

DAPSONE INDUCED PERIPHERAL NEUROPATHY

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A 24-year-old lady being treated with 300 mg of dapsone daily for dermatitis herpetiformis, developed weakness and wasting of muscles of hands and feet with claw hand deformity and foot drop, 2 months later. Neurological examination and nerve conduction studies confirmed the presence of a peripheral motor neuropathy. Dapsone was discontinued and the patient was treated with cotrimoxazole, gluten-free diet and supportive therapy. This satisfactorily controlled the dermatological lesions without adversely affecting the resolution of her neuropathy. Symptomatic improvement reported by the patient was confirmed by EMG and nerve conduction studies.

Key words : Dapsone, Peripheral neuropathy.

Dapsone has been used for many years for the treatment of leprosy and more recently for certain skin diseases characterised by polymorphonuclear infiltrate such as dermatitis herpetiformis.¹ Though a relatively safe drug, dapsone can affect various organs of the body. However, peripheral neuropathy has not been well recognized as a complication in the treatment of leprosy, partly due to the fact that leprosy itself can affect the peripheral nerves and partly due to the low dosage of dapsone used in leprosy when compared to other dapsone responsive dermatoses. Peripheral neuropathy induced by dapsone was first reported by Saqueton et al in 1969 in two non-leprosy patients.² Since then other cases of dapsone induced peripheral neuropathy appeared in the literature.³⁻¹³ Recently, we saw a case of dapsone induced peripheral neuropathy in a patient having dermatitis herpetiformis.

Case Report

A 24-year-old female patient was admitted on 24.2.87 with vesiculo-bullous lesions of 3 months duration and weakness of the hands and feet and inability to walk since 2 weeks. Her skin lesions had started as intensely pruritic

vesiculo-bullous lesions two weeks prior to her second delivery, on the chest, face and sole of both feet. But the day after delivery, she noticed extension of the lesions to the back and abdomen as well. She was treated with oral betamethasone 1 mg twice daily and dapsone 100 mg twice daily with complete remission. When the dose of dapsone was reduced to 100 mg daily, there was exacerbation of her skin lesions and hence it was increased to 300 mg daily. After about 2 months, she developed heaviness and paraesthesias of the hands and feet with weakness of fingers and toes. Even though dapsone was stopped and the patient was given intramuscular injections of vitamin B₁, B₆, B₁₂ daily for 10 days her weakness and heaviness of the limbs were on the increase. The mucous membranes were not affected.

The neurological examination revealed an asymmetrical muscle involvement of distal parts of hands and feet. The thenar and hypothenar muscles were flattened indicating muscle wasting. There was claw-hand deformity of the left hand with flexion deformity of the terminal interphalangeal joint of left index finger. Muscle power was markedly reduced, with left hand more affected than the right. In the lower limbs, there was bilateral, but asymmetric weakness of the muscles with wasting. Bilateral foot-drop was noticed with right side more involved than

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the left. The patient walked with difficulty. There was no sensory deficit. Deep tendon reflexes in the upper limbs were normal. But knee and ankle jerks were sluggish on both lower limbs. Mental status and cranial nerves were normal.

The diagnosis of a drug-induced neuropathic disorder was confirmed by electromyographic (EMG) and nerve conduction studies. The skin biopsy demonstrated a neutrophilic subepidermal bulla consistent with the diagnosis of dermatitis herpetiformis. Laboratory studies including blood counts, ESR, reticulocyte count, methemoglobinemia, fragility, urinalysis, and liver function tests were normal.

The patient was given oral prednisolone 30 mg daily, intramuscular injections of B₁, B₆, B₁₂ daily, gluten-free diet and supportive therapy along with 100 mg of dapsone daily. The skin lesions showed signs of remission, but her neurological problems were steadily worsening. So dapsone was stopped and substituted with cotrimoxazole. Corticosteroids were gradually tapered off. The skin lesions healed and the gait and muscle power improved. With the help of physiotherapy she was able to walk without much difficulty in the course of 4 weeks.

At the moment, the patient is satisfactorily maintained on 2 tablets twice daily of cotrimoxazole, physiotherapy and gluten-free diet without any serious side effects of cotrimoxazole. Reduction of cotrimoxazole to 1 tablet twice daily produced an exacerbation and so the dose was again increased to 2 tablets twice daily. The EMG and nerve conduction studies done at 3-month and 6-month intervals showed considerable improvement.

Comments

Most reported cases developed peripheral neuropathy after several years of therapy but neurological involvement has been observed as early as 6 weeks after starting the therapy.^{7,14} Usually, paraesthesias and weakness are the

most common complaint,⁷⁻⁹ while our patient did not have any sensory disturbance. Combined with fibrillation and loss of motor unit potentials, this indicates that the most likely site of defect is the loss of motor axons.^{8,13} The mechanism involved may be toxic, dose related or idiosyncratic.⁷

References

1. Lang PC : Sulfones and sulfonamides in dermatology today, *J Amer Acad Dermatol*, 1979; 1 : 479-492.
2. Saqueton AC, Lorincy AL, VICKNA et al : Dapsone and peripheral motor neuropathy, *Arch Dermatol*, 1969; 100 : 214-217.
3. Wyatt EH and Stevens JC : Dapsone-induced peripheral neuropathy, *Brit J Dermatol*, 1972; 86 : 521-523.
4. Du Vivier A and Fowler T : Possible dapsone-induced peripheral neuropathy in dermatitis herpetiformis, *Proc Roy Soc Med*, 1974; 67 : 439-440.
5. Gehlman LK, Koller WE, Malkinson FD : Dapsone-induced neuropathy, *Arch Dermatol*, 1977; 113 : 845-846.
6. Rapoport AM and Guss SB : Dapsone-induced peripheral neuropathy, *Arch Neurol*, 1972; 27 : 184-185.
7. Koller WC, Gehlman LK, Malkinson FD et al : Dapsone-induced peripheral neuropathy, *Arch Dermatol*, 1977; 34 : 644-646.
8. Gutmann L, Martus JD and Welton W : Dapsone motor neuropathy, an axonal disease, *Neurol*, 1976; 26 : 514-516.
9. Helander I and Partanen J : Dapsone induced distal axonal degeneration of the motor neurones, *Dermatologica*, 1978; 156 : 321-325.
10. Fredericks EJ, Kugelman TP and Kirsh N : Dapsone-induced motor polyneuropathy, a complication of prolonged treatment of subcorneal pustular dermatosis, *Arch Dermatol*, 1976; 112 : 1158-1160.
11. Homeida M, Babikr A and Daneshmend TK : Dapsone-induced optic atrophy and motor neuropathy, *Brit Med J*, 1980; 281 : 1180.
12. Waldinger TP, Siegle RJ, Weber W et al : Dapsone-induced peripheral neuropathy, *Arch Dermatol*, 1984; 120 : 356-359.
13. Abrens EM and Meckler RJ : Dapsone-induced peripheral neuropathy, *Internat J Dermatol*, 1986; 25 : 314-316.
14. Volden G : Neurotoxicity : a side effect of sulfones, *Brit Med J*, 1977; 1 : 1193.