the babies responded to tetracosactrin even if their baseline concentrations of cortisol were low. By contrast three babies out of eight tested by Arnold et al with low baseline concentrations of cortisol did not respond appropriately at initial testing but had normal responses one month later. We would presume that babies with ongoing problems are less likely to respond normally and that in such infants baseline cortisol concentrations should be assessed at times of additional stress, at least for the month or so after cessation of dexamethasone. Babies without ongoing problems appear likely to have normal responses and baseline cortisol concentrations may be expected to be normal.

References


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Immunoreactive trypsin in Shwachman’s syndrome

Sir,

Dr Dossetor and colleagues report finding low serum immunoreactive trypsin in two children with Shwachman’s syndrome.1 Their observation, however, together with the suggestion that a low serum immunoreactive trypsin may obviate the need for invasive tests of pancreatic exocrine function, hardly seems novel. Low serum immunoreactive trypsinogen concentration has previously been described in Shwachman’s syndrome and low values are known to correlate with low output of trypsin in response to stimulation testing of the pancreas.2 3 As cystic fibrosis is the only cause of pancreatic insufficiency more common than Shwachman’s syndrome in young children and is associated with a raised serum immunoreactive trypsin, it is evident that a low serum concentration is likely to point to the diagnosis of Shwachman’s syndrome. Through screening large numbers of children the authors have shown that a low serum immunoreactive trypsin as a test for pancreatic exocrine insufficiency has a high specificity, but apart from this, isn’t this report more a case of reinventing the wheel?

Drs Dossetor and Heeley comment:
The initial title of our paper was ‘Immunoreactive trypsin in Shwachman’s syndrome in early infancy’, but this was shortened in revision for publication. Unfortunately this has resulted in Dr Puntis missing the point of our paper, which was to show the value of the immunoreactive trypsin test in the investigation of an infant with malabsorption. In the paper of Durie et al,2 the age of the patients is 2-25 to 18 years and in that of Moore et al,3 the mean age of the patients is 5-9 years (although in this paper there may have been one infant with Shwachman’s syndrome, but it is not made clear).

Also a serious flaw in these two publications lies in their control values. In the 1981 paper the mean immunoreactive trypsin in controls under 2 years is 7 μg/l and over 3 years 13 μg/l; but in the 1986 paper, the mean immunoreactive trypsin in controls has risen to 31-4 μg/l with no change in the methodology.3 In patients with pancreatic steatorrhea, a mean value of 4-9 μg/l is found, so that certainly the authors show low values in pancreatic disease. We, however, showed undetectable concentrations in two infants with Shwachman’s syndrome against a larger number of controls at different ages of infancy, establishing beyond doubt the diagnostic value of the test.

We feel the value of the test is insufficiently known to general paediatricians. With the spread of screening for cystic fibrosis, the immunoreactive trypsin test is now generally available. The diagnosis of significant pancreatic acinar deficiency is as easy as diagnosing iron deficiency with this test. We could, however, agree with Dr Puntis on one point, that in the investigation of an infant with malabsorption, the immunoreactive trypsin test ranks in importance with the discovery of the wheel.

The thermal environment in which 3-4 month old infants sleep at home

Sir,

Dr Wailoo and colleagues have provided valuable data in an area that has hitherto received little attention but may be of considerable clinical relevance.1 It would be helpful to have more information on two points. First, in calculating the total insulation of clothing and bedding did they make allowance for the proportion of the baby covered by each item? For example, a cardigan and a duvet

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will normally cover about \( \frac{1}{3} \) and \( \frac{4}{3} \) of the baby's surface area: if the tog values of the materials are 2 and 10 the contributions to total insulation will be about 0.7 and 8 tog respectively. If no such allowance was made their totals will be overestimates. Second, did they take into account babies' tendency to throw off bedding at night, which may considerably reduce their insulation?

As the authors suggest, comparison of a baby's insulation in bed at night (that is, clothing plus bedding) with insulation before he goes to bed (that is, clothing only) is not really meaningful because while awake and active his metabolic rate may be higher; a more valid comparison would be with insulation used for sleeping in the day.

Finally, it should be noted that the formula of Burton and Edholm that they quote relates to clothing in adults,\(^2\) and its applicability to the bedding and clothing of babies is uncertain.

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Drs Wailoo and Petersen comment:
We are grateful to Dr Bacon for giving us an opportunity to clarify aspects of our paper that we have considered more fully since it was submitted last year.

We are also concerned about the consequences of babies being unevenly and incompletely covered by clothing and wrapping, but allowance cannot be made in the way Dr Bacon suggests. 'Tog value' refers to the insulating effect (standardised to 1 m\(^2\)) of fabrics, not garments. A total tog can only be calculated if all fabrics cover the same area, and this reflects total thermal insulation on a body only if it is completely covered, and allowance made for its actual area. It is not accurate to treat a fabric covering part of a body as though it were one of lower insulation covering the whole. Areas of low thermal resistance will shunt heat around those that are higher, and where parts are uncovered the heat flow through them may dominate the total. A fabric of 20 tog over 10% of the body will be very much less insulating than 2 tog fabric over the whole.

The accurate determination of heat flows from various parts of an unevenly insulated body of varying surface temperature is a complex problem, but we can simplify the situation for a baby in its cot by considering it as two parts, a well insulated body under wrappings, and poorly insulated exposed parts such as the head. The figure we quote in the paper is the 'tog value' of the insulation on the covered parts, assuming garments such as nappies and vests to be evenly spread under the blankets, which will introduce a small, but tolerable error.

This figure is very useful to examine parental behaviour, but, as we indicate in our discussion, assessing its impact on heat balance is another problem, which we are still considering. Our measurements of surface temperature indicate that 70–90% of the sleeping baby's body heat is lost by the head and other exposed parts. Changing insulation on the body, unless it becomes very low, does not much affect heat loss, but factors influencing heat loss from the head, such as ambient temperature, are critical.\(^3\) In this context, although we did not observe babies throwing off their wrappings, they did often expose their hands, which will in fact have a much greater effect on heat balance.

The formula of Burton and Edholm, which we quote merely for comparison, was modified by Ciulow for a baby's metabolic rate and body shape, but did assume a fixed 40% of heat loss from the head, which we now consider too simple. We are working on a more suitable model.

We are now able to report mean (SD) data on wrapping during daytime sleeps: babies are covered with 12.1 (9-0) tog in rooms at 19-5 (1-2)\(^\circ\)C, though it is not clear to us whether comparisons between different conditions are useful for anything other than illustration.

We are continuing our studies, and will be able to report more fully on thermal balance in the cot very soon.

References

The thermal environment in which 3-4 month old infants sleep at home.

C J Bacon

Arch Dis Child 1989 64: 1515-1516
doi: 10.1136/adc.64.10.1515-b