Immune-mediated neuropathies induced by immunosuppressive treatment

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Chronic inflammatory demyelinating polyneuropathy (CIDP) is an immune-mediated neuropathy and the efficacy of immunosuppressive or immunomodulating treatments with corticosteroids, intravenous immunoglobulin and plasma exchange has been established.1 2 For patients refractory to these conventional therapies, other immunosuppressants such as cyclophosphamide, ciclosporin rituximab and tumour necrosis factor (TNF)-α antagonists have been trialed.3 4

Conversely, several studies have established that immunosuppressive agents may trigger the development of CIDP. Recent examples include CIDP induced by TNF-α antagonists such as infliximab and etanercept.5 Separately, therapy with the TNF-α antagonists for rheumatoid arthritis and inflammatory bowel diseases has become well established, and these therapies are now widely used in clinical practice. However, a number of case reports demonstrated that CIDP may occur early or late during the treatment course with TNF-α antagonists. These agents may also elicit Guillain-Barré syndrome (GBS), Fisher syndrome or multifocal motor neuropathy.4 5 Such findings raise the concept that immunosuppressive or immunomodulating treatments may trigger immune-mediated neuropathies through different effects on T cell subsets, resulting in alterations in the normal workings of the immune system, and thereby development of ‘dysimmune neuropathies’.4 6

In this issue, the study by Echaniz-Laguna et al9 (see page 699) investigates the incidence and outcome of CIDP patients who received solid organ transplantation and immunosuppressive treatments. The authors performed an 8-year monocentric prospective study and found that 10 (0.6%) of 1557 transplant recipients developed polyneuropathy that fulfilled published criteria for CIDP. Because the prevalence of idiopathic CIDP is estimated at 1.0–7.7/100 000 (0.001–0.0077%) in the general population,7 the association of CIDP and transplantation would not be regarded as coincidental. The transplanted organs included liver (n=5), kidney (n=5), heart (n=1) and lung (n=1). The mean interval between transplantation and CIDP onset was 10 months. All patients showed a good response to immunoglobulin therapy and a monophasic course in the follow-up period of 5–8 years.

In the literature, the most common immune-mediated neuropathy following either solid organ or bone marrow transplantation is GBS. Specifically, over 50 cases have been reported,7 most of the cases developing GBS within 3 months of transplant, when patients had most severe immunosuppression. Cytomegalovirus or Campylobacter jejuni infection frequently preceded the development of neuropathy, and therefore the increased risk for GBS is likely to be explained by increased opportunistic infection, rather than altered immune system.

CIDP patients in the study by Echaniz-Laguna et al also received ciclosporin or tacrolimus, but the interval to CIDP onset from transplantation was longer (mean, 10 months) than in GBS cases. The mechanisms for development of CIDP in patients with transplantation have not yet been elucidated, but could share the common mechanism akin to drug-induced CIDP occurring in non-transplant patients who are treated with immunosuppressive or immunomodulating agents for collagen disease or inflammatory bowel disease. The recognition of immunosuppression-induced CIDP is clinically important for neurologists; as the authors suggest, CIDP is a treatable disorder.

REFERENCES
