pressures related to situation and the influence of other drug users. In the outpatient group the most risky times appeared to be at the beginning and end of the withdrawal schedule. Six subjects (21% of this group) failed in the first 14 days of the eight week programme, and 9 (31%) failed in the last week. Of the six inpatients who failed, two did so on the first day and the four others in the last six days.

The outpatient sample was more likely to remain in contact with the hospital's drug dependence services ($\chi^2=9{\cdot}19$, $p<0{\cdot}05$); 16 out of 29 (55%) received further counselling or treatment from the clinic after their attempt at withdrawal whereas 22 out of 37 (71%) of the inpatients lost contact with the clinic. A further analysis of the data for all subjects showed that those addicts who had been successfully withdrawn from drugs were less likely to remain in immediate contact with the clinic and took longer to re-establish contact ($t=2{\cdot}38$, $p<0{\cdot}05$).

Discussion

This study was concerned with comparing methods of withdrawing opiate addicts from their drugs and was not a study of treatments for addiction in the wider sense. "Success" was defined in terms of becoming completely free of drugs. As Newman has argued, prolonged abstinence is not an appropriate goal of detoxification; the basic goal is elimination of the acute neurophysiological dependence.[4]

The main finding of this study was that a supervised inpatient withdrawal was more successful than the outpatient scheme. Compared with the 25 inpatients who succeeded (81%), only five of the outpatients completed their withdrawal from opiates (17%). This outcome could not be attributed to pretreatment factors related to drugs, as the two groups had virtually identical patterns of drug misuse. In addition, there were no appreciable differences between the groups in a wide range of social factors.

The superior success of inpatient withdrawal is not entirely surprising, as the inpatient programme entailed much more supervision of all aspects of the patients' behaviour as well as higher levels of support and therapy. Although Edwards and Guthrie showed that outpatient treatment for alcoholism was just as effective as an inpatient programme, their study compared inpatient treatment with an intensive form of outpatient care.[3] The inpatient treatment options in our study and that of Edwards and Guthrie may be regarded as broadly similar, but in our study the outpatient withdrawal programme was non-intensive and no community support was provided outside the clinic.

As the inpatient and outpatient withdrawal periods were different (21 days for inpatients and 56 days for outpatients) it could be suggested that the difference in the results may have been due to this. The data do not, however, support this suggestion. Of the outpatients, 9 (31%) failed within the first 21 days. Most subjects who completed the first 21 days of the outpatient programme continued to withdraw until the final week, when nine more dropped out or began using illicit drugs again. There was a similarly high failure rate at the beginning and end of both the inpatient and the outpatient programmes. Of the 30 subjects who failed in both programmes, 21 (70%) did so in the first and last quarters of the withdrawal periods. It has been shown elsewhere that anxiety plays a large part in the addict's response to opiate withdrawal,[5] and fear of withdrawal symptoms or fear about being free of drugs may have produced the result observed in this study.

The effect of patient preference for either inpatient or outpatient withdrawal was not significant. The complete failure of the randomised outpatient group suggests, however, that inpatient options should be preferred (if available) unless the addict has strong preferences for outpatient withdrawal.

These results show that opiate addicts can be withdrawn with a satisfactory level of success on an inpatient basis. It is not clear, however, what the wider implications are for outpatient withdrawal schemes. One study, for instance, suggested that a 24% abstinence rate for outpatient withdrawal might be regarded as acceptable.[6] Also, the present results should not be overgeneralised as representative of all outpatient schemes. In this study the outpatient programme was non-intensive and clinic based. Other schemes that offer a more intensive package or include community support might well produce a higher success rate. In view of the drastic shortage of inpatient beds for opiate addicts in Britain and because the financial costs of outpatient withdrawal are much lower than those of inpatient withdrawal, the possibilities of improving outpatient options deserve further exploration.

We thank Dr P H Connell, director of the drug dependence clinical research and treatment unit, for allowing his facilities to be used for this study.

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SHORT REPORTS

Effect of dietary supplementation with fish oil on systolic blood pressure in mild essential hypertension

MaxEPA is an oil derivative of marine fish rich in ω3 polyunsaturated fatty acids eicosapentaenoic acid (20:5ω3) and docosahexaenoic acid (22:6ω3), which significantly reduce systolic blood pressure in both normal volunteers[1,2] and patients undergoing haemodialysis.[3] No data exist on the effect of dietary supplementation with fish oil in patients with hypertension.

Patients, methods, and results

Eight men and eight women aged 45-74 (mean 54·8) years in whom the supine diastolic pressure was 90-110 mm Hg and systolic pressure below 200 mm Hg after a two month run in period without treatment were randomly assigned to double blind treatment with MaxEPA 16·5 g/day or indistinguishable placebo capsules. Patients crossed over to the alternative treatment after six weeks. Resting blood pressure (diastolic pressure taken as Korotkoff phase V) was recorded by the same observer on each occasion. Blood was taken for measurement of fibrinogen concentration, factor VIII related antigen, platelet count, mean platelet volume, and platelet aggregation induced by 0·8 nmol, 2 nmol, and 5 nmol adenosine diphosphate and 0·19 mg collagen/ml after the initial run in period and at the end of each six week treatment period.

One 60 year old man was withdrawn while receiving placebo, before receiving MaxEPA, as his systolic blood pressure had risen above 200 mm Hg. He was excluded from the statistical analysis, which was performed using the paired Student's *t* test.

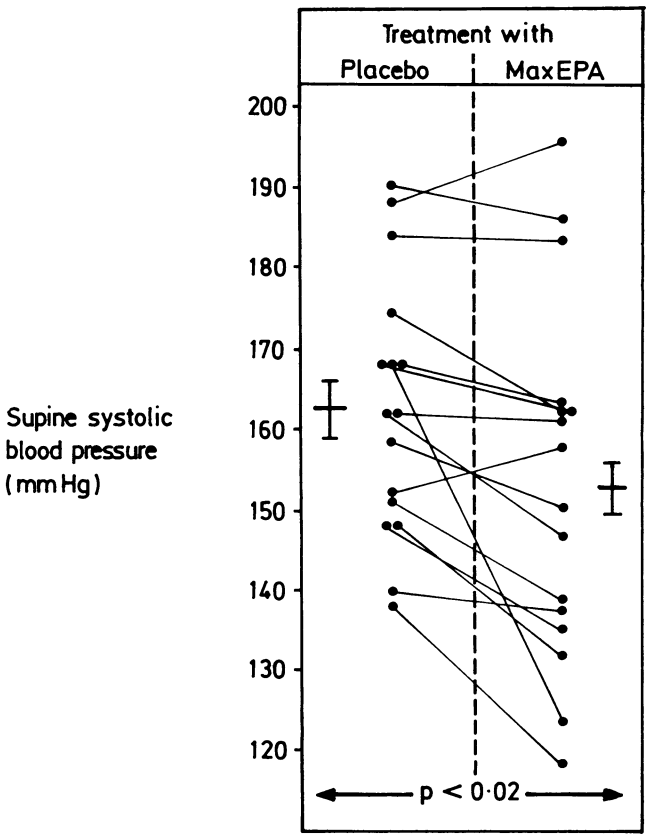
The mean blood pressure before randomisation was 160/94 mm Hg. Mean blood pressure after six weeks' placebo treatment was 161/94·5 mm Hg and after six weeks' treatment with MaxEPA 151/92·5 mm Hg. Lying systolic pressure was lower after treatment with MaxEPA than after treatment with placebo by a mean 5·84% ($p<0{\cdot}02$) (figure), and standing systolic was a mean 5·66% lower after MaxEPA ($p<0{\cdot}05$). The lower mean diastolic pressure observed after treatment with MaxEPA did not reach significance. There was no significant difference in systolic or diastolic pressures after the wash out period and placebo treatment

when the patients who received MaxEPA first and those who received it second were considered separately.

No significant changes were recorded in weight, platelet count, mean platelet volume, platelet aggregation, factor VIII related antigen, or fibrinogen concentration. Thirteen patients reported MaxEPA to be as acceptable as, or more acceptable than, their previous antihypertensive treatment.

Comment

Systolic blood pressure in patients with mild essential hypertension was significantly reduced after supplementation of the normal Western diet, which is rich in ω6 fatty acids, with fish oil containing predominantly ω3 polyunsaturated fatty acids. The mechanism of the antihypertensive action of fish oil is unclear. Hypotensive effects of fish oil in normotensive subjects are not associated with any change in plasma renin concentration or sodium balance[1] and may be due to an effect on platelet prostaglandin metabolism.



Individual changes in supine systolic blood pressure between sixth week of placebo and sixth week of MaxEPA treatment. Bars represent means and SEM.

Eicosapentaenoic acid competes with arachidonic acid as a substrate for platelet cyclo-oxygenase, shifting the balance from thromboxane A_2 to thromboxane A_3, which causes less vascular constriction and platelet aggregation and increases endothelial production of prostaglandin I_3, a more potent vasodilator than prostaglandin I_2.[4]

Despite the reported prolongation of the bleeding time after dietary supplementation with fish oil, in vitro tests of platelet aggregation have not consistently shown reduced platelet aggregability.[5] We found no significant difference in platelet aggregation induced by low doses of collagen and varying concentrations of adenosine diphosphate after treatment with fish oil and placebo, but we did not assess aggregation to ristocetin, which may reflect factor VIII mediated platelet adhesion to endothelium, which the capillary bleeding time measures in vitro.

Most patients found treatment with fish oil preferable to their previous antihypertensive treatment. Although there is increasing evidence that treatment of mild hypertension reduces mortality from cerebral, coronary, and renal disease doctors and patients are commonly reluctant to embark on long term treatment with "drugs." We believe that dietary supplementation with fish oil may provide a safe, more acceptable, and natural treatment for patients with mild essential systolic hypertension.

We are grateful to Seven Seas Health Care Ltd, Hull, for providing the capsules.

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Are swelling and aching of the legs reduced by operation on varicose veins?

Varicose veins were recognised as early as 400 BC, and an association with swollen legs was noted in the thirteenth century.

Many patients with varicose veins complain of swollen and aching legs, particularly towards the end of the day. Some surgeons, however, consider primary uncomplicated varicose veins to be solely a cosmetic disability and label such patients as neurotic, or at best put their names on long waiting lists. Our aim was to measure the amount of swelling in the legs of patients with varicose veins and to determine whether swelling was reduced by successful operation on the varicosities.

Patients, methods, and results

Nine men and 17 women (mean age 49, range 27-81) with uncomplicated varicosities of tributaries of the long saphenous system were studied. Patients graded the severity of their leg aching on a linear analogue scale. Both legs were studied, and the leg without varicose veins, if normal, was taken as a control.

Leg volume was measured by water displacement in a tank of water at 19°C with a side spout 70 cm from the base. A large pneumatic cuff was placed round the upper thigh and the leg slowly lowered into the tank. The volume of water then displaced we called the basal leg volume. The pneumatic cuff was then rapidly inflated to 70 mm Hg pressure by a Medimatic plethysmograph, and the additional volume of water displaced (the venous reserve capacity) was noted. All

Difference between volume of varicose and control legs before operation and change in volume of varicose leg after operation

Case No	Varicose leg volume − control leg volume before operation (ml)	Change in varicose leg volume after operation (ml)
1	40	−185
2	135	−30
3	160	−125
4	85	−135
5	120	−155
6	240	−175
7	10	−55
8	−10	−5
9	−55	15
10	220	−120
11	160	−85
12	80	−295
13	−55	−110
14	120	−110
15	−10	−25
16	330	−185
17	195	−100
18	170	−165
19	−165	−135
20	175	0
21	360	−55
22	220	−115
23	80	−25
24	45	−175
25	190	−145
26	240	−95
Mean	118·5	−107