Correspondence

A previously well 55-year-old woman and her husband developed an influenza-like illness several days prior to admission. The wife had become confused on the day of admission (19 December 1969) and on arrival was stuporous, hypotensive (rectal temperature 90°F (32.2°C)), severely dehydrated, and overbreathing. Fetalural pulse rate was 130/min. and brachial arterial blood pressure was 50/30 mm Hg. Transthoracic auscultation revealed a coarse crackle, and her lungs were heard on auscultation of the chest. Bowel sounds were absent. An immediate E.C.G. showed ventricular tachycardia and, because of this, the patient was given 1000 ml. of 5% dextrose in saline over 50 minutes. The initial blood biochemistry results became available approximately 40 minutes after admission, and were: blood glucose 1500 mg./100 ml., serum potassium 1.6 mEq/l., serum bicarbonate 10.5 mEq./l., and blood ura 95 mg./100 ml. Sodium bicarbonate 300 mEq and potassium supplements were therefore added to the intravenous fluids. Four litres of fluid, including 50 mEq of potassium chloride, were given over the next three hours, by which time the E.C.G. monitor was showing sinus rhythm with T wave flattening throughout all leads. Serum potassium was then 1.6 mEq/l. and 1.7 mEq/l., respectively, and systolic blood pressure was 60 mm Hg. At the end of these two hours of treatment with a total of 10 litres of fluid, including 150 mEq of potassium chloride, the serum potassium was 2.9 mEq/l. Bowel sounds had returned and systolic blood pressure was 120 mm Hg. Despite a period of oliguria in the first 24 hours during which the blood urea rose to 200 mg./100 ml., renal function returned to normal and she eventually made an uneventful recovery. She was discharged home on 9 January 1970 on 28 units of Lente insulin daily.

At no time had any treatment follow-up her insulin requirements gradually fell over the next four weeks, and on 12 February 1970 insulin was stopped and chlorpropamide 250 mg./day commenced. In the next month she gained a stone (6.3 kg.) in weight and the chlorpropamide was reduced to 250 mg. on alternate days. On 16 April 1970, since she had regained her former weight and there was no indication of chlorpropamide toxicity, it was stopped. She has remained well since with no glycosuria. A blood sugar recorded recently two hours after lunch was 97 mg./100 ml.

A new case of diabetes is unusual because of both the initial severe hypokalaemia, associated with a bizarre electrocardiogram, and the eventual complete withdrawal of insulin and then chlorpropamide within a period of two months (5 September, p. 539). In the Birmingham General Hospital series hypokalaemia was given as a cause of death in three cases. As a result earlier addition of potassium chloride to the intravenous infusion was suggested. That this was done in the case reported here may well explain the successful outcome.

I would like to thank Dr. A. E. Tanser for permission to report this case.

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Sir,—Dr. P. J. Watkins and his colleagues (10 October, p. 89) emphasize the grave dangers of the uncommon initial hypokalaemia in patients with diabetic ketoacidosis and advocate admission of such a patient with ketoacidosis over the last seven years, four (11%) had initial (that is, pre-treatment) serum potasiums of less than 3.4 mEq/l. Two of these patients died within an hour of admission, further five mEq/l. and 5.0 mEq/l. Three of this group died. In all five of these fatal cases patients had an initial value between 3.6 the cause of death could reasonably be attributed to the effect of hypokalaemia on the heart.

Recently, a 62-year-old man with bronchopneumonia was admitted to this unit. Previously unknown to be a diabetic patient was found to have a blood sugar of 675 mg./100 ml. The plasma sodium was 113 mEq/l., plasma chloride 84 mEq/l., plasma potassium 3.4 mEq/l. pH 7.3, and NaCl deficit 9 mEq/l., standard bicarbonate 17.5 mEq/l. Lysis was absent. Intravenous potassium chloride was given immediately. He received 40 mEq in the first two hours in a total volume of 4 litres of fluid, and 28 units of dextrose in saline). Sodium bicarbonate was not given and he received 150 units of soluble insulin. Two and a half hours after treatment commenced he had a fatal cardiac arrest. The serum potasium estimated half an hour before death was down to 2.5 mEq/l. It was probably even lower when the arrest occurred and may well have been the cause.

Clearly in these situations very large amounts of intravenous potassium may be needed to maintain the serum potassium at safe levels. When dealing with diabetic hyperglycaemic emergencies the serum potassium should be estimated as rapidly as possible (an efficient laboratory should be able to provide the result well within half an hour). If this is below 5.0 mEq/l., intravenous potasium supplements should be given immediately and in large amounts. At least 40 mEq/l. of infused fluid would appear to be indicated by the experience of Kunin and his colleagues.1 A good deal longer (3 hours) would be required. Frequent serum potassiums should be estimated (half-hourly) and therapy adjusted accordingly. Too rapid correction of acidosis with bicarbonate should be avoided. It is worth considering that continuous electrocardiographic monitoring with readily available cardiac resuscitation equipment may be of vital importance while hypokalaemia is present.2

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REFERENCES


Combined Triiodothyronine and Thryoxine

Sir,—The results of the trial of combined triiodothyronine and thyroxine (17 October, p. 145) are not unexpected, but they do not necessarily support the conclusions of the authors.

Hypothyroid patients were changed from their maintenance treatment with thyroxine to a combined treatment regimen of thyroxine and triiodothyronine which had a metabolic effect of producing less than their maintenance treatment (from 0.1 mg. of L-thyroxine to 0.08 mg. L-thyroxine and 0.02 l-triiodothyronine—the latter having metabolic activity about three times greater and thus producing total equivalent activity of 0.08 + 3 x 0.02 = 0.14 mg. L-thyroxine). Not unnaturally the patients had symptoms with this increased dose, such as palpitations, nervousness, tremor, and perspiration.

This clinical trial affords no information with regard to the comparable effects of thyroxine and the combined preparation when used in equivalent dosage. The authors state that the dosage of combined preparation selected by them made unavoidable this discrepancy of dosage. This problem could have been avoided by using 50/15 thyroxine/triiodothyronine ratio used by Mr. Selwyn Taylor and colleagues (2 May, p. 270).

Finally, since this study is a controlled clinical trial, is there any statistical significance to the patients' preference? (42 no preference, 16 combined treatment, 29 thyroxine)—I am, etc.,

J. A. WEAVER.
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Computer-held Clinical Record System

Sir,—Mr. L. J. Opit and Dr. F. J. Woodroffe (10 October, pp. 76 and 82) are refreshingly honest in admitting the system's serious shortcomings. However, the very nature of these problems, at least to me, is that the careful and detailed planning of the software was not supported by adequate general operational research. The degree of customer resistance could have been forestalled, and simply serves to confirm the truism that for busy doctors time is always short and simplicity of information-handling of paramount importance.

By stating that "we believe that the experience at King's College Hospital can show that deliberate instruction in medical recording to medical students might well be a necessary prerequisite to the successful installation of a computer..." the authors seem to be in danger of making the cardinal error of trying to adapt the operator and his methods to the machine instead of vice versa. What really matters is that these are taught to the machine, i.e., in a "good" in the sense of their resulting in benefit to the patients concerned.

The last sentence of the second paper remarks "...a determined effort must be made to understand the structure and purpose of clinical records, and it may well be that this is the right starting-point for a project to store the clinical record on a computer. This really does stifle me; firstly because the project described seems an unduly expensive and circuitous means of drawing such an obvious and basic conclusion, and secondly because such a determined effort has already been made."—I am, etc.,

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REFERENCES


Intal-Co

Sir,—Why do the manufacturers of Intal (disodium cromoglycate) persist in also manufacturing Intal-Co, the mixture of the