Dialysance of Molecules of Different Size

SIR,—We read with interest the paper of Dr. P. Kramer and others (6 May, p. 320) and while we agree that the decrease in efficiency with re-use may be the result of "blood deposits on the membrane surface inhibiting exchange," we feel there are two points which must be made.

Firstly, the authors say that of the dialysers studied, the Ab-Gambro dialyser had the greatest blood loss due to "blood pooling and clotting on the surface of the membrane" and yet they found the mean blood loss in this dialyser to be only 6.86 ml. This was compared with blood losses of 3.65 ml and 3.48 ml for the Rhône-Poulenc and the Kiil dialysers respectively. Surely an increase of blood loss by some 3 ml cannot interfere with dialyser performance? We feel that this discrepancy is explained by the fact that Dr. Kramer and his colleagues measured the blood losses by the technique of haemoglobinometry on a saline "wash-through" (although they do not give any details of their methodology). This technique is subject to considerable inaccuracies,¹ and, furthermore, it will underestimate blood loss should blood be retained on the membrane surface as adherent thrombus. We have studied in detail these and other dialysers, and have found that thrombus formation takes place upon the membranes of the Ab-Gambro dialyser in spite of adequate heparinization. This, in turn, will cause a high blood loss; using an accurate technique, involving ⁵¹Cr labelled red blood cells, we have found this to be 36 ml $\pm$ 4 (M $\pm$ S.D.) (unpublished data).

The second point to be made is that the Ab-Gambro dialyser in question was the Gambro-Alwall which we have found to have characteristics which encourage the in vivo formation of thrombus (unpublished data). We are currently engaged in assessing the new Gambro-Lundia dialyser, and can report that this does not have such characteristics and its use is associated with a very low blood loss (4.0 $\pm$ 1.7 ml). It is unlikely, therefore, that blood deposits will affect the efficiency of this dialyser.—We are, etc.,

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¹ Will, G., Lawson, D. H., King, P., Boddy, K., and Linton, A. L., *Nephron*, 1970, 7, 331.

Neuritis and Ultrafiltration Dialysis

SIR,—We would like to comment on certain features of the interesting paper by Dr. A. Meyrier and colleagues (29 April, p. 252). They suggest that high rates of ultrafiltration might have been responsible for the neuropathic defects observed. It may be relevant that we have been repeatedly subjecting six patients on maintenance haemodialysis to high rates of ultrafiltration for the past seven months, and at no time have we seen neuropathic effects such as described. Moreover, five patients were recently subjected to intensive progressive weight reduction using Travenol Ultra-flo 145 coils, such that mean pre-dialysis (and post-dialysis) weights were finally reduced by a total of between 4 and 6 kg during two weeks. Again no symptoms of neuropathy

were seen. Nerve conduction velocities, measured in the common peroneal nerve one month later, varied in these patients between 33.3 and 39.9 m/sec, results which were unchanged or improved, compared with previous measured velocities.

The lack of acute neuropathic involvement could arguably be related to the fact that our patients are all dialysed against a low magnesium¹—high sodium dialysate (magnesium—<0.2 mEq/l. derived from the non-deionized tap water; sodium—145 mEq/l). Unfortunately, Dr. Meyrier and colleagues do not mention the concentrations of these ions in their dialysis fluid, but we would surmise that the sodium concentration in their dialysate was nearer the customary 130 mEq/l. The incidence of cramps (which they mention in connexion with Case 3) is considerably greater using dialysis fluid of 132 mEq/l. of sodium, compared with 145 mEq/l.² Admittedly our five patients, although they showed no comparable neuropathic upset, all had some cramps during the two weeks of progressive weight reduction, despite the high sodium concentration of the dialysate used.

We would suggest that the neuropathy of the patients described by Dr. Meyrier and colleagues is not attributable solely to vasoconstriction or the accompanying plasma volume change. The neuropathy may possibly be a consequence of the cationic composition of their particular dialysis fluid. The cellular "overhydration" which probably accompanies dialysis with low sodium concentrations, as shown experimentally by Pappius and colleagues,³ could be a contributory factor. Cellular overhydration is virtually absent during high sodium strength dialysis.

Dr. Meyrier and colleagues do not mention how many of their patients, subjected to similar rates of ultrafiltration, have not developed neuropathy. The possible occurrence of some unrecognized transient or intercurrent process in the patients described cannot be ruled out. For example, it has been recently shown (12 February, p. 409) that infective hepatitis occurring in patients on maintenance haemodialysis can cause a temporary reduction in nerve conduction velocities.—We are, etc.,

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- 1 Stewart, W. K., and Fleming, L. W., *Lancet*, 1969, 2, 1190.
- 2 Stewart, W. K., Fleming, L. W., and Manuel, M. A., *Lancet*, 1972, 1, 1049.
- 3 Pappius, H. M., Oh, J. H., and Dosseter, J. B., *Canadian Journal of Physiology and Pharmacology*, 1967, 45, 129.

Controlled Drinking for Alcoholism

SIR,—Until recently, total abstinence was the unquestioned aim of all types of therapy for alcoholism. Abstinence may well be a reasonable aim for numerous alcoholics and for a variety of treatment approaches. However, if the goal of abstinence is replaced by that of achieving a pattern of moderate, controlled drinking, then we may be able to provide valuable assistance to many alcoholics whose prospects of achieving total abstinence for prolonged periods is precisely nil. A return to controlled drinking is a more realistic form of behaviour than abstinence in our

alcoholic society in which most of the adult population drink with regularity. If our goal is controlled drinking an occasional bout of excessive drinking need no longer be conceived of as a self-evident failure or "relapse" but rather as a temporary loss of control. Consequently, the despair and humiliation presently engendered by repeated "relapses" may be attenuated.

In part, consideration of these possibilities arose from clinical observations of Davies¹ and others that some alcoholics are capable of returning to a life of controlled drinking, constructive activity, and satisfaction. Some of these possibilities are being explored by research groups in Baltimore and elsewhere and their early findings are of considerable interest.^{2,3}

At present, disulfiram is used to induce severe reactions as soon as a single alcoholic drink is ingested. The aim is to ensure total abstinence. However, if we wish to achieve moderate drinking instead, then disulfiram could be replaced by a drug which begins to act only when a certain (moderate) blood alcohol level is reached. This critical level can be varied according to the needs and reactions of individual patients by varying the amount and breakdown rate of the nausea-inducing drug. Moreover, the nausea (or other distasteful or discomforting reactions) should ideally increase with increments in blood-alcohol level instead of reaching their climax when the critical level is reached. In this way the patient will receive continuous and increasing feedback signals of discomfort or distress if he persists in drinking once the critical level is reached.

The first requirement of the present proposal is the development of a suitable drug. Once we have a safe and reliable drug, which can produce steadily increasing degrees of nausea or distress once activated by a predetermined blood-alcohol level, its efficacy will need to be assessed on a group of patients with damaging and unyielding patterns of excessive drinking. A drug with the properties described may also find minor uses in helping to control the drinking of moderate drinkers who have to remain sober for driving or other purposes.—I am, etc.,

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- 1 Davies, D. L., *Quarterly Journal of Studies on Alcoholism*, 1962, 23, 94.
- 2 Cohen, M., Liebson, I., and Faillace, L., *Behaviour Research and Therapy*, 1971, 9, 375.
- 3 Mills, K., Sobell, M., and Schaeffer, H., *Behaviour Therapy*, 1971, 2, 18.

The Electronic Pencil

SIR,—A survey of the advertisements in the weekend papers will show that there are current additions to the existing British market of pencil-like devices for the removal of superfluous hair, particularly from the face. It seems standard practice to advertise these as being "safe, easy, and permanent" though in no instance does it seem that these claims be substantiated and one wonders if the Trade Descriptions Act is not being routinely breached.

With these battery-operated gadgets the purchaser is advised, without demonstration, to insert a tiny needle deep into any offending pilo-sebaceous follicle and for ten painful seconds to apply this direct galvanic current