Diagnosis of neonatal bacteraemia

Sir,

I would like to comment on two letters in your March 1989 issue. Miceli Sopo et al believe that values for positive predictive accuracy of '56-8%, 59%, or 39-62% are unacceptable' while pointing to the 'great potential usefulness of the negative predictive accuracy of the evaluated tests'. However, they neglect to mention the incidence of sepsis in the populations evaluated. As my paper was quoted, I should indicate that the incidence of sepsis in that study was only 8%, so that a positive predictive accuracy of 39% has improved predictiveness by almost five times—hardly 'unacceptable'. Conversely, the chance that sepsis was not present was 92%, so that the negative predictive accuracy of 99% is not quite as impressive as it might at first appear.

In our study there were 17 infected babies (15 with documented sepsis) among 70 preterm infants, with positive predictive accuracy of 59% and negative predictive accuracy of 91-6%. These numbers should be compared with the incidence of infection of 24% and 'no infection' of 76% (that is, the chance of predicting each category without the tests being available).

Dellagrammaticas et al report their experience with C reactive protein, which suggests that the response may vary with the infecting organism, that sensitivity is lower in the first 24 hours after delivery, and that C reactive protein needs to be considered together with haematological tests. Like Mathers and Pohlandt, I have observed that C reactive protein may lag behind the immature/total neutrophil quotient, especially in early onset infection due to group B streptococcus.

These observations emphasise the difficulty in evaluating any diagnostic tests for sepsis, because different organisms may produce different patterns of response. The paper by Kite et al was heavily weighted with cases of coagulase negative staphylococcal bacteraemia (21 of 34). The lack of sensitivity of the immature/total neutrophil quotient with this organism has previously been noted, whereas it is more likely to be deranged with early onset group B streptococcal infection.

It is difficult to escape the conclusion that we need to evaluate more than one test when attempting to diagnose neonatal bacteraemia and that different organisms (as well as different severity of illness) may produce different responses.

References


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Does dexamethasone suppress the ACTH response in preterm babies?

Sir,

We are interested in the need to consider steroid replacement treatment for intercurrent infection or surgery in babies who had been on dexamethasone for chronic lung disease. We used a protocol similar to that of Rennie et al for dexamethasone and stimulation by adrenocorticotrophic hormone (ACTH). The cortisol responses to tetracosactrin (Synacthen, Ciba) in our six babies were similar to those reported in their paper. The tetracosactrin (36 μg/kg) was given to six infants one week after the dexamethasone had been stopped and again four weeks later to four infants; the results are shown in the table.

We would agree with Rennie et al that steroid replacement treatment may not be necessary. In our series all of

| Table: Cortisol concentrations after treatment with tetracosactrin. Results are median (range) |
|-----------------------------------------------|-------------------|-------------------|
| One week after stopping dexamethasone (n=6) | After four weeks (n=4) |
| Baseline | 128 (25-400) | 276 (30-375) |
| After tetracosactrin | 802 (345-1420) | 1065 (380-1560) |

The results are shown in the table.
Diagnosis of neonatal bacteraemia.

A G Philip

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