Guillain-Barré neuropathy during treatment with captopril

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Summary: A patient is described who developed acute peripheral neuropathy of Guillain-Barré type occurring shortly after commencement of captopril for moderately severe hypertension and resolving after discontinuation of the drug.

Introduction

Captopril is an effective drug in the treatment of hypertension and cardiac failure. Despite increasing usage it has a number of side effects^{1,2} and peripheral neuropathy, including Guillain-Barré type has been reported.^{3,4,5} We report a case of acute peripheral neuropathy of Guillain-Barré type. The illness occurred shortly after commencement of captopril therapy and the patient made a complete recovery following withdrawal of the drug.

Case report

A 57 year old man had been treated for 6 years with atenolol 100 mg and chlorthalidone with potassium for moderately severe hypertension. Captopril (25 mg three times a day) was added and continued for 3 months when he presented with an 8-day history of tingling in hands and feet, painful calf muscles and gradually increasing weakness of arms and legs. He had been a moderately heavy beer drinker but had stopped drinking 3 months previously in an effort to lose weight. On examination he was areflexic, power in both arms and legs was slightly diminished, and there was a 'glove and stocking' distribution of sensory loss with a sensory level at wrists and knees. Blood pressure remained well controlled (140/80 mm Hg) despite discontinuation of captopril.

Investigations revealed diabetes mellitus (blood glucose 23.4 mmol/l) which was subsequently well controlled with insulin. Renal function was normal and an initial mild proteinuria (0.2 g/l in 24 hours) resolved 2 weeks later. Lumbar puncture at presentation revealed cerebrospinal fluid (CSF) protein 0.83 g/l rising to 1.51 g/litre 3 weeks later. CSF cell count was

normal. Chest X-ray, and blood vitamin B₁₂, folate, immunoglobulins, complement and lead were normal.

Gamma glutamyl transpeptidase was slightly raised but other liver function tests were normal. Rheumatoid slide test, auto-antibody screen, repeated viral studies, anti-syphilis serology, blood porphyrins, urine for porphyrins and porphobilinogen were negative.

He initially deteriorated rapidly, being unable to walk or lift legs or arms. He developed difficulty in swallowing, urinary hesitancy requiring catheterization and constipation with diminished rectal sensation requiring manual evacuation. Respiratory function deteriorated and consideration of assisted ventilation was necessary. After 2 weeks, he started to improve and he was discharged after 6 weeks when muscle power was almost normal and sensory level had receded to toes and fingers. Nerve conduction velocity (NCV) and electromyography (EMG) done 3 months later showed a demyelinating neuropathy consistent with an acute polyneuropathy of the Guillain-Barré type. He remained well over the next 2 years with no residual neurological deficit and excellent control of hypertension and diabetes with atenolol and insulin.

Discussion

Although alcohol and diabetes can cause acute peripheral neuropathy, they do not cause a demyelinating neuropathy of Guillain-Barré type and seem unlikely aetiological factors in this case. Moreover acute severe polyneuropathy and diabetes is exceptional and in such cases sensory symptoms and signs predominate. A post-infectious cause cannot be disproved despite absence of serological evidence of viral infection on extensive screening. Captopril is chemically similar to D-penicillamine (both having sulphhydryl groups) and causes similar side effects which appear to be due to an auto-immune reaction.⁶ Guillain-Barré syndrome is

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an allergic disorder which may develop after the administration of drugs,⁷ and has been associated with captopril in a patient on a high dose of the drug (450 mg/day) who was also on cimetidine, which might have stimulated immune responses.³ No such predisposing aspect was present in our patient, who was on a much smaller dose of captopril. This case of Guillain-

Barré polyneuropathy occurred shortly after the commencement of captopril and resolved rapidly after its discontinuation. Rechallenge was not considered advisable. Together with the previous report, this case strongly suggests a causal relationship between captopril and reversible Guillain-Barré syndrome, perhaps mediated by the sulphhydryl group.

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