serology showed no evidence of recent viral or mycoplasma infection. Serum IgA was slightly reduced at 1.17 g/l (normal 1.25–4.25 g/l) and the IgM was 0.47 g/l (normal 0.5–1.75 g/l), with a normal IgG. A chest X-ray was normal. Spinal fluid examination showed a protein of 0.7 g/l (normal up to 0.45 g/l), glucose 4.8 mmol/l, with no white cells, and no growth on culture. Nerve conduction studies showed motor nerve conduction of the median nerve was 30 m/second with a distal motor latency of 4.7 milliseconds (normal, up to 4.2 milliseconds). F responses were unobtainable. Distal sensory nerve conduction velocity of median nerve was 29 m/second, the sensory action potential being reduced at 1.5 μ V. The extensor digitorum muscle was denervated and motor conduction along the peroneal nerve could not be obtained. Motor latency from the capitulum fibulae to the tibialis anterior was slightly prolonged, but the M wave was markedly decreased (0.1 mV).

She received a 5-day course of intravenous immunoglobulin (Venoglobulin, Alpha Pharmaceuticals) at 0.4 g/kg/day, and steadily improved. After 3 weeks she was able to walk unaided.

Our patient fulfils the well-established diagnostic criteria for GBS.¹ GBS is an acute inflammatory demyelinating polyradiculoneuropathy in which both protein and lipid antigens in peripheral nerve are the target of immune attack. Neither the precise antigens nor the relative roles of humoral or cell-mediated immune responses are known.¹ A prominent role of the humoral immune system in the pathogenesis of GBS is supported both by the presence during the acute phase of the illness of complement-fixing anti-peripheral nerve myelin IgM antibodies whose kinetics correlate with the clinical course of the disease, and by the efficacy of treatment with high-dose intravenous immunoglobulin.^{4,5}

Under certain circumstances partial or transient immunosuppression could serve as a contributing factor in precipitating GBS.⁶ Impaired cell-mediated immunity is the proposed mechanism for the increased incidence of GBS in Hodgkin's disease.⁶ Indeed, Hughes *et al.* reported reduced suppressor T-cell function in about a quarter of patients during the early phase of GBS.⁷

In CLL, in contrast with Hodgkin's disease, almost all patients eventually develop hypogammaglobulinaemia while the cell-mediated immune system remains largely intact.^{8,9} This may explain why the association between CLL and GBS is rare. In our patient it is possible that the transient myelosuppression induced by the chlorambucil may have predisposed to the development of GBS, whilst the almost normal humoral response may have mediated its subsequent development.

Matthew Jackson
Department of Neurology,
University Hospital,
Clifton Boulevard,
Nottingham NG7 2UH, UK.

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Anti-epileptic therapy and fatal chickenpox

Sir,

A 15 year old epileptic boy on carbamazepine, primidone, sodium valproate, acetazolamide and clobazam presented with severe backache following a grand mal seizure. An X-ray revealed no abnormality and he was sent home on ibuprofen. Two days later he re-attended with fever, anorexia, vomiting and a rash which had appeared the previous night. He had recently been exposed to chickenpox. On examination his temperature was 37.8°C and he had a florid papular, vesicular and purpuric rash involving his face, trunk and proximal limbs. Ecchymoses were present at a venepuncture site. His pulse was 120/minute, blood pressure 165/110 mmHg, the abdomen was distended and tender, and the urine and vomitus contained blood. Investigations showed: haemoglobin 16.3 g/dl, white cell count $17.0 \times 10^9/l$, platelets $49 \times 10^9/l$, international normalized ratio > 8 (normal 0.8–1.2), activated partial thromboplastin time ratio 3.4 (normal 0.8–1.2), fibrin degradation products (D-dimer) 32.0 mg/l (normal < 0.5 mg/l) and glucose 6.7 mmol/l.

Disseminated intravascular coagulation (DIC) precipitated by a drug, meningococcal septicaemia or chickenpox was considered. Despite infusions of fresh frozen plasma, platelets and cryoprecipitate together with intravenous acyclovir, benzylpenicillin and chloramphenicol, he died within 24 hours. *Varicella zoster* virus was isolated from vesicular fluid.

An explanation for the fulminant course was not apparent. He was, however, on a number of drugs and the possibility that the DIC was due in part to a drug effect cannot be excluded. In this regard it is relevant that carbamazepine and acetazolamide can induce autoimmune thrombocytopenia,¹ and sodium valproate can cause various disorders including abnormal bleeding times,² impaired clotting,³ platelet antibodies,⁴ and low fibrinogen levels.⁵ Fatal DIC has been reported in one neonatal patient on sodium valproate, but it was not clear whether causes other than the drug could have been responsible for the DIC (personal communication from Sanofi Winthrop).

Two points emerge from this patient's tragic outcome. Firstly, severe abdominal or back pain may be the earliest symptoms of severe systemic involvement in varicella. Any delay in treatment diminishes the effectiveness of acyclovir and these symptoms should be indications for the prompt intravenous administration of acyclovir which may be effective even in the presence of DIC. Secondly, anti-epileptic drugs can cause thrombocytopenia, bleeding disorders, and immune defects all of which could predispose to the development of varicella with haemorrhagic complications. The occurrence of varicella in patients on anti-epileptic drugs may therefore be an indication for the early use of acyclovir.

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R.V. Williamson
B. Ramsay
J. Lee¹
J.J. Cream

*Departments of Dermatology and ¹Anaesthetics,
Charing Cross Hospital,
London W6 8RF, UK.*

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