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Treatment of renal failure in neonates

Sir,

We are interested by the frequency with which renal failure is diagnosed and peritoneal dialysis prescribed in Manchester¹ as we have dialysed only two infants in the last 40 000 births: one with severe birth asphyxia and one with congenital heart disease, both of whom died. Six other infants in whom renal failure was present at the time of death were not dialysed because their primary condition (birth asphyxia or congenital abnormalities) was irreparable. We suspect that the difference lies at least in part in the criteria for diagnosis.

'Poor urine output' together with uraemia and hyperkalaemia do not necessarily constitute acute renal failure. All these are common in preterm neonates with normal renal excretory ability. The babies cited above are the only ones in whom we detected a significantly reduced glomerular filtration rate as indicated by a plasma creatinine concentration rising above 130 $\mu\text{mol/l}$. Creatinine measurement is an indispensable indicator of renal function. Although a single result for plasma creatinine may be difficult to interpret (both because of maternal influences and analytical interferences), a rising creatinine concentration is a useful indicator of functional renal decline. Moreover, the measurement of urine creatinine will distinguish between decreased renal perfusion and intrinsic renal failure. Low urine volume will occur with both.

The high plasma urea concentration, common in sick preterm infants, is caused by their hypercatabolic state with urea excretion rates up to 15 mmol/kg/day in our studies. Similarly potassium turnover is far higher in catabolic infants, and may exceed the capacity of the normal preterm kidney which can only filter 3 or 4 mmol/kg/day. It is not surprising that hyperkalaemia is common.

Our observed incidence of renal failure severe enough to require dialysis is in agreement with that of Brocklebank of 0.2/1000 live births.² Other infants may have had transitory renal impairment which was managed, without hazard, conservatively. Although Meeks and Sims do not mention the number of births their unit covers, their incidence of infants requiring dialysis does seem high.

While we would agree that peritoneal dialysis is a relatively straightforward technique, it is not without its

hazards, and is no substitute for careful monitoring of renal function together with paying meticulous attention to the details of water and electrolyte balance. We believe that recoverable renal failure amenable to dialysis is uncommon. Moreover, in view of the long term neurological and renal consequences in the survivors of neonates receiving dialysis,² treatment should be approached with caution.

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Clinical research group

Sir,

Clinical research is an integral part of training for the hospital doctor and experience in this field has become an important factor in securing senior registrar posts. Junior doctors with a busy clinical commitment may find it difficult to find time and motivation to undertake clinical research. With this in mind, a clinical research group was formed in Liverpool in 1985 to promote clinical research in paediatrics among junior doctors in the region.

The main aim of the group is to provide an informal forum to exchange ideas, discuss, promote, and improve the quality of clinical research in paediatrics. Doctors are encouraged to present hypotheses or ideas for research at an early stage of development after having formulated the idea into a written research protocol, but before having embarked on the project. The group discusses the proposed hypothesis and protocol and may make constructive criticisms and suggestions for alterations to the methodology. After completion of the project, presentation to the group affords a valuable opportunity for practice of a spoken paper before a critical audience before presentation to a scientific meeting.

Doctors who have previous experience in clinical research are invited to share their experience and lecture on research methodology and related subjects. Topics have included: the design and analysis of results from a clinical questionnaire, literature searching, design and running a drug trial, the use of a personal computer to run a research project, reviews of statistical software, and advice in planning an MD thesis. Guests are invited from staff within the hospital and university, to talk on selected topics requested by members of the group. Contributions on statistical analysis have been particularly well received. Members of the department of medical illustration have talked on the presentation of graphical material and artwork for publication and slides, and on the preparation of posters for scientific meetings.