Peripheral vasculopathy and nephropathy in association with phentermine

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Introduction

Phentermine and related amphetamine-like compounds have been widely used as appetite suppressants, especially in the US [1]. They have been associated with systemic and pulmonary hypertension, heart valvular abnormalities [2] and cerebral vasculopathy [3]. We report a patient who presented with renal impairment and peripheral vasculopathy, whilst on long-term therapy with phentermine for narcolepsy. Considerable improvement in these features followed phentermine withdrawal.

Case

A 50-year-old female clerical worker presented with a 1 month history of increasing pain and discoloration of her finger tips. She had also noticed a rash over the dorsum of her hands. Raynaud’s phenomenon had been diagnosed 3 years prior to presentation and she previously had taken nifedipine with minimal effect. She also suffered from hypertension, diagnosed 10 years previously. This had been treated with lisinopril and bumetanide, and for the previous 15 years she had been treated with phentermine 30 mg daily for narcolepsy.

On examination, she looked well and was afebrile. On the dorsum of both hands, she had a livedo reticularis rash with a necrotic area over her right little finger and two further areas of necrosis on her left little finger (Figures 1–3). These lesions were exquisitely tender. No other areas of necrosis were noted nor areas of calcinosis or purpura. Her feet were unremarkable.

Her blood pressure was 150/80 mmHg and she was in sinus rhythm. Examination of the cardiovascular system, chest, abdomen and nervous system were unremarkable. Initial investigations revealed a normal full blood count and clotting profile, but with moderate renal impairment with a serum creatinine of 242 μmol/l. Urine testing showed 100 red blood cells per high powered field (RBC/hpf). Renal ultrasonography showed small kidneys bilaterally. Immunological testing was normal other than a weakly positive antinuclear antigen (ANA) which was negative.
abnormalities. We suggest that long-term phentermine administration contributed to these abnormalities.

Phentermine is a weak sympathomimmetic agent which causes noradrenaline release. It has been used most commonly as an appetite suppressant in the treatment of obesity [5]. It has been used as a single agent and also in combination with other appetite suppressants such as fenfluramine and dexfenfluramine which act on serotonergic receptors [5]. Both these classes of drug recently have been voluntarily withdrawn because of increasing evidence of their association with heart valvular abnormalities and pulmonary hypertension [6].

Phentermine has similar pharmacological properties to those of amphetamines and cocaine, which have been shown to cause hypertension, vasoconstriction and vasculopathy. Cocaine, in particular, has been linked to a cerebral vasculitis [7]. There have also been reports specifically associating phentermine and fenfluramine with a cerebral vasculopathy, in one case causing intracerebral haemorrhage and in others ischaemic stroke [3,8].

There has also been reported an association of phentermine with acute renal failure. However, the renal histology revealed an acute interstitial nephritis rather than a glomerulonephritis, as demonstrated by our patient.

We suggest that phentermine was related to her presentation as this drug and related compounds previously have been linked with vasculopathy and our patient’s symptoms and signs improved on withdrawal of the drug. This patient also had asymptomatic heart valvular abnormalities which may be associated with phentermine treatment [2]. A diagnosis of mixed connective tissue disorder or scleroderma was not supported by immunological testing or the patient’s subsequent course [10].

We conclude that long-term phentermine administration led to a multisystem disorder possibly through a toxic vasculopathy, similar to that seen with other amphetamine-like drugs.

Acknowledgements. We thank Dr Nestor Velasco, Mayday Hospital, London, for permission to report on his patient.

References


Fig. 3. Tight shiny skin and nail fold infarct affecting the left little finger.

Discussion

Our patient had a peripheral vasculopathy manifested by Raynaud’s phenomenon, digital infarction, and livedo reticularis in association with mesangioproliferative glomerulonephritis, renal impairment and cardiac abnormalities. We suggest that long-term phentermine administration contributed to these abnormalities.

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