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CORRESPONDENCE

Correspondents are urged to write briefly so that readers may be offered as wide a selection of letters as possible. So many are being received that the omission of some is inevitable. Letters should be signed personally by all their authors.

Heat prostration in children with cystic fibrosis

SIR,—Standard paediatric textbooks note that children with cystic fibrosis are liable to heat prostration. This complication, due to the excessive transcutaneous loss of sodium, has hitherto not been recognised as a real problem in the United Kingdom. We wish to report three cases of hyponatraemic dehydration in children with cystic fibrosis admitted to this hospital in late June and early July this year. The environmental temperature locally has been unusually raised to 10°C above the June-July mean of 1974-5.

Case 1—Male aged 6 years. Presented with a 24-hour history of excessive sweating, anorexia, and weight loss. He had been reluctant to drink. He was severely dehydrated and hypotensive. Plasma urea 10·8 mmol/l (65 mg/100 ml), plasma sodium 129 mmol(mEq)/l, and plasma chloride 82 mmol(mEq)/l. He responded dramatically to intravenous rehydration.

Case 2—Male aged 2½ years. There had been profuse sweating and pyrexia for three days before admission. He had not eaten during this time but had been drinking water well. He was severely dehydrated. Plasma urea was 9·6 mmol/l (58 mg/100 ml) and plasma sodium 124 mmol(mEq)/l. There was a good response to intravenous rehydration.

Case 3—Female aged 2 years. There was a 48-hour history of refusal to drink and increasing drowsiness. She had vomited several times. She was severely dehydrated. Plasma urea 11·2 mmol/l (67 mg/100 ml) and plasma sodium 125 mmol (mEq)/l. In spite of vigorous rehydration she remained oliguric for approximately 48 hours, but thereafter made a satisfactory recovery.

These three children with cystic fibrosis clearly illustrate the danger of the present unusual climatic conditions. The necessity of salt supplementation in these environmental circumstances should be emphasised to all concerned and, above all, to parents. The danger of the administration of salt-free glucose solutions also should be borne in mind.

In the past the case has been argued for a safe electrolyte solution that would be commercially available.[1] In the absence of such a readily available form of electrolyte-glucose solution parents will need explicit instructions on how the salt supplement should be administered.

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[1] *British Medical Journal*, 1971, **1**, 125.

Cardiac muscle relaxation in hypothyroidism

SIR,—Dr J J Manns and his colleagues state confidently in their recent paper (5 June, p 1366) that combined apex cardiography and phonocardiography can reliably measure the isovolumic relaxation time (IRT) of the left ventricle, based on the assumption that the O point coincides with mitral valve opening. For a long time this assumption has been considered to be dubious if not misleading. In 1965 Tavel *et al*[1] found that the O point occurred as early as 0 ms to as late as 52 ms after the left ventricular pressure and left atrial pressure crossover point and concluded that the O point "is not simply an expression of mitral valve opening." More recently, in a combined echocardiographic and apexcardiographic study, Prewitt *et al*[2] found that mitral valve opening, measured as the time of separation of the two cusps, preceded the O point in all but three of the 57 patients studied (mean interval 50±28 ms) and that the time of maximum separation of the mitral leaflets also preceded the O point (mean interval 14±26 ms). The O point corresponded more closely to the peak rate of outward wall movement. Dr Manns and his colleagues were, therefore, not measuring an isovolumic relaxation period, although their results do reflect an abnormal relaxation process.

In addition, the effect of ischaemic heart disease cannot be dismissed so lightly. Rubinstein *et al*[3] in 1973 found that the IRT measured by combined echocardiography and phonocardiography was significantly prolonged in patients with ischaemic heart disease. It is unclear how much coincidental ischaemic heart disease was contributing to the results found by Dr Manns and his colleagues.

Finally, it is surprising that there was no