since such patients are excluded from clinical trials and few cases are reported in the literature.[4–10] Case reports, however, indicate that biological treatments appear to have minimal impact on HIV viral load and CD4 count, and also on allograft function.[11,12]

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Case reports

We report two cases of severe plaque psoriasis that were successfully treated with an anti-TNF-α agent (etanercept) without notable side-effects. Case 1 was a patient with HIV infection; Case 2 was a liver transplant recipient.

Case 1 was a 50-year-old man with a history of psoriasis since the 1980s, treated with standard regimens of topical therapies and a 3-month course of acitretin (25 mg/day, orally) in 2003, without consistent results. The patient had a history of drug addiction and began highly active antiretroviral therapy with lamivudine, zidovudine and efavirenz following a positive HIV test in 2000. In 2010 he was referred for severe psoriasis with a Psoriasis Area and Severity Index (PASI) score of 24.2.[13] Serological tests confirmed HIV infection, and revealed previous hepatitis B virus (HBV) infection (absence of HBV surface antigen and HBV DNA), active hepatitis C virus (HCV) infection (genotype 2a/2c; viral load 1 200 000 IU/ml). The patient also had abnormal liver function tests (alanine aminotransferase 60 U/l; aspartate aminotransferase 48 U/l). His $CD4^+$ T lymphocyte count was 445 cells/μl, representing 21% of total lymphocyte count. The infectious disease consultant agreed to etanercept treatment (50 mg twice weekly for 12 weeks, then 50 mg once weekly; treatments were administered subcutaneously). After 6 months' treatment the patient's PASI score was 1.8 without any significant change in total and $CD4^+$ lymphocyte counts, HCV viral load or liver function tests (Figures 1 and 2); these parameters were assessed monthly. No reactivation of HBV infection or opportunistic infection was observed. At the time of writing the patient is still being followed up through clinical and laboratory assessment at 3-month intervals. During this time, mild relapses of psoriasis have occurred, which have been controlled with topical therapy. $CD4^+$ T-lymphocyte, HBV, HCV, HIV and

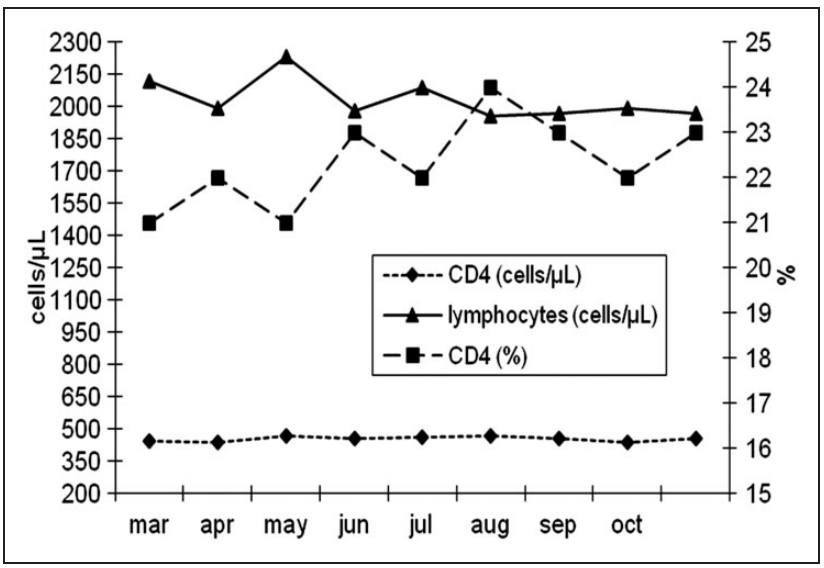

Figure 1. Lymphocyte and $CD4^+$ cell counts during etanercept treatment in a 50-year-old man with HIV infection and a 30-year history of psoriasis.

liver function tests have not shown substantial changes over the follow-up period.

Case 2 was a 56-year-old man with history of psoriasis since 2009 and liver transplantation in 2010 for alcoholic cirrhosis. Antirejection therapy comprised of standard regimens of prednisone, tacrolimus and mycophenolate mofetil. The patient presented in June 2013 with severe psoriasis (PASI 26.2) that was nonresponsive to standard therapy with topical steroids and acitretin. Treatment with 50 mg etanercept twice weekly, subcutaneously, for 12 weeks was initiated, resulting in a reduction in his PASI score (to 3.5). The dosage was then changed to 50 mg weekly and PASI improvement was maintained throughout the 6-month treatment period. Monthly liver function tests showed normal results during treatment. There were no infective complications or dysfunction of the transplanted organ during etanercept treatment. A new therapeutic cycle with etanercept (ongoing at the time of writing) started in September 2014 following a relapse of psoriasis. Efficacy was again confirmed without notable side-effects.

Discussion

The onset or exacerbation of psoriasis, a T-helper (Th)-1 cell-mediated disease, may appear paradoxical in an immunosuppressed patient with depletion of T lymphocytes (due to HIV or drug addiction). HIV infection can both trigger and exacerbate psoriasis. In psoriasis, the presence of $CD8^+$ T cells in the epidermis and dermis is associated with active disease. HIV infection induces a change in the T-cell balance, with a decrease in $CD4^+$ cells and an increase in $CD8^+$ cells that produce increased quantities of interferon-γ.[14] The expansion in $CD8^+$ cell numbers may explain the

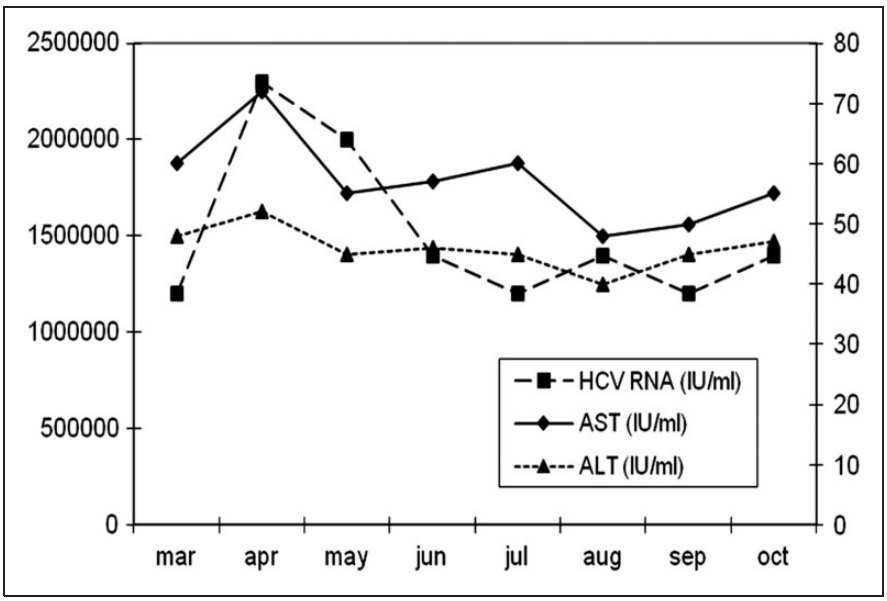

Figure 2. Hepatitis C (HCV) viral load, alanine aminotransferase (ALT) and aspartate aminotransferase (AST) concentrations during etanercept treatment in a 50-year-old man with HIV infection and a 30-year history of psoriasis.

paradoxical exacerbation of psoriasis in a setting of immunosuppression. An alternative hypothesis is that the T-cell imbalance is associated with a depletion of $CD4^+$ suppressor T cells, which results in uncontrolled proinflammatory pathways.[15]

In a transplanted patient, immunological status is influenced by the immunosuppressive agents of the antirejection regimen, which act on different T-cell subsets. For example, mychophenolic acid and sirolimus have an inhibitory effect on Th1 and also on Th17; sirolimus can also induce proliferation of regulatory T lymphocytes.[16,17]

Conclusions

In patients with HIV infection or pharmacological immunosuppression and severe psoriasis, the use of anti-TNF-α agents should be limited to those unresponsive to standard therapeutic regimens. We chose etanercept to treat both patients reported here because of its good efficacy and safety profiles, and its convenient dose regimens.

Declaration of conflicting interest

The authors declare that there are no conflicts of interest.

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