

The **ROYAL**  
**HOSPITALS**

7th June 1996

THE ROYAL BELFAST HOSPITAL FOR SICK CHILDREN

11.06.96

Dr. G. Murnaghan  
Medical Administrator  
KEB

Dear George

RE: ADAM STRAIN

I have received your fax regarding Adam Strain's Inquest and the points raised by Dr. Sumner's report.

1. INFORMATION REGARDING THE CHILD'S URINARY OUTPUT PRIOR TO SURGERY

Urine output in incontinent children in nappies can only be measured by inserting a urinary catheter. This is not standard procedure. We know that Adam Strain regularly, over many months, received 2100mls of nutritional fluid each day. This was given in two 300mls boluses during the day and by continuous gastrostomy infusion of 1500mls overnight. Since he was receiving 2100mls per day and his insensible loss from sweat etc. would be possibly of the order of 300-400mls then his urine output per hour is likely to have been around 75mls. On the night prior to his surgery, because of his admission to hospital and early transfer to theatre he only received 900mls of clear fluid by continuous gastrostomy feed. This means that he would have been some 600mls behind compared to normal. In calculating his maintenance fluids one would therefore take this deficit into account.

Assuming the normal urine output for Adam was approximately 70mls per hour or in Dr. Sumner's words 75mls per kilogram I think it is acceptable that the maintenance fluids during surgery should have taken into account the overnight fluid deficit. The infusion rate per hour would then vary on how quickly one wished to catch up this deficit. Giving 200mls per hour would have ensured that the deficit was corrected in four to five hours. Giving 150mls per hour this would have taken much longer. The difference between the two figures of 50mls per hour would only have accounted for 250mls over the period of the operation and I doubt if this difference would have given rise to hyponatraemia.

2. It is true, after examining the notes, that I have said that Adam's electrolytes should have been repeated before going to theatre. The junior staff involved were unable to obtain venous access and because he got extremely upset this was not pursued in the ward situation.

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Adam strain cont.....

2.cont'd

I understand that venous access was readily achieved in theatre and therefore it would have been possible to check the electrolyte picture at that stage.

I am not sure whether these comments are particularly helpful and obviously we will need to discuss them further.

Yours sincerely

*Maurice Savage*

**MAURICE SAVAGE  
CONSULTANT PAEDIATRIC NEPHROLOGIST**

/MG