glucose or galactose. Sucrose challenge led to profuse diarrhoea with identifiable sucrose in the stool thus confirming the diagnosis.

All four foods given before the fructose-based formula contained large amounts of maltose or malto-dextrins which need maltase for complete digestion; there was no sucrose in them and none was added at any stage. Ostermilk complete formula contains more maltose than lactose and presumably the lactose was swept through the bowel with the osmotic diarrhoea caused by maltose. Since then we have tested Maxiul 10 g/100 ml in water using several methods considered to be specific for glucose. The Beckman glucose analyser (glucose oxidase), gave a glucose concentration of 310 mmol/l. The other three glucose analysers (Instrumentation Laboratories IL 919: glucose oxidase, Yellow Springs Instruments 23 AM: glucose oxidase, and Union Carbide Centrifichem 400: hexokinase) gave glucose concentrations of 6-5, 6-6, and 6-6 mmol/l respectively.

Chromatography has shown that Maxiul contains free glucose, maltose, and maltotriose in addition to other glucose polymers. The high faecal glucose level with the Beckman analyser was not the result of crossreaction with maltose, as maltose at a concentration of 10 mmol/l gave very low glucose readings with all four analysers. We think that free glucose in Maxiul is greatly overestimated if the Beckman analyser is used; this problem would not arise with blood glucose which the instrument is designed to measure.

Maltose or malto-dextrins of higher molecular weight needing maltase for complete digestion are present in many specialised infant foods, and small quantities of maltose identified chromatographically in stools may be significant.

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Circadian patterns of plasma steroids in congenital adrenal hyperplasia

Sir,

The data reported by Frisch et al.¹ are extremely interesting. It was known that the great sensitivity of plasma 17-hydroxyprogesterone (17-OHP) concentrations to circadian rhythms, and the effect of divided glucocorticoid doses make it difficult to interpret single plasma values when monitoring treatment.² ³ It was also known that there is a close correlation between simultaneous plasma determinations of 17-OHP and testosterone in treated and untreated patients with congenital adrenal hyperplasia (CAH), except in pubertal males.⁴ Frisch et al.¹ did not analyse their results in this way. Certainly Cases 3, 8, 9, and 10 showed obvious parallel changes in plasma 17-OHP and testosterone concentrations after various types of treatment. If strict attention is paid to sampling in relation to the time of day and time of previous glucocorticoid dose, serial measurements of plasma 17-OHP and testosterone are a useful index of control. Such data collected longitudinally over a 3-year period in 19 treated CAH patients showed a good correlation (r = 0.79) between plasma 17-OHP and testosterone concentrations (personal observation).

Frisch et al.¹ did not say what biochemical measurements they would recommend as reliable and practical indexes of therapeutic control in CAH. It is important to remember that any therapeutic decision in CAH patients should be taken in the context of clinical parameters of control (growth, skeletal age, signs of puberty or hypercortisolism, regularity of menses, etc.) and levels of plasma renin activity as an index of mineralocorticoid replacement, in addition to the results of plasma or urinary concentrations of adrenal precursor steroids.

References


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Dr Frisch comments:

In our cross-sectional study we merely described the pronounced fluctuations of 17-OHP, testosterone, and cortisol levels in CAH patients. It was not the aim of the study, nor was it possible, to draw conclusions about the usefulness of such measurements in the long-term therapeutic control, particularly as so far as we are aware, there is no agreement on the extent to which 17-OHP, testosterone, or even urinary pregnantriol should be suppressed in order to obtain optimal growth and development throughout childhood. We think that the finding of perfectly normal levels of these parameters indicates overdosage of corticoid treatment (Cases 2 and 6).