

Churg-Strauss syndrome after corticosteroid withdrawal in an asthmatic patient treated with pranlukast

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We describe an asthmatic patient treated with pranlukast, a leukotriene-receptor antagonist, in whom Churg-Strauss syndrome (CSS) developed after withdrawal of corticosteroids.

CASE REPORT

A 52-year-old woman with a 10-year history of asthma, chronic sinusitis, and nasal polyps had been receiving treatment with oral prednisolone for 9 years and also using inhaled bronchodilator and corticosteroid as needed. Pranlukast, a leukotriene-receptor antagonist, was added to her treatment regimen in early October 1995. Laboratory studies at the time revealed an erythrocyte sedimentation rate of 14 mm/h, an absolute eosinophil count of 291/mm³, and a serum IgE concentration of 96 IU/mL (upper limit of normal, 165 IU/mL). A chest radiograph showed no abnormal findings. After 4 weeks, asthmatic symptoms subsided, and oral prednisolone (5 mg every 2 days) was discontinued. The inhaled corticosteroid was continued at a dose of 1200 µg/day. Approximately 8 weeks after discontinuation of oral steroid therapy, the patient complained of pain and numbness in both feet and her right leg. A few weeks later, she noted a right foot drop and gait disturbance in addition to increased pain in her feet and leg. She was admitted to our hospital in late February 1996. The erythrocyte sedimentation rate was 28 mm/h, the absolute eosinophil count was 9720/mm³, and the serum IgE concentration was 680 IU/mL. A chest radiograph demonstrated infiltrates, with an alveolar pattern in the left lower lobe. An echocardiogram showed no abnormalities. A biopsy specimen from the sural muscle revealed small-vessel vasculitis, including infiltration by eosinophils. The patient was diagnosed with CSS, and treatment with a high dose of oral prednisolone was begun. Three weeks

Abbreviation used
CSS: Churg-Strauss syndrome

after she started this therapy, the eosinophil count fell to 470/mm³, and the serum IgE concentration declined to 36 IU/mL. The pulmonary infiltrates diminished markedly. At the same time, pranlukast was discontinued because asthmatic symptoms had disappeared almost completely. The corticosteroid dose subsequently was tapered gradually to 10 mg/day. Despite significant improvement of symptoms, numbness in her feet persisted, and treatment with prednisolone was continued over 2 years.

DISCUSSION

Leukotriene-receptor antagonists have shown promise as a new generation of antiasthmatic medications. These drugs counteract leukotriene-induced inflammation, bronchoconstriction, and airway edema and represent a new approach to the treatment of asthma. As use of these drugs has increased, infrequent adverse effects have become manifest. Recently, zafirlukast has been reported to induce an illness identical or similar to CSS in a few patients.¹⁻⁴ Leukotriene-receptor antagonists other than zafirlukast, however, have not been shown to be associated with CSS.

Pranlukast is a leukotriene-receptor antagonist commercially available in Japan since 1995. This drug, a nonsteroidal anti-inflammatory agent, offers a new approach to the treatment of asthma. Leukotriene inhibitors, including pranlukast, often are used as steroid-sparing agents in treating patients with severe asthma. In our patient CSS developed while she was receiving pranlukast and undergoing corticosteroid withdrawal. In reporting on 8 patients taking the leukotriene-receptor antagonist zafirlukast for asthma in whom CSS developed, Wechsler et al¹ stressed that this syndrome may occur in association with corticosteroid withdrawal. CSS

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developed in our patient also after discontinuation of long-term oral corticosteroid treatment. Churg and Churg⁵ have pointed out that the cases reported by Wechsler et al appeared similar to formes frustes of CSS. We speculate that although pranlukast, like zafirlukast, can be used to reduce the dose of corticosteroid required for treating asthma, reduction in dose or discontinuation of corticosteroid may result in CSS by unmasking an underlying forme fruste of this syndrome. However, another possible mechanism for the development of the syndrome is an allergic, immunologic, or idiosyncratic reaction to pranlukast, although such episodes have not been reported in 1761 patients with asthma exposed to the drug during clinical trials.

A test for p-antineutrophil cytoplasmic antibody was not performed on our patient; however, prescreening for antineutrophil cytoplasmic antibody may not predict the development of CSS. Nine of 11 previously reported

patients with CSS¹⁻⁴ associated with zafirlukast therapy included a history of chronic sinusitis, as in our patient. Although leukotriene-receptor antagonists are important and effective antiasthmatic medications, physicians must be aware of the risk of precipitating CSS during steroid withdrawal, especially in patients with sinusitis.

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