

CORONERS ACT (Northern Ireland), 1959

Deposition of Witness taken on FRIDAY the 21st day
of JUNE 19 96 , at inquest touching the death of
ADAM STRAIN

, before me MR J L LECKEY

Coroner for the District of GREATER BELFAST

as follows to wit:-

The Deposition of MAURICE SAVAGE
of c/o R.B.H.S.C.

who being sworn upon his oath, saith

(Address)

Adam Strain was a patient with chronic renal failure and polyuria. He developed problems with recurrent urinary infections in infancy and was under the care of Mr Stephen Brown, Consultant Paediatric Surgeon. He required multiple urological operations for vesico ureteric reflux and a Fundal Plication to correct a hiatal hernia. As a result of infection and reflux his kidneys were damaged and deteriorated to the point where peritoneal dialysis was commenced in 1994. He was then placed on call for a renal transplant. He required multiple medications with Calcium Carbonate, Keflex, Iron, One-Alpha Vitamin D, Erythropoietin and Sodium Bicarbonate and night time gastrostomy tube feeding. The medications and tube feeds were to ensure good nutrition and to prevent renal anaemia and bone disease. He was a well nourished, well grown boy with height near the 50th centile and weight at the 90th centile for his age. His most recent acute illness was with a gastrostomy exit site infection in July 1995. On 26th November we had an offer of a kidney from the UK Transplant Service. He was admitted to Musgrave Ward RBHSC for pre-operative assessment. His serum electrolytes, haemoglobin and coagulation were satisfactory. H.B.10.5g/dl, Na 139, K 3.6, Urea 16.8, Ca.2.54, Albumin 40, Prothrombin time 12.3. His chest was clear on examination. B.P. 108/56. He was afebrile. There were no signs of infection. His night gastrostomy feeds are normally 1.5l of Nutrizon. On anaesthetic advice this was changed to clear fluid which was stopped two hours pre op. This meant he had 900mls of ~~Dioralyte~~ ^{N/S Saline Dextrose} overnight. His peritoneal dialysis was performed as usual - 750ml fluid volume 1.36% Dextrose solution.

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before me MR J L LECKE

Coroner for the District of GREATER BELF

as follows to wit:—

The Deposition of MAURICE SAVAGE

of

who being sworn upon his oath, saith

(Address.

from an apparently similar cause though the
have not been published. Any level below
135 is hyponatraemia but there is a lower
figure at which it becomes dangerous. A level
below 120 needs urgent action. At 128 action
needs to be taken to redress the balance.
However, the patient could be perfectly well.
Electrolytes could not be checked first thing in
the morning as venous access could not be
obtained. Standard practice would be to
test electrolyte levels near the start of surgery
but it is essentially a matter for clinical
judgment. I was not aware of the 9.32 reading.
I believe a child in renal failure is at
greater risk of developing ^{soluble} ~~renal~~ ^{metabolic} ~~acid~~ ^{imbalance} ~~base~~ ^{deficit}. I accept
the cause of death given by the pathologist.
Mr. Bingham: I had known Adam since he was
a baby. He had to have the operation to live
any length of time and to have a normal life.
We discussed the operation in detail with his
mother the day before. Also, I discussed it with
Dr. Taylor. The operation had been put back to
the following morning. His overnight feeding was

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discussed in detail and he would have been aware what the normal regime would have been 900 ml a day or we had to switch from tube feeding to intra-venous feeding two hours before the operation. I was satisfied the anaesthetic staff had all the relevant information. The information about the 9 other deaths was held to me verbally later - it was not published. All the fluids given to Adam during the operation contained sodium. One cannot pick a figure for determining hyponatraemia - it is a matter for clinical judgment which will be influenced by the speed of change. The lab would take about an hour to do an electrolyte analysis.

Miss Higgins: With the benefit of hindsight his sodium became too low. A lab analysis is more accurate than the blood/gas machine. I personally never use that machine as I have no reason to do so.

Maurice Savage

TAKEN before me this 21st day of June 1996,

Mark Lacey

Coroner for the District of Spa Valley
Belfast

TRANSCRIPTION OF DEPOSITION OF DR MAURICE SAVAGE

He did need sodium in his feeds but his sodium was well controlled. His mother's care of him was meticulous and his health was due to her meticulous care. I believe the speedy change of electrolytes is very significant in that the body copes with it less well.

Miss Higgins:- After 1994 Adam was under the care of Mr Boston. He had a potential for a low sodium which was being managed. Adam never had thirst symptoms which disappeared because of his illness. The majority of children with renal failure have similar problems concerning electrolyte levels. Since Adam's death these would be measured more frequently. I have discovered that in the UK there have been 9 other deaths from an apparently similar cause though these have not been published. Any level below 135 is hyponatraemia but there is a lower figure at which it becomes dangerous. A level below 120 needs urgent action. At 128 action need to be taken to redress the balance. However, the patient could be perfectly well. Electrolytes could not be checked first thing in the morning as venous access could not be obtained. Standard practice would be to test electrolyte levels near the start of surgery but it is essentially a matter for clinical judgment. I was not aware of the 9.32 reading. I believe a child in renal failure is at greater risk of developing sodium imbalance. I accept the cause of death given by the pathologist.

Mr Brangham: I had known Adam since he was a baby. He had to have the operation to live any length of time and to have a normal life. We discussed the operation in detail with his mother the day before. Also, I discussed it with Dr Taylor. The operation had been put back to the following morning. His overnight feeding was discussed in detail and he would have been aware what the normal regime would have been. 900 ml arose as we had to switch from tube feeding to intra-venous feeding two hours before the operation. I was satisfied the anaesthetic staff had all the relevant information. The information about the 9 other deaths was told to me verbally later - it was not published. All the fluids given to Adam during the operation contained sodium. One cannot pick a figure for determining hyponatraemia - it is a matter for clinical judgment which will be influenced by the speed of change. The lab would take about an hour to do an electrolyte analysis.

Miss Higgins: With the benefit of hindsight is sodium became too low. A lab analysis is more accurate than the blood/gas machine. I personally never use that machine as I have no reason to do so.