Case reports

Dermatomyositis treated with cyclosporin

G M Kavanagh MB BCh **J S Ross** MB BS MRCP
M M Black MD FRCP *St John's Dermatology Centre, St Thomas' Hospital, London*

Keywords: dermatomyositis; cyclosporin

The spectrum of cutaneous and autoimmune diseases for which cyclosporin A (CSA) is now being used continues to expand. There are several reports of the use of CSA in the treatment of both juvenile and adult dermatomyositis (DM) and polymyositis (PM)[1,2]. We report a case of DM with bulbar palsy and associated malignancy where dramatic clinical recovery coincided with the introduction of CSA.

Case report

A 70-year-old woman presented with a 6 week history of rash, muscle weakness and dysphagia. She had previously diagnosed pernicious anaemia and breast cancer treated successfully with radiotherapy in 1970. On examinations she was noted to have a classical dermatomyositis rash, dysarthria and proximal muscle weakness in all limbs. Initial investigations revealed marked lymphopaenia (lymphocyte count 0.7 cells/cm^3). Renal and liver function tests were normal. Muscle enzymes were dramatically elevated with creatinine kinase at 3500 IU/l. Both antinuclear antibody and Jo_1 antibody were negative.

Hospital admission was refused and the patient was commenced on prednisolone 60 mg daily. One month later when she had significantly deteriorated further and was unable to walk, weightbear or swallow, she finally consented to admission. Pulse methylprednisolone (500 mg on alternate days) was given for one week, followed by prednisolone 80 mg daily for a further 2 weeks. Despite this she continued to deteriorate and developed aspiration pneumonia. Elective tracheostomy was considered.

A trial of CSA was commenced. Initial dosage was 7 mg/kg/day to achieve a trough range of 200-300 ng/ml by radioimmunoassay. There was a dramatic clinical response within 2 weeks, and the patient was fully independant at week 7. CSA was therefore decreased to a maintenance dose of 3 mg/kg/day. Prednisolone was also tapered to 15 mg daily. Blood pressure remained within normal limits, however creatinine rose to 30% baseline value, returning to initial level on reduction of CSA.

Investigation for underlying malignancy revealed an adenocarcinoma of the stomach with extensive intrathorasic and intra-abdominal lymphadenopathy, precluding surgery. Nevertheless, the patient's condition remained stable and she was able to return home and remained independant and self caring until just a few days before her death 5 months later.

Discussion

The pathogenesis of DM and PM remain unknown. Many lines of evidence suggest that both cellular and humoral mechanisms play a significant role[3]. The role of cell mediated immunity is most clearly defined, and includes the presence of activated mononuclear cells (MNCs) in skeletal muscle; abnormal MNC trafficking to muscle; and altered peripheral MNC phenotypes with increased MNC expression of activation markers[3].

Knowledge of the precise mechanisms of action of CSA is incomplete. However, it has been established that CSA inhibits production of lymphokines, primarily interleukin-2, by T-helper cells[4]. The maturation and generation of the precursor cytotoxic T-cell are also sensitive to the CSA effect[4]. CSA may effect a response in DM and PM by inhibiting lymphocyte mediated, muscle specific cytotoxicity[5] and possibly by virtue of its effect on T-independent B cell reponse[4].

Standard treatment of DM is high dose steroid therapy. In patients with refractory disease, management usually includes the addition of conventional immunosuppressants such as azathioprine, methotrexate and cyclophosphamide. In this case however, therapeutic options were limited as persistent lymphopaenia precluded introduction of bone marrow suppressants. Rapid onset of action and lack of lymphotoxicity favoured CSA. Reversible nephrotoxicity and hypertrichosis were the only side effects noted in this patient.

Maintenance of immunosuppression in a patient with known malignancy may potentiate dissemination. Current evidence suggests that the risk with low doses used in this patient is no greater than for prednisolone and azathioprine[6]. The degree of immunosuppression is thought to be the most important factor[7].

In summary, we report a case of refractory malignancy associated DM with bulbar palsy in which a dramatic clinical response was seen associated with the introduction of CSA.

References

1 Heckmatt J, Saunders C, Peters AM, *et al.* Cyclosporin in juvenile dermatomyositis. *Lancet* 1989;i:1063-6
2 Van der Meer S, Imhof JW, Borleffs JC. Cyclosporin for Polymyositis. *Ann Rheum Dis* 1986;**45**:612
3 Dalakas M, Left RL, Love LA, *et al.* Current concepts in the idiopathic inflammatory myopathies: polymyositis, dermatomyositis and related disorders. Ann *Intern Med* 1989;**111**:143-57
4 Colombani PM, Hess AD. T-lymphocyte inhibition by cyclosporin: potential mechanisms of action. *Biochem Pharmacol* 1987;**36**: 3789-93
5 Dawkins RL, Martalgia FL. Cell-mediated cytotoxicity to muscle in polymyositis: effect of immunosuppression. *N Engl J Med* 1973;**288**:434-8
6 MacLeod A M, Catto GRD. Cancer after transplantation, the risks are small. *BMJ* 1988;**297**:4-5
7 Penn I. Cyclosporine and oncogenesis. *Mt Sinai J Med* 1987; **54**:460-4

(Accepted 5 December 1990. Correspondence to Dr J M Ross)

Case presented to Section of Dermatology, 21 June 1990

0141-0768/91/050306-01/$02.00/0