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Disulfiram Implant: A Controlled Trial

By C. R. WHYTE and P. M. J. O'BRIEN

Introduction

Hald and Jacobsen (1948) introduced disulfiram as an adjunct in the treatment of alcoholism. Its usefulness has, however, been limited by the ease with which patients may discontinue medication and resume drinking. A preparation of disulfiram suitable for implantation was developed some years ago, and though its use has been mainly confined to the continent of Europe, several case reports have been published in this country (Kellam *et al.*, 1968; Kellam, 1969). Madden and Malcolm (1972) suggest, from a follow-up study of 47 alcoholics, that implantation is followed by a period of sobriety of about six months, but they have made no comparison with a control group of patients.

The present study compares the outcome following implantation with that in a similar group of alcoholics treated without the implant.

Method

All male alcoholics admitted to the Alcoholic Unit at Scalebor Park Hospital over a period of eight months were included in the study. On admission, withdrawal symptoms were controlled by a five-day course of high potency Parentrovite, with chlordiazepoxide 20 mgm. t.d.s., phenobarbitone 30 mgm. t.d.s. and phenytoin 100 mgm. t.d.s. The average length of stay in hospital was six weeks, during which time each patient participated in daily group therapy sessions as outlined by Glatt (1958), and received appropriate individual help with his personal and social difficulties.

Of the 45 patients, 22 were treated with a disulfiram implant. Prior to operation, disulfiram 200 mgm. daily was administered orally for two weeks, and close observation was maintained for the development of toxic side-effects. In no case was it considered necessary to withhold implantation because of persistent side-effects.

Implantation technique

The operation was performed, by a general surgeon, under local anaesthesia. A short incision of 10 to 15 mm. was made in the left iliac fossa, deep enough to reach the subcutaneous tissue. The preparation of disulfiram used for implantation was Esperal 1·0 gram in the form of eight compressed tablets. The tablets were implanted through a specially designed trochar and cannula through four radial injections 10 cm. away from the incision site. The wound was then sutured and a sterile dressing was applied.

Four to six days after the operation, all 22 patients had developed a mild sterile inflammatory reaction at the site of the implantation. The inflammatory nodules were firm and not tender. Two patients experienced mild discomfort after the tenth day, lasting for two to three weeks. The remainder of the implant group were free of any local symptoms, although the chemical inflammatory nodules remained for a period of three to six months. No signs of rejection of implant were noticed.

Statistics of patients

In the implant group were 22 male alcoholics of mean age 40·6 years. They had on average been heavy drinkers for 11·0 years, during which time their longest period of abstinence had been 1·7 months. In the control group were 23 male alcoholics whose average age was 45·4 years. These had been drinking heavily for 10·8 years and had a longest period of abstinence of 1·9 months. These differences are not statistically significant. The two groups were also matched with regard to social class (see Table I) and marital status (see Table II). Five patients in the implant group and four in the control had a family history of alcoholism. Both groups had an average of 3·5 previous admissions to hospital for the treatment of alcoholism.

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Follow-up at out-patient clinics or by home visits and reunion meetings was possible in all but two cases.

TABLE I

Distribution of patients according to socio-economic class

Socio-economic class	Number of patients	
	Implant group	Control group
I	0	0
II	1	0
III	6	8
IV	7	8
V	8	7

TABLE II

Distribution of patients according to marital status

Marital status	Number of patients	
	Implant group	Control group
Married	13	14
Single	5	4
Divorced or separated ..	4	5

RESULTS

The average time from discharge to first drink for the implant group was 5·4 months, and for the control group 1·9 months; this difference between the two groups is highly significant ($P < 0.001$). Further, patients in the implant group, but not the control patients, achieved significantly longer periods of abstinence after implantation than they had had with previous methods of treatment ($P < 0.001$).

DISCUSSION

It has been shown that with the help of a disulfiram implant, patients achieve longer periods of abstinence than matched controls having otherwise similar treatment.

It could be argued that the difference found was a reflection of better motivation on the part of the implant group. Motivation is, however, hard to measure. Aharan *et al.* (1967) assessed the motivation of a group of alcoholics, but found no relationship between his measures and the outcome of treatment. Patients were divided into three groups: Group I patients were willing to, and did receive, disulfiram. Group II were willing to take the drug, but were not given it. Group III were unwilling. On follow-up there was no difference in outcome between the three groups.

It has been shown both by the present investigation and by Malcolm and Madden (1973) that implantation is followed by a period of abstinence which is significantly longer than that following previous treatments. If the difference between the two groups is due to better motivation, it can be argued that this was stimulated by implantation.

CONCLUSIONS

Disulfiram implantation is followed by longer periods of abstinence than similar treatment without implantation. However, it is emphasized that implantation is intended to supplement other aspects of treatment, such as group therapy, appropriate individual help and adequate after care, not to replace such treatments. Use must be made of the increased period of abstinence to develop ways of coping which do not include alcohol.

SUMMARY

The treatment of 22 male alcoholics was supplemented by disulfiram implantation, and the outcome was compared with that of 23 matched controls. Implantation was followed by a period of sobriety of 5·4 months, which was significantly longer than that achieved by the same patients on previous occasions and by the control group.

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C. R. Whyte, M.B., Ch.B., D.P.M., *Senior Registrar, Lynfield Mount Hospital, Bradford 9, Yorkshire*

P. M. J. O'Brien, M.B., B.S., M.R.C.P., M.R.C.Psych., *Consultant Psychiatrist, Scalebor Park Hospital, Burley-in-Wharfedale, Yorkshire*

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