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SUPPLEMENT

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CORRESPONDENCE

Because we receive many more letters than we have room to publish we may shorten those that we do publish to allow readers as wide a selection as possible. In particular, when we receive several letters on the same topic we reserve the right to abridge individual letters. Our usual policy is to reserve our correspondence columns for letters commenting on issues discussed recently (within six weeks) in the BMJ.

Letters critical of a paper may be sent to the authors of the paper so that their reply may appear in the same issue. We may also forward letters that we decide not to publish to the authors of the paper on which they comment.

Letters should not exceed 400 words and should be typed double spaced and signed by all authors, who should include their main degree.

Hyperbaric oxygen in multiple sclerosis

SIR,—Dr C M Wiles and colleagues (8 February, p 367) confirm once again that hyperbaric oxygen administered at 2 atmospheres absolute (ata) is of little value for most patients with multiple sclerosis.

The linear increase in the vasoconstrictive properties of hyperbaric oxygen with rising pressure accounts for their disappointing results, and they rightly point out that the arterial oxygen tensions estimated to exist in their patients (mean 1471 mm Hg) are much higher than those in the trial of Fischer *et al* (mean 998 mm Hg), in which positive results were obtained.

Action for Research into Multiple Sclerosis (ARMS), a self help association of patients, has in the past few years treated over 4000 patients with hyperbaric oxygen in its therapy centres throughout Britain. Until recently about 70% of patients were found to benefit, but experience has shown that if the pressure is adjusted to suit the patient nearly all will respond.

In ARMS units it is now the practice to start a course of daily treatments at 1·25 ata for one hour, during which about 30% of patients show signs of improvement between the third and fifth days. Twenty sessions are administered. Those patients who do not respond after five sessions are then taken to 1·5 ata, when a further 50% respond. The rest nearly all improve at 1·75 ata, though very occasionally 2 ata has to be used. Such improvements are often lost within a week or two but are immediately restored by only one exposure to the pressure at which they had previously responded. The need for regular maintenance doses is obvious, so patients are advised to attend for regular "top ups" of an hour at least once a month, though some find that they have to return sooner. A few manage without for much longer.

On this regimen most patients show unequivocal improvement in one or more symptoms. Occasionally the response can be very dramatic—for example, patients may abandon their sticks or wheelchairs, or their vision suddenly returns. More often the treatment induces more moderate benefit so that patients can once again do up buttons, brush their hair or teeth, and the like. As a response is not detected until a day or two after starting treatment it implies that patients serve as their own controls, as does the fact that they only do so after reaching their own preferred pressure. We wonder if the rapid improvement in one of the authors' patients after a second course of treatment could be attributed to the use of a more suitable pressure.

Many patients were first treated sufficiently long ago that they are now available for relatively long term follow up.

In Dundee four of 16 patients who choose to continue with regular treatment had improved when assessed a year later, 10 were stable, and two had deteriorated. In the group of 18 who had stopped none had improved and 44% had deteriorated. Davidson has pointed out that this "may indicate the value of long term therapy, but an alternative explanation is that patients who were static or improving were happy to continue with their treatment on the basis of the natural history of their disorder. The correct explanation can only be resolved by a controlled trial."[1]

A prospective long term trial of this nature is impossible outside a penitentiary as patients will not comply with a prescribed protocol. However, it is possible to conduct a valid retrospective study by allocating patients to "treatment" or "control" groups and then discarding those who are subsequently found not to have received the allocated treatment regimen.

In Oxford 62 patients have recently been assessed a year after their initial course of treatment. Random allocation to treatment (20 initial exposures and regular top ups thereafter for a year) or control group (initial course only) has resulted in 30 patients having complied with their allocation—18 to the treatment group and 12 to the control group.

In the treated group 15 out of 18 of the patients have remained stable or have improved while 11 out of 12 in the control group have deteriorated.

In the ARMS therapy centre in Glasgow well over 100 patients were treated over a year ago and form part of a study currently being conducted on behalf of the Scottish Home and Health Department. The study is incomplete but so far 72% of the patients were no worse when reviewed at a year and it is clear that those patients who maintained regular treatment have retained their improvement while most of those who lapsed have deteriorated.

In Guernsey 47 patients started treatment over three years ago and have since received weekly top ups. After two years 30 had actually improved, 12 were stable, and 5 had deteriorated. Twenty six patients were treated over three years ago and 12 have maintained their improvement, 11 are stable, and 3 have deteriorated.

Dr Schumacher, a former chairman of the International Federation of Multiple Sclerosis Societies, considers that "the only criterion for the success of any treatment of chronic multiple sclerosis must be that it prevents deterioration, that a conclusion of benefit in a pilot procedure rests on total prevention of exacerbation or further progression of the disease in the overwhelming majority of the subjects over a two year period. There could then be no question of the statistical significance of such a result."[2]

Our series of relatively long term results, arrived at independently, therefore imply that prolonged courses of hyperbaric oxygen are effective in controlling chronic progressive multiple sclerosis and patients should therefore be encouraged to seek treatment.

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1 Davidson DLW. Hyperbaric oxygen treatment for multiple sclerosis. *Practitioner* 1984;228:903-5.
2 Schumacher GA. Critique of experimental trials of therapy in multiple sclerosis. *Neurology* 1974;24:1010-14.