no neck stiffness. A distally accentuated weakness of the left arm (grade 3/5) was found. Furthermore, he presented with spastic weakness of both legs that was more pronounced on the left (grade 3/5 on the left, grade 4/5 on the right). Deep and superficial tendon reflexes were brisk in the left arm and in both legs, but pyramidal signs could not be elicited. There was decreased sensation to light touch and pinprick in the legs without a clear level.

Whereas visual evoked responses and nerve conduction velocity of motor and sensory nerves were normal, motor evoked potentials to the feet induced by transcutaneous magnetic stimulation of the motor cortex showed a 50% reduction of amplitude on the left and a longer latency on the right. The somatosensory evoked potentials derived from the tibial nerve showed a reduction in amplitude on the right.

T2 weighted MRI of the brain showed two hyperintense lesions with a diameter of about 1 cm, one localised in the centrum semiovale and the other one in the brain stem near the lateral ventricles medially, both visible from the left side. After intravenous administration of contrast medium no disruption of the blood–brain barrier was detectable. Magnetic resonance imaging of the cervical and thoracic spine showed a swelling of the spinal cord at level C 2/3 and Th 2. After intravenous administration of the contrast medium an enhancement was visible in both lesions as a sign of an inflammatory process. Routine laboratory tests were normal except for slightly raised erythrocyte sedimentation rate and liver enzymes. Serological testing by enzyme linked immunosorbent assay showed antibodies against varicella zoster virus of the IgG and IgM type and also IgG antibodies against measles virus but no anti-measles IgM antibodies. All other serological tests were negative or did not give evidence of a recent infection.

Cerebrospinal fluid disclosed a subacute inflammatory CSF cell syndrome with transformed lymphocytes and plasmacytoid cells. Whereas the albumin content was normal (18-44 mg/dl), the IgG (4-2 mg/dl) was slightly raised. The IgG index calculated according to Delpech and Lichtblau was 0.70. Oligoclonal IgG bands were present in CSF only. Repeated lumbar taps did not show major changes in the findings. Detection of varicella zoster virus DNA by the polymerase chain reaction could not be achieved in blood or CSF. Antibodies of the IgG type against varicella zoster virus and measles virus were slightly raised giving titres of 1 : 40. Differentiation of CSF antibodies by isoelectric focusing and immunoblot technique showed that about 20% of the oligoclonal CSF IgG was directed against the nucleocapsid protein of measles virus. Autoantibodies to the varicella-zoster virus specific antibodies could not be detected.

Suspecting an acute varicella zoster virus myelitis, we initially treated with acyclovir (30 mg/kg body weight, 5/day in three doses). Symptons resolved under this treatment and intensive physiotherapy. The patient was discharged with mild residual symptoms consisting of a spastic, atactic gait after 21 days. Eight weeks after the first admission he presented with a left optic neuritis. Visual evoked potentials could not be elicited on the left whereas they were normal on the right. There were no other signs of multiple sclerosis different from the residual gait disturbance, which had greatly improved in the meantime. After one course of high dose prednisolone (1000 mg/day intravenously for five days) visual acuity returned. Unfortunately the subsequent course was stable; repeated cranial MRI did not show any newly enhancing lesions.

According to the criteria of Posner et al.1 this patient had clinically definite, laboratory and MRI supported, multiple sclerosis. Five days before the second bout he developed acute varicella. In considering the time course, an immune mediated postinfectious encephalomyelitis is highly unlikely as he would have become symptomatic not earlier than the second week after the onset of the rash. The failure to detect varicella zoster virus DNA by polymerase chain reaction in CSF as well as the absence of autoantibodies against varicella zoster virus specific oligoclonal IgG production in CSF while oligoclonal IgG was present is strong evidence against direct viral infection of the CNS. The presence of oligoclonal IgG suggests that varicella-zoster virus proteins is a common finding in patients with multiple sclerosis. The close temporal association between the hitherto more severe second bout and the varicella infection suggests precipitation of an acute exacerbation of pre-existing multiple sclerosis by varicella. No specific virus has been consistently implicated in the precipitation of exacerbations in patients with multiple sclerosis, which might reflect a significant correlation between increases in adenovirus titre associated with upper respiratory tract infections and major relapses have been shown.2 It is unlikely that the precipitation of exacerbations occurs non-specifically during any infection as bacterial infections and those often affecting the urinary tract in patients with multiple sclerosis do not lead to an increased rate of episodes.

As a possible mechanism to explain our finding, interferon-γ has been shown to have a deleterious effect on the clinical course of multiple sclerosis in that it precipitates exacerbations.3 By inducing the release of cytokines such as interferon-γ, viral infections may enhance an autoreactive response to CNS antigens via upregulation of adhesion and complement expression as well as activation of effector cells such as macrophages. Although the pathogenetic background still remains obscure, this case shows that precipitation of an exacerbation of pre-existing multiple sclerosis by chicken-pox is possible.

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**Interferon-α may benefit steroid unresponsive chronic inflammatory demyelinating polyneuropathy**

Although controlled studies have shown the efficacy of plasma exchange, corticosteroids, and intravenous immunoglobulin (IVIG) in chronic inflammatory demyelinating polyneuropathy (CIDP), many patients do not achieve a complete and long term remission and some patients do not respond at all to these treatments.

We report on two patients with CIDP, unresponsive to corticosteroids, azathioprine, or cyclosporin, who showed a partial and short lived response to IVIGs but made a complete and sustained recovery after treatment with interferon α-2a.

The figure summarises the clinical courses of patients. The disability was assessed on the Rankin scale.4 Patient 1 was a 27 year old girl admitted in June 1990. In 1988 she had a progressive limb weakness that had evolved over six months. A diagnosis of CIDP was made in another neurological institute and the patient was treated with prednisone, plasma exchange, and azathioprine with poor response.

The patient showed severe, symmetric weakness of proximal and distal muscles, normal sensation, and absent tendon reflexes. Cranial nerves were unaffected. Routine haematological examinations and serum and urine immunoelctrophoresis gave normal results. Serological tests for Lyme disease and HIV were negative. The protein content of CSF was 60 mg/dl. Nerve conduction studies showed slightly reduced motor conduction velocities with multiple conduction blocks. Sural nerve biopsy was normal.

The patient was treated by plasma exchange without any effect. She was then given IVIG at a dosage of 0-4 g/kg/day for five consecutive days and showed considerable improvement. After that, six relapses occurred (the mean time between relapses was five weeks) and on each occasion reinstitution of IVIG was followed by a similar improvement.

Subsequently, we started intermittent treatment with IVIG (1 g/kg for one day every five weeks), which was successful in maintaining the maximal level of improvement. During the maintenance period additional treatments with corticosteroids, plasma exchange, and azathioprine were given, but the frequency of IVIG treatment was not altered, deterioration occurring each time we tried to prolong the interval between infusions to more than five weeks.

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Clinical course of patients 1 and 2. 1 = high dosage intravenous immunoglobulins (HIG); 2 = plasmapheresis; 3 = prednisone, (alternative day dosage (mm) in parentheses); 4 = azathioprine; 5 = cyclosporin (daily dosage in parentheses); IFN-α = interferon-α (weekly dosage in million IU).

finding led us to the use of interferon in our patients.

Interferon-α treatment resulted in a dramatic and long term recovery. We doubt that this response was fortuitous, because (a) both patients showed a pronounced improvement a few days after starting interferon-α and this result was never achieved with other treatments; (b) no relapse occurred during full dosage interferon-α treatment whereas before the patient had a relapsing course over a long period, despite immunosuppressive treatments; (c) patient 1 deteriorated on reducing interferon-α to 1 MIU a week and promptly responded to a higher dose, suggesting a dose-response effect.

The mechanism by which interferon induced an improvement in our patients is uncertain. Interferons exert complex immunomodulator effects and there is evidence that interferon-α may both improve or worsen autoimmune disease. The recent finding that interferon-α may benefit patients affected by multiple sclerosis and that the production of lymphocyte interferon-γ is reduced by this treatment, suggests that interferons may play a central part in the pathogenesis of demyelination in both the central and the peripheral nervous system.

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Kava and dopamine antagonism

Kava is a drink widely used for its calming and tranquilising properties by the native population in the islands of the south Pacific. The beverage is prepared from the roots of the kava plant (Piper methysticum); besides in widespread social use, it is also a ceremonial drink, and heads of state have been reported to drink kava during welcome...
Interferon-alpha may benefit steroid unresponsive chronic inflammatory demyelinating polyneuropathy.

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