

Correspondence

Neuralgic amyotrophy due to rheumatoid arthritis or etanercept: causal association or coincidence?

Sir,

Rheumatoid arthritis (RA), although characteristically an inflammatory joint disease, can affect the peripheral nervous system. Neuropathy is one of the extra-articular manifestations of RA in which the underlying pathology may be due to an autoimmune response, vasculopathy, or related to side effects of the treatment¹. While tumour necrosis factor- α (TNF- α) inhibitors are the most potent and effective treatment in RA, these can also induce neuropathy. With the widespread use of TNF- α inhibitors, neurological events of demyelinating disease, mononeuritis multiplex, and foot drop have been reported in conjunction with their use²⁻⁴. Arias *et al*⁵ described a patient affected by severe RA suffering from brachial plexitis who was successfully treated with infliximab. Therefore, physicians should be cognizant of neurological status of patient with RA and during the period of TNF- α inhibitor treatment. Neuralgic amyotrophy (NA) is a more common neurological syndrome than is generally assumed, clinically presenting with the acute onset of severe pain around the shoulder and arm followed by sensory deficits, muscle weakness, and severe atrophy⁶. Though the aetiology remains obscure, autoimmune conditions, immunomodulating therapy including interferon treatment or various immunosuppressive treatments have been shown to be associated with NA, it has not been reported as being due to either RA or TNF- α inhibitors^{7,8}. We report here our experience of NA in a patient with RA receiving etanercept treatment (25 mg subcutaneously twice a week).

The patient was a 50 yr old man with a 20 yr history of RA. He experienced sudden onset of pain in right shoulder and arm. He applied ice pack and ibuprofen-based topical gel, which provided no relief. The intensity of pain was 80, assessed clinically by means

of a visual analog scale (VAS)⁹. He complained of weakness and sensory loss of his right upper extremity when he came to our clinic for his routine follow up of RA in November 2006. His history revealed after 2nd infusion of infliximab with a satisfactory response until pulmonary tuberculosis was diagnosed in March 2004. Infliximab treatment was discontinued and he was started on treatment for tuberculosis together with hydroxychloroquine (400 mg/day orally), indomethacin (75 mg/day orally) and leflunomide (20 mg/day orally). In March 2006, treatment was changed to etanercept based on disease activity. Eight months later, in November 2006, he was investigated because of his shoulder problem. He described no recent history of trauma, or other systemic diseases except RA. He had no family history of NA. There was no detectable arthritis in shoulder joints. On neurological examination, there was moderate atrophy of the right shoulder girdle; abduction and flexion muscle strengths were grade 2/5¹⁰. The strength of left upper extremity muscles was grade 5/5. Upper and lower extremity reflexes were intact. Plantar reflexes were flexor. Sensory examination of right shoulder to soft touch was diminished in the distribution area of the axillary nerve. Physical examination and electromyography (EMG) demonstrated a diagnosis of NA. The EMG findings confirmed the presence of partial axonal degeneration of the axillary nerve. Etanercept treatment was stopped. Physiotherapy protocol was applied for four weeks including transcutaneous electrical nerve stimulation with nonsteroid anti-inflammatory medication. At the third month follow up, there was a relief of pain and marked increase in the muscle strength and range of motion (ROM), and repeat EMG confirmed improvement in axonal degeneration of the axillary nerve. NA is a distinct clinical phenotype. There are a few mimics in the acute phase, such as a cervical radiculopathy or glenohumeral joint pathology, that are

usually readily distinguishable from NA with a simple clinical testing⁶. Physicians should consider screening for NA in patients presenting with shoulder and arm pain of neurogenic origin.

The improvement in symptoms upon discontinuation of the drug supports an association between etanercept and NA. As an association between RA and some neurological conditions has been noted earlier^{11,12}, NA might have occurred due to RA in our patient or it could have been an idiopathic form of NA.

At a time when a widespread increase in etanercept use is being observed, patients with RA on this drug need to be investigated for development of this rare complication. Our findings are important in speculating the pathogenesis of NA in RA patients and indicating, that NA may be another neurological manifestation of RA, a new adverse reaction to TNF- α inhibitors, or a coincidental occurrence of idiopathic NA in patients with RA.

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