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LETTER

Montelukast and Churg-Strauss syndrome

To the Editor:

In the past few months, there have been several reports about zafirlukast and Churg-Strauss syndrome [1–3]. Montelukast is a new leukotriene receptor antagonist. We report a case of Churg-Strauss syndrome while the patient was on montelukast treatment.

A 25-yr-old female nonsmoker with a 6-yr history of asthma and rhinitis was admitted to the author's hospital in December 1998. She had had fever of up to 39°C, malaise, headache and chest discomfort for a week. She had been treated with inhaled budesonide or fluticasone, formoterol and terbutaline for the last 5 yrs (1993–1998). In January 1998, she was on prednisone for a few weeks. Subsequently, she did not receive any systemic corticosteroids. As her respiratory symptoms continued, she was started on montelukast treatment, 10 mg once daily, in August 1998.

On admission, she was febrile and had a rash over her extremities. A chest radiograph showed bilateral basilar reticulonodular infiltrates over the left hilar area, and bilateral pleural effusion. The blood eosinophil count was 6×10^9 cells·L^{-1}, and liver enzyme levels were slightly increased. The subsequent urinalyses performed after beginning corticoid treatment demonstrated proteinuria, and the serum creatinine level was normal. Arterial blood gas levels while breathing room air were: pH 7.45; arterial oxygen tension 5.6 kPa (42 mmHg); and arterial carbon dioxide tension 4.7 kPa (35 mmHg). The immunoglobulin E level was 655 IU·L^{-1}, and the sedimentation rate 75 mm·h^{-1}. Tests for cellular and perinuclear antineutrophil cytoplasm antibody and human immunodeficiency virus were negative. The electrocardiogram and echocardiogram showed no abnormalities. Thoracentesis disclosed an eosinophilic serous fluid with: pH 7.45; total protein concentration 43 g·mL^{-1}; lactate dehydrogenase activity 152 IU·L^{-1}; glucose concentration 159 mg·dL^{-1}; amylase activity 20 IU·L^{-1}; cholesterol concentration 42 mg·dL^{-1}; triglyceride concentration 19 mg·dL^{-1}; and interferon gamma activity 1.7 IU·mL^{-1}. Montelukast was discontinued and methylprednisolone (1 g·day^{-1} *i.v.* for 3 days, and 1 mg·kg^{-1} thereafter) and antibiotic treatment commenced. Fibreoptic bronchoscopy was performed. The bronchial appearance was normal and staining and culture of the bronchoalveolar fluid (BALF) were negative for bacteria, mycobacteria, viruses, *Pneumocystis carinii* and fungi. The BALF cell differential showed 61% eosinophils, 7% neutrophils and 24% lymphocytes. Transbronchial biopsy showed some interstitial eosinophils. The urine test for *Legionella* antigen was negative. The paranasal sinus radiograph was normal. Thoracoscopic lung biopsy showed interstitial and alveolar eosinophils, extravascular necrotizing granulomas and small and medium vessel vasculitis. All lung biopsy cultures were negative. The antibiotics were withdrawn. After commencing steroid treatment, the patient improved rapidly, the respiratory failure disappeared within 2 days and she remained afebrile. The eosinophil count decreased to 2.5×10^9 cells·L^{-1}, then, after 3 days, increased to 9.5×10^9 cells·L^{-1} and subsequently decreased to 0.37×10^9 cells·L^{-1}. The chest infiltrates also improved, and the pleural effusion resolved. The patient was discharged with oral prednisone and, during a 9-month follow-up, remained asymptomatic on 15 mg·day^{-1} prednisone.

Montelukast, as zafirlukast, is a leukotriene receptor antagonist specific for the leukotriene receptor. Although several patients have developed Churg-Strauss syndrome during treatment with zafirlukast [1–3] or pranlukast [4], to the best of our knowledge, there are no previously reported cases on treatment with montelukast. One patient developed pulmonary eosinophilia associated with montelukast, which resolved after discontinuation of montelukast and administration of intravenous steroids [5]. Our patient had not been on steroid treatment, other than inhaled, for the past 10 months, and so, in this patient, Churg-Strauss syndrome was not a consequence of decreasing the steroid doses, as has been previously suggested in some cases with zafirlukast or pranlukast [1, 4, 6]. Although the causal role of these drugs in Churg-Strauss syndrome is not completely clarified, we think that reporting such cases will help to determine the clinical impact of this complication and that these drugs should be withdrawn if the patient develops vasculitis.

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