

SUPPLEMENTARY REPORT BY DR RODERICK MACFAUL ON FLUID REGIME USED IN CLAIRE ROBERTS

3 September 2012

In my July 2012 report I drew attention to shortcomings of the paediatric neurology management including lack of advice offered on the IV fluid regime. In particular I remarked that Dr Webb did not advise the use of fluid of higher tonicity than the fluid used in Claire which was 0.18 % saline in 4 % dextrose. Subsequently my attention has been drawn to the change of wording in the contemporary edition for 1996 of the textbook Forfar & Arneil from the 1984 edition which I quoted regarding the IV fluid used which stated : “*low sodium containing infusions like 5% dextrose or 0.18% saline in 5% dextrose are contraindicated* “ . The contemporary edition for 1996 does not re iterate this point. I am not aware that any guidance was subsequently issued proposing any change to the effect that 0.18% saline was indicated or permissible in management of acute childhood encephalopathy. But I do not know what was included in the training curriculum for paediatric neurology after this guidance in 1984 and will defer to those who do know. I have already provided the protocol in use in my own unit for 1996 which identifies the need to avoid use of low solute IV fluid in management of acute encephalopathy. In my opinion the statement made in the 1984 Textbook was a signal warning against use of 0.18 % saline in this condition. .

I would expect a paediatric neurologist in 1996 to be aware of the danger in using a low solute fluid in acute encephalopathy – especially where there was no confirmed diagnosis of cause. Brain swelling is common in acute encephalopathy and its anticipation (prevention) and treatment should form part of the advised regime. Thus good practice as advised from as early as 1984 was as set out in that edition. As far as I am aware there was no significant change in practice in acute encephalopathy between 1984 and 1996 in choice of fluid type although there was a trend away from use of fluid restriction.

It is the case, however, that wording as specific and direct as in the 1984 textbook has not appeared in publications since then. In *Kirkham FJ. Non-traumatic coma in children. Arch Dis Child 2001;85:303-312*– reflecting practice then and in the foregoing recent years- it was stated that hyposmolar fluids such as 5 % dextrose are contra-indicated but it did not specifically highlight hypotonic fluids (0.18 % saline in 4 % dextrose is hypotonic not hyposmolar). I have quoted other publications in my report which reflect the awareness that careful fluid regimes should be used in acute encephalopathy especially when a blood sodium result has been found to be low as in Claire on admission. Gale Pearson in his publication *Handbook of Paediatric Intensive Care 2002* uses the term SIAD- syndrome of inappropriate administration of dextrose when discussing Hyponatraemia which reflects the awareness of the problem in his specialty at that and foregoing times.