Letters to the Editor

URASTRAT

The urea nitrogen assay strips, Urastrat, marketed by Warner Chilcott, are a valuable time saver in a busy pathology laboratory. However, I would like to bring laboratory workers' attention to three serious discrepancies encountered using the Urastrat system when estimating urea nitrogen in patients suffering from multiple myeloma. In each case the urea estimated by a urease phenol hypochloride method was in excess of 200 mg/100 ml. The Urastrat method in each case gave urea values of less than 60 mg/100 ml. These three results are of interest and concern, for it may well be that any condition appreciably altering the serum protein content or the serum viscosity could also give incorrect results.

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MECHANICAL ROTARY DEVICE FOR PLATING OUT

I have read with great interest the paper by Williams and Bambury (1968) in which they describe a mechanical rotary device for plating out bacteria on solid medium.

A similar device, using a modified 78 rpm portable gramophone to rotate the Petri dish, was developed in 1945 by the late Dr T. Richards, then Reader in Agricultural Bacteriology, at the University of Reading.

I think that no account of the machine was published and it is interesting to note that 23 years have elapsed before another application of this same principle has been proposed.

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REFERENCE

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FASTING VERSUS POSTPRANDIAL PLASMA ZINC LEVELS

Plasma zinc levels have been used clinically to assess the nutritional status of zinc in human subjects. There is conflicting evidence as to whether fasting plasma samples are a more reliable indicator than postprandial samples. If there is a significant difference between fasting and fed plasma zinc levels, this would influence the time at which blood should be drawn in order to give a reliable indication of zinc nutriture.

Davies, Musa, and Dormandy, as reported in this Journal (May, 1968), state that fasting plasma zinc levels give an approximately 12% higher normal mean than postprandial levels. However, previous work in our

laboratory (Halsted, Hackley, Rudzki, and Smith, 1968) indicates that age, sex, or meals do not influence the plasma zinc level. This discrepancy led us to the following experiment.

EXPERIMENT Ten adult subjects (three males and seven females) fasted for a period of 12 hours, after which 10 ml of venous blood was collected into disposable plastic tubes. The subjects were given a breakfast containing approximately one-third of the day's recommended dietary allowances. The meal contained 3.92 mg of zinc as analysed by means of atomic absorption spectrophotometry. This is in agreement with one-third of the suggested daily dietary intake of 10 to 15 mg claimed by McCance and Widdowson (1942). Exactly one hour after ingesting the meal, another 10 ml of venous blood was drawn from each subject. Plasma zinc levels were determined in all samples by the atomic absorption spectrophotometric method of Hackley, Smith, and Halsted (1968).

There was no statistical difference between the fasting versus the postprandial plasma zinc levels. The mean and standard deviation were respectively $103 \pm 13.4 \mu\text{g}/100 \text{ ml}$ and $104 \pm 13.1 \mu\text{g}/100 \text{ ml}$. Red blood cell zinc levels were also determined and likewise there was no statistical difference. The fasting value was $10.1 \pm 1.2 \mu\text{g}/\text{ml}$ red cells and the postprandial value $10.1 \pm 1.0 \mu\text{g}/\text{ml}$ red cells.

Davies *et al* (1968) found that in three normal fasting subjects, who consumed 50 g glucose in 100 ml of zinc-free water, the plasma zinc levels began to fall within 10 minutes, reaching a lower limit in 60 minutes. Feeding glucose alone, because it is metabolized rapidly, probably induces a small metabolic stress which might explain the decrease in plasma zinc which they found. If a normal meal tended to lower plasma zinc level, by the same mechanism, this could be compensated by the zinc content of the meal. Moreover, a meal consisting of fat, protein, and complex, as well as simple, sugars, is metabolized at a much slower rate and would not inflict as great a metabolic stress on the individual.

The data obtained in this study support our previous finding that the plasma zinc concentration in a fasting state and one hour after a meal are not significantly different. Therefore, we believe that blood for zinc determinations need not be drawn in a fasting state.

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