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Scientific Letter

Severe Eosinophilic Asthma and Severe Mixed Polyneuropathy: A Case of Eosinophilic Granulomatous Vasculitis With Polyangiitis and New Therapeutic Perspectives

Asma eosinofílica grave y polineuropatía mixta severa. Un nuevo caso de vasculitis granulomatosa eosinofílica con poliangeítis (GEPA). Nuevas perspectivas terapéuticas

Dear Editor,

We report the case of a 46-year-old woman, non-smoker with a history of severe uncontrolled asthma. Since the age of 30, she has presented symptoms of arthralgia and myalgia, and 2 years ago she developed distal paraesthesia. Physical examination revealed diffuse bilateral wheezing on pulmonary auscultation. Neurological findings included right-sided peripheral hypoesthesia. Laboratory values of note included haemoglobin 11.3 g/dl, haematocrit 37.2%, and eosinophils 485 (6.9%). Kidney function, ionogram and thyroid hormones were normal. Antineutrophil cytoplasmic antibody (ANCA) testing, an immunological study for connective tissue diseases and serologies were all negative. Chest computed tomography showed pulmonary opacities in the left upper lobe. Sural nerve biopsy led to a diagnosis of eosinophilic granulomatosis with polyangiitis (EGPA). The Birmingham activity score was 10 points. Treatment began with corticosteroids and cyclophosphamide that, due to adverse effects, were switched to azathioprine. At follow-up, paraesthesia had progressed so we changed treatment to rituximab and continued with prednisone. In the following months, worsening asthma control (Asthma Control Test < 15, reduced forced expiratory volume in 1 second, elevated fractional exhaled nitric oxide) and progression of neurological symptoms were observed. In view of this situation, inhaled therapy and systemic corticosteroids were optimised. We also started mepolizumab at 100 mg that was progressively increased to 300 mg to achieve greater control of EGPA activity, asthma, and improve pulmonary function and neurological symptoms (Table 1). Subsequently, we were able to reduce corticosteroid dosage.

EGPA is characterised by eosinophilic tissue infiltration associated with vasculitis and the presence of granulomas. Clinical manifestations are varied, and diagnostic criteria include asthma, rhinosinusitis, peripheral blood eosinophilia, extravascular eosinophilia, evanescent pulmonary infiltrates, and peripheral neuropathy. Only 40% of patients are ANCA-positive. The Birmingham activity score (≥4) is currently used to assess the degree of activity and remission.[1] The survival of patients with vasculitis has increased in recent decades due to the use of immunomodulators and corticosteroids, but these treatments are not exempt from toxicity or risk of infections. In recent years, new treatments such as rituximab and mepolizumab have appeared and have demonstrated their efficacy in inducing remission.

Rituximab is an anti-CD20 monoclonal antibody that depletes B-lymphocytes and has shown efficacy in microscopic polyangiitis (MPA) and granulomatosis with polyangiitis (GPA). Experience in EGPA is scant but growing, with the recent publication of several series in EGPA patients in which rituximab demonstrated efficacy in controlling disease activity and possibly reducing maintenance doses of corticosteroids.[2,3]

In our patient, refractory vasculitis and mononeuritis multiplex improved partially with rituximab treatment. However, persistent neurological symptoms and poor asthma control prompted the initiation of mepolizumab associated with corticosteroids as an alternative to other treatments (methotrexate, azathioprine and mycophenolate mofetil, etc.). Recent multicentre studies in Europe have confirmed the efficacy and safety of this combination. It is well tolerated and is associated few adverse effects and a low risk of infections, allowing a progressive reduction of the corticosteroid dose.[4] Several European studies show that a 100 mg dose of mepolizumab is as effective as the 300 mg dose recommended by the US Food and Drug Administration.[5]

Table 1
Clinical and functional comparison before and after starting mepolizumab treatment.

	Without mepolizumab treatment	With mepolizumab treatment
Asthma exacerbation	6 per year	None
ACT	10	23
Spirometry		
FVC	3040 mL (128%)	2240 mL (99%)
FEV_1	1280 mL (64%)	1720 mL (91%)
FEV_1/FVC	0.42	0.74
Prednisone dose	15 mg	5 mg

ACT: asthma control test; FEV_1: forced expiratory volume in 1 second; FVC: forced vital capacity.

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Informed consent

The authors have obtained the informed consent of the patient and/or subjects referred to in the article. This document is held by the corresponding author.

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Authors' contributions

All authors have contributed substantially to each of the following aspects: (1) data acquisition, data analysis and interpretation, (2) drafting of the article, and (3) final approval of the version presented.

Conflicts of interests

The authors state that they have no conflict of interests.

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