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# A case of relapsing neuromyelitis optica treated with glatiramer acetate

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Sirs: Neuromyelitis optica (NMO), or Devic's syndrome, has been regarded as a variant of multiple sclerosis (MS) [5]. However, some clinical, CSF and MRI features indicate that NMO could be a distinct disease entity [1, 2, 7–11]. Although there has been debate regarding NMO aetiology, it is likely that the mechanism for myelin tissue damage is immunological [9]. Therefore, in addition to acute and chronic steroid treatment, some regimens have tried immunosuppressive drugs, such as azathioprine [6, 10, 11], cyclophosphamide [7, 9, 11] and beta-interferon [11]. These drugs sometimes decreased attack frequency in relapsing NMO [11], but their long-term use was often limited by side effects [7, 10].

We report a relapsing NMO case we have tried for the first time to treat with glatiramer acetate, which is a useful and well tolerated preventive treatment in MS [4]. A 26-year-old woman had bilateral visual loss in July 1979, without any other neurological abnormalities. Brain CT scan and CSF were normal. The patient received steroid treatment, after which she completely recovered. Thereafter, she experienced 15 relapses, which invariably involved the optic nerve and spinal cord (separately or together), and which were treated with courses of intravenous or oral corticosteroids. Fig. 1 summarises the patient's history including all the index events (ON and myelitis), the neurological examinations (42 visits in the stationary phase and 16 visits during the attacks, which were quantified in accordance with the Wingerchuk et al. scale [11]), and the use of preventive treatments. Azathioprine treatment, 150 mg/day, was started in May 1983; it was discontinued six years later due to liver failure. In July 1992, brain MRI with and without Gd-DTPA was normal. In March 1994, she underwent some other examinations: CSF was normal; MRI of the brain was normal; spinal cord MRI showed a large lesion, which extended from C3 to C6 and involved the central and posterior part of the cord. There was a mild swelling and an abnormal intramedullary MR signal, i. e. low intensity on T1-weighted images and high intensity on T2-weighted images. A linear enhancement was detected at C4 and C5 after Gd-DTPA administration (Fig. 2 A, B). In October 1994 she started glatiramer acetate subcutaneous administration, at the daily dosage of 20 mg. Quarterly monitored haematological values were invariably normal. She had no side effects at any time. MRI examination was repeated in September 2001. Brain scans were absolutely normal. Spinal MRI showed focal cord atrophy, with an area of T2-elongation from C4 to C6. No enhancing lesion was detected (Fig. 2 C, D).

The clinical course of the re-

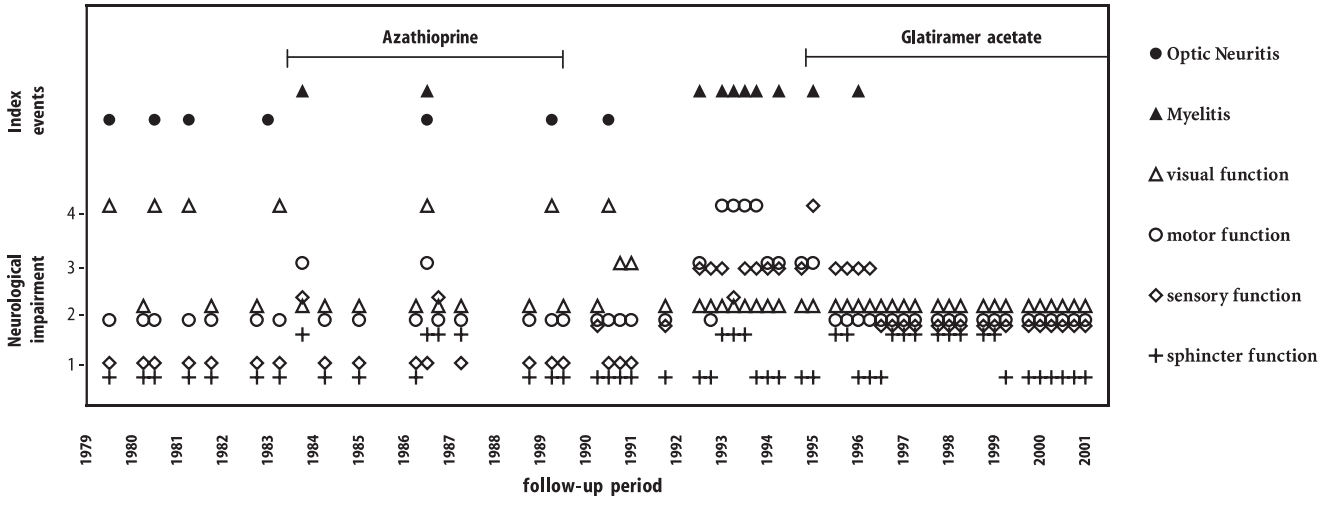


**Fig. 1** Relapsing NMO patient's clinical history. Occurrence of index events: ● ON; ◆ Myelitis. Neurological examinations quantified in accordance with Wingerchuk's scale [11] (increasing values indicate increasing impairment): △ visual function; ○ motor function; ◇ sensory function; + sphincter function. Preventive treatments

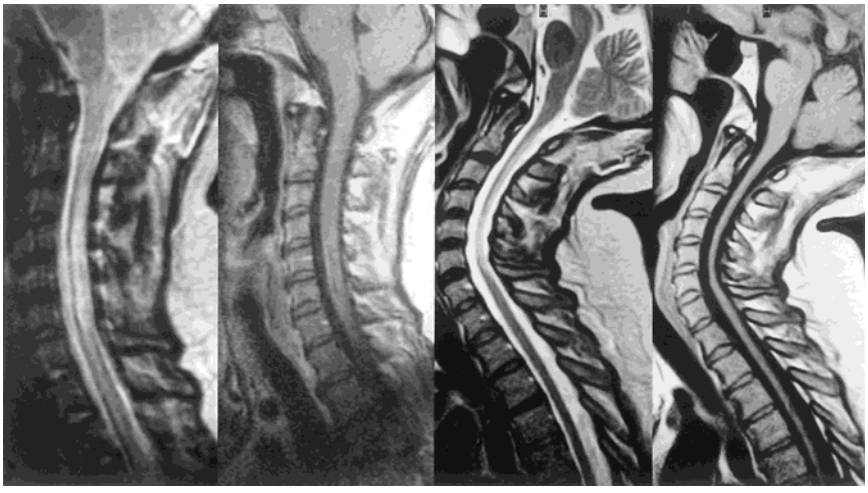


**Fig. 2** Sagittal spinal cord MRI before (A, B) and after 7 years of glatiramer acetate therapy (C, D). **A, B** T2-weighted and T1-weighted images show a lesion (hyperintense on T2 and hypointense on T1) extending from C3 to C6 with focal swelling, consistent with demyelination. **C, D** T2-weighted and T1-weighted images show an area of focal atrophy from C4 to C6, consistent with gliosis

ported case is rather different from the classic Devic's syndrome course, in which the index events (ON and myelitis) occur within two years of onset, and the long-term prognosis is poor, especially when the disease has a relapsing trend [11]. However, some NMO cases with atypical characteristics have already been reported [9–11]. Our patient fulfils the three absolute diagnostic criteria for NMO (occurrence of both optic neuritis and acute myelitis and lack of clinical evidence outside the optic nerve and spinal cord), and 2 of the 3 major supportive criteria (negative brain MRI and spinal cord MRI with signal abnormality extending over 3 vertebral segments) [11]. She had a very high frequency of attacks before glatiramer acetate treatment: fourteen attacks between 1979 and 1994. Relapse-rate throughout the period was 0.93/year as a whole, and 1.00/year and 1.40/year respectively during the two pure corticosteroid treatment periods, and 0.50/year during the azathioprine treatment period. Our subsequent use of glatiramer acetate as preventive therapy is, to the best of our knowledge, the first of its type. Since beginning this therapy, in October 1994, the relapse-rate has decreased to 0.29/year, and the only two relapses took place within the first two years. In other words, the patient has had no attacks for more than five years, which is her longest relapse-free period since disease onset. MRI examinations have shown promising findings too. The very large cervical cord lesion recorded in 1994 appeared to be reduced seven years later, when its appearances were consistent with focal atrophy, and lacked any sign of acute process. Of course, the long remission we have observed is not necessarily attributable to the effect of the therapy, as is the case with some other relapsing NMO patients, for whom a long quiescent clinical course has been described [11]. Therefore, a spontaneous improvement is possible; however, we emphasise that a decrease in relapse-rate was also observed during the azathioprine treatment period, and was followed by a re-increase in relapses after discontinuation of the drug. This indicates that the disease tended to be more "aggressive" when untreated.

Although tested in only one and a relatively "benign" case, glatiramer acetate has proved to be potentially effective in NMO, possibly thanks to its protective effect on myelin [3]. This therapy could be particularly indicated for those patients with no response or intolerance to immunosuppressive drugs, especially as the long-term safety profile of glatiramer acetate is very good.

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