DR. JOHN SURTON
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CLAIRE ROBERTS Inquest Notes

Report of Proceedings on 3rd day of Inquest into the death of Claire Roberts (CR)

Thursday 4th May 2006

Witness Professor Young: Consultant Clinical Biochemistry at the Royal Group of Hospitals (RGH)

Dr Young had been asked by the RGH's medical director, Dr. Michael McBride, to review the circumstances around CR's death and to comment on whether "hyponatraemia" contributed to the cause of her death.

Dr Young interviewed: (1) Dr Steen
(2) Dr Sands
(3) Dr Rooney
} no other clinicians

Clinical NARRATIVE: starting at 22^{30} on 21:10:96 @ A&E (Dr Young's reviewed Dr Webb's notes)
ending 18^{45} 23:10:96 (CR's) Death.

Dr Young - when invited (though he had a pre-arranged by HMC to suggest pro-forma completed) how he would NOW re-write The CAUSE of DEATH (CoD)

1a Cerebral Oedema
1b Secondary to Status Epilepticus
but would NOW ADD
that he had informed Dr McBride that "Hyponatraemia" did contribute to CoD

SUPPLEMENTARY SECTION to his DEPOSITION

He did not agree with Dr Bingham about a possible error in Taking the Blood urea sample via the IV cannula - "Negligible chance of that error"

Dr Young agreed with HMC John Lockey that of CR's admission hyponatraemia was NOT an issue then, even with a Sodium of 132, which is low but commonplace. But that HYPONATRAEMIA DID contribute to the cause of death.

Dr Young's evidence continued

Therefore Dr Young concluded that the Cause of death certification should read.

(1) 1a - Cerebral Oedema

Causes underlying 1b m-encephalitis / encephalopathy

hyponatraemia

(He was unable to determine to proportion which each contributed)

2. Status Epilepticus.

"HYPONATRAMIA" is a common 'end point' and therefore requires a fuller explanation ie. excess ADH production.

Dr Young was reluctant to say in answer to HMC, question, whether (CR's) death should have been reported the the Coroner in 1996 because of the lack of awareness to this condition (hyponatraemia) at the time (1996)

HMC:JL Should I refer it to the 'Hyponatraemic Inquiry'

Dr Young: I agree that it should be left to the Inquiry. The causes of Cerebral Oedema are less straightforward I don't think that any new lessons can be learned from the inclusion of (CR)'s death in the Inquiry. But I would leave it to Mr O'Hara to decide I am aware of the complexity of his Inquiry

HMC:JL John O'Hara has ALREADY been approached by me about this case. I have decided to send him a copy of my findings following completion of this Inquest

(3)

Dr Young

Mr Michael McCrea, Counsel for the Roberts family.

In examination of his evidence it did not appear that Dr Young give only and ORAL report to Dr. M. McBride — and that he had not spoken to Dr Webb, but he had read his clinical records.

(17th Dec 2004) In Dr McBride's letter to the Roberts family he appeared to admit and accept "... that there was a fluid management problem in this case." Dr Young asserted that he had NOT seen this letter and denied contributing to Dr McBrides form of expression. Dr Young conferred that he did not believe that Dr McBride himself had read all the documents, extensively.

Dr. Young was insistent that the fluid Managment was in keeping with the recommendations of that time 1996, and he felt that there were not sufficient signs, symptoms or tests to 'ring the alarm bells' (i.e. hyponatraemia). However he agreed that (CR) had the potential for 'Electrolyte imbalance'

When asked, Dr Young denied having any detailed knowledge or involvement in the death of ADAM STRAIN - but had reviewed the Enquiry's / Website

Mr. McCrea

After Adam Strains death, what recommendations were made?

HMC JL (Interjected) No recommendations were made until 2002.

MrMcCrea Are you aware of ANY CIRCULAR or MEMO within the R.B.H.S.C., or a policy guidance of the treatment of hyponatraemia; or the dangers of hypotonic & intravenous solution in paediatrics?

Dr Young: As my practice is predominately involves ADULTS I might not be made aware of such.

Mr. McCrea About Investigations into the death of Adam Strain?

HMC JL These are General issues for the Inquiry to address They are larger than the death of (CR).

Mr McCrea According to Dr Webb, had a blood sample been taken on the morning (22:10:96) it might have shown a low Sodium.

Dr Young: It's not possible to say. The fall from 132 to 126 might have been gradual in time

In relation to the fluid Management, Dr Young accepted that an "NET" (CR) did have some degree of "fluid overload" saying "I agree that between [redacted] and 8 pm and 8 midnight the volume was "Somewhat great".)

Dr Young continued that when the clinical deterioration was first noticed at 9pm (22:10:96) the Cerebral Oedema (C.O) was probably well established by then. ... The C.O. had probably been there several hours by that stage ... but did not produce changes (clinical) until 9pm ... The loss of fluid was not accurately recorded. He agreed that an earlier U+E blood test could have made the low Sodium apparent sooner. But a "urine test" would not have been useful/indicative

Mrs McCrea: Would a simple C.T. Scan have been useful earlier?

Dr Young. A C.T. Scan is not a "simple test" — but yes it could have shown Cerebral Oedema. But you must remember that in 1996 we did not have a C.T. Scanner in RBHSC. But even so, Cerebral Oedema on Scan would not necessarily have implied a low Sodium, (hyponatraemic state)

(5) WITNESS

w Dr. Young

Mr. Lavery (on behalf of RBHSC & Royal Hospitals Trust)

Briefly Dr Young, your 'Cause of death' formulation is similar to Dr. Bunghams & Dr McConaghie's by but you have said that "hyponatraemia" is not helpful of itself Would you consider it an "undesirable term" as laid down in the "Guidance to Doctors completing MCCD" (like 'anaemia, septicaemia, uraemia ...'

Dr Young : No. Not quite the same. After "hyponatraemia" you would need to give more additional information in the 'Cause of Death'

Mr Lavery. So the Death Certificate should include the explanation "hyponatraemia ... secondary to excess ADH production"

HMC (JC) Would you refer this case to 'HTRD'?

Dr Young I would leave that referral to the HTRD itself. I have some familiarity with the [redacted] Raughel Ferguson case - but this case is [redacted] LESS STRAIGHT FORWARD I understood that one of the functions of the Inquiry was look at "fluid management" in those cases. This case (CR) may BROADEN the terms of reference of the Inquiry

HMC (JC) thus the Minister of Health (N.I) who specified the Terms. Claire Roberts name is not in these terms. This would have to go back to the Minister of Health <for clarification>, as explained to me by J O'Hara.

Mr. Lavery: This would mean widening the terms of the Inquiry on top of the three cases already, relating to intravenous fluids ... Therefore the Inquiry would have to deal with another

Dr Young: My view is there were THREE Contributory causes (1) Meningo-encephalitis (2) Status Epilepticus (3) Hyponatraemia ... and therefore SHOULD be CONSIDERED by the INQUIRY

(6) New Witness (Second of the day 04:05:06 @ 11.40am)

Dr. Andrew SANDS (S)
Consultant Virologist
In 1996 Paediatric Registrar on ALLEN Ward (RBHSC)

Narrative: (S) saw (CR) on admission to Ward (22.10.96)
He requested Consultant Neurologist opinion for
Dr Webb because he was unsure what was
happening to (CR) i clinical condition and needed
expert advice. His first diagnosis was of
(1) non-convulsing Status Epileptics (2) possible
encephalitis / encephalopathy

In their letter to him (29.09.05) The Roberts family
asked whether a C.T. Scan had been considered
in view of her level of consciousness. (S) agreed that
a CT Scan had been considered by HCM but that
he could not order a CT Scan without it being
SANCTIONED by a Consultant Neurologist
HMC JL : I understand that a C.T. Scan if taken at that
time might have shown a Cerebral Oedema but
would the reason for the C.O. have been apparent?
(S) No. Menango-encephalitis and Status Epileptic would
have been considered as the causes of C.O.
HMC JL Do you agree with Professor Young's formulation of
the 'cause of death'
(S) 1a C.O 1b. M-E : S-E : "excessive ADH with
hyponatraemia"
It is not easy to RANK the ORDER
HMC JL Do you consider the fluid given between 8pm - 2am
to have been "fluid overload" — or is this outside
your area of expertise
(S) I would defer to the expertise of Dr. Bingham & Dr McCandless
??? But this was NOT the important issue on what happened
thereafter in the patient's care

(7) Witness Dr Sands

Questions by Mr. McGrea (for the family of Claire Roberts)

You were working as a Paediatric Registrar covering the Allen Ward.

In 1996 did you hear about the death of Adam Strain

??? (S) No

[McC] Was there any criticism of 1/5N Saline (hypotonic) intravenous infusion within the RBHSC.

! (S) No

[McC] In Oct 1996, did you hear anything about 'hyponatraemic deaths in children' and the fluid management in that context.

!!! (S) I have No recollection of that linkage

(S) An urgent sample (U+E) was not requested (urgently) but it is likely that it was requested for sometime that day.

Hmc - JL - But you can't remember

Dr SANDS agreed with [McC] that he was very concerned about this patient and that he considered her (Claire) to be "very unwell".

(X) At 11am Dr Sands admitted that he had considered a C.T. Scan at that time but that it would have required a LOT of ORGANISATION... In 1996 it would have taken a lot to organise a C.T. Scan in the RBHSC.

[McC] That fact that you considered a C.T. Scan at that stage is an indication of how serious you considered Claire's condition to be

(S) I felt that a C.T. Scan was warranted. I spoke to Dr Webb ... Dr Steen was unavailable up to that time, (when I went off work) Dr Steen had not examined her. <<But she had been informed of Claire's admission>>

(8) Widnes
Dr Sands

Questions by
[M°Crea] After Dr Webb became involved, you deferred to his opinion (S) yes.
(S) .. Dr. Webb had fully assessed her (Claire)
[M°C] but by 5^15 pm you were aware of Dr Webb had taken over the responsibility for Management of Claire.
(S) There is seldom any thing written down when a case is transferred from one consultant to another.
[M°C] I have three more questions for you Dr Sands that I have be instructed to ask by Claire's parents.
Q (1) Why were Claire's parents not told of how serious ill she was?
HMC JL That is for "Complaints Procedure" !!!
[M°C] When you were counselling the parents on 22/10/98 in relation to Claire's illness — who was the senior doctor in attendance.
(S) Dr Webb — was guiding the ward team and was in attendance
[M°C] If the CT. SCAN had been carried out then could it have been a case of "Cerebral oedema but no reason for it!" That is, unclear of the cause of the C.O? But surely there MUST BE A CAUSE for the C.O. !!!
(S) I can't INTERPRET C.T Scans.
HMC JC Dr Sands, are you saying that if you had seen Cerebral Oedema on CT Scan that it would not have been directly obvious that it was due to low Sodium? (S) yes
[M°C] But it would have been one possible explanation?
(S) yes

(9) THIRD WITNESS 04:05:06

DR. STEEN

qualified Q.U.B 1978.

Consultant Paediatric Physician at R.B.H.S.C.

Dr Steen began by reading her DEPOSITION

NARRATIVE of the clinical intervention of others

On Tuesday afternoons routinely

Dr Steen carried on OUT-PATIENT Clinics

and would not normally have visited the ward

i.e. Dr STEEN DID NOT EXAMINATION of CLAIRE

until 3AM 23:10:96.

28 hours after Claire's admission under

Dr Steen's care

Q

At 3AM on 23:10:96. Claire had a

'Convulsion' and started to CHEYNE-STOKE breath

She was transferred to Paed. I.C.U RBHSC

and intubated

4.00 pm 23.10.96 Dr Steen FIRST ATTENDED / EXAMINED Claire.

Papilloedema of the optic discs noted

CT Scan — done at 5.30 AM

Shows "Cerebral Oedema → coning"

Dr Steen Spoke to Parents

8pm: Adjustment to FLUID MANAGEMENT — to Normal Saline

10AM Seen by Dr Bdo. Taylor

order hypertonics: Dumfries

Sam: DESMOPRESSIN.

= Repeat U+E (152)

Osmolality 8.3

15.00) 3 pm BRAIN STEM DEATH - PROTOCOL initiated

Consent for Post Mortem — limited to BRAIN.

18.45 Artificial Ventilation SWITCHED OFF

— Claire died shortly afterwards

(10)

Dr Steen.

Dr Steen I have prepared a 'DRAFT' Cause of Death at the request of Mr Lavery (Barrister for Trust)

hmc JL Is there any need for you to refer to 'epilepsy' twice?

(ST) In Dr Webb's statement, he refers to Claire's response to infection - due to her underlying disorder. Something in Claire may have trigger her Status Epilepticus

JL. Therefore if S-E comes from her past ... its not necessary to repeat it.

(ST) Perhaps not.

hmc JL It is like Dr Sands <Cause of Death>?

(ST) 'Hyponatraemia" is not put down "perse".

hmc JL Due to excess ADH production.

If C.T. Scan had been carried out (Scanned by Consultant Neurologist) - would one have seen Cerebral Oedema showing?

Would the diagnosis of hyponatraemia have been immediately obvious?

(ST) No: Cerebral Oedema may have been due to Menengo-encephalitis - ie - Status epilepticus

nc JL Would you care to comment on the fluid management between 8pm - (10 pm) → 2 am?

(ST) Saline was prescribed at the normal rate from 12 MN

hmc JL Do you think that "fluid management" was not an explanation

(ST) After 11:30 - no - it was Normal Saline.

hmc JL In 1996 - was there no issue on fluids?

(ST) The 'Maintainence' was 'normal' for her weight.

hmc JL Would you have expected her fluid Loss to have been ASSESSED.

(ST) It's difficult to monitor - urinary output - on nappies

(11)

Dr Steen

hme (JL) Was there any system to measure dry then wet nappy

(ST) only in extreme cases.

hme JL So urine analysis is fraught with difficult?

(ST) From 23.30 - high levels of ADH were possibly being excreted.

hme (JL) What should have happen at 3am (23-10-96)?

(ST) At 23.30 the bloods (UEs) have been repeated an reassessed. And a consultant on call should have been contacted - Dr Webb was on-call, but I was NOT.

hme JL Action could then have been taken to reduce the IV infusion to 2/3 Maintenance rate.

(ST) And the 3am Na Sodium of 124 Claire was probably in Pood. Icu of the stage and treatment given with MANNITOL to reduce her BRAIN SWELLING.

hme JL After 3am - feeds were restricted, and

(ST) She was given virtually no fluids except to carry drugs on it; Mannitol, Dapam.

hme JL Would he condition have been RETRIEVABLE by 3am?

(ST) NO SHE WAS ALREADY MORIBUND!

hme JL What about 11.30 22:10:96?

(ST) I am unsure, in this case, as there's evidence that her Cerebral Oedema had been going on for sometime.

hme JL If a child is brought back from 'hyponatraemia' would there have been further BRAIN DAMAGE on top of her Existing Brain damage

(ST) Yes.

Why, Dr Steen, do you think she died?

(ST) I assumed 'Cerebral Oedema' due viral infection and Status Epilepticus - and that these neurological reason give rise to excess ADH production which led to fluid retention

100

(12) · Witness

1996 { MON 21:10 | TUE 22:10 | ... 23:10 }

Dr STEEN continued

hmc JL (C-O) Cerebral Oedema due to Status Epilepticus?

(ST) Dr Webb discussed this 'Cause of death' formula as including Status Epilepticus (S-E)

Therefore it was important for the post-mortem to determine the VIRUS ILLNESS which triggered the S-E; which caused the ADH excess to produce (C-O). And so on, spiralling downward.

hmc JL Was Dr McBride correct in referring Claire's death to the Coroner? Dr McBride mentioned "hyponatraemia" as the reason

(ST) I think that the parental concerns should be taken into account, but I could not RANK the 'hyponatraemia'.

Indeed you could also include (hyperkalaemia) HYPER-KALAEMIA <high Potassium (K^+) levels in the blood> for completeness sake ... but this is a whole new area.

EXAMINATION by

MR McCREA — (Counsel for the Roberts family)

[McC] Dr Steen you were the Consultant on take-in from 9AM Monday (23:10:96) until 9AM Tuesday (23:10:96 responsible for all Medical admissions.

Ⓚ WHEN DID YOU FIRST SEE CLAIRE ROBERTS?

(ST) I can't be sure.

I would have been aware of her presence in the ward from 9AM on Tuesday (23:10:96).

I can't recollect examining her before 3AM (23:10:96

[McC] Your first recall is of 3AM in Intensive Care Unit (ICU)

(ST) Yes.

[McC] Dr Sands was under whose authority Dr Steen or Dr Webb?

(ST) Dr Webb had engaged in her care on Tuesday morning I contacted the ward that evening (22:10:96).

(13)

Dr STEEN continues

(ST) ... Dr Webb had taken over Claires Management the junior doctor was concerned about claires neurological status and referred her to Dr Webb as the Paediatrician concerned with Neurology ...

[MC] You were not contacted until 3AM (23:10:96). Is it not surprising that when Claires GCS (GCS) Coma Scale began to fall about 8pm (22:10:96) that Dr Webb was not contacted? Would you have expected to have been contacted at 8pm?

(ST) Dr Webb would have been the first point of contact but the Paediatric Physician thereafter. By the way, Claire's condition at 8pm, her GCS scale had improved... but by 9pm it began to drop.

[MoC] But Dr Webb said "After 8pm GCS deteriorated". Dr Webb would have been expected to have been contacted

(ST) At 8pm Claire's GCS was improving, when the parents were present. But by 9pm GCS began to deteriorate, PERHAPS from 9pm onward staff (nursing and doctors) should have informed the Consultant on call.

[MoC] So no one contacted you then; neither you no Dr Webb were contacted?

No one called between 9pm (22:10:96) and 3am (23:10:96). By 11.30pm Dr Bingham has given evidence that it was "too late", to help Claire... Do you agree.

(ST) Yes.

[MC] Did you have any contact with Adam Strain?

(ST) No

[MC] After Adam Strains death, were there discussion about Children receiving HYPOTONIC IV Solutions?

(46)

Dr STEEN ... continued

(ST) Adam Adam Strain - was a "High-Output Renal failure" case. Therefore Adam Strains case was NOT discussed in the hospital, and there was no adjustment to the management of children with other conditions.

[McC] Were any policy or guidline issues discussed before Sept 1996.

(ST) I am not aware of any problem!

[McC] You would have expected to have been made aware and notified?

(ST) YES

[McC] Dr McBride indicated in his letter to the Parents of Claire ... did you see the letter (17:12.2002) before it went out

(ST) No

[McC] Dr McBride wrote

"Our medical case notes may have shown a CARE PROBLEM relating to hyponatraemia in Claire's case"

Do you accept that VIEW?

(ST) Our view was "Menngo. Encephalitis going to Status Epilepticus and then Cerebral Oedema" and this has not changed significantly since then. However, within the last 5 years, the management would now be different, including fluid restrictions; frequent U+E tests; higher Sodium in infusion

If Claire's condition were to be managed now it would be very different, but in 1996 1/5 N. Saline was the standard 'Maintenance' fluid

[McC] JL So you are saying that in 1996, this fluid management was normal? Had the (U+E) been repeated, the fluid would have been reduced from [1.30pm anyway?

(15)

Dr STEEN continued

[McC] As the consultant on 'take-in' you first examined Claire at 3AM on Tuesday. You were not contacted until 3am? - Yet you say that by 11.30pm previously - It was "too late" for to help Claire>

JL's notes (ST) Adam Strain's case was SURGICAL. additional to relating to "High Output Renal failure" & 1° Deposition death following surgical intervention. I was not aware of ANY R.G.Hospital protocol <in their respect>

THE COURT THEN ROSE FOR 15 minutes

hmc JL It will be recorded that CLAIRE ROBERT --- address died on 23rd October 1996 in R.B.H.S.C. We have decided to adopt Professor Yang's formula for the "CAUSE of DEATH"

1a — CEREBRAL — OEDEMA

1b — MENINGO-ENCEPHALITIS
— Hyponatraemia due to excess ADH
— Status Epilepticus →

hmc continued with his NARRATIVE of the CLINICAL EVENTS [Available from HM Coroner through N.I.C.S]

I am satisfied that HYPONATRAEMIA constituted one of the CAUSES, but it was not the only cause but these would included "Meningo-encephalitis" and Status Epilepticus". Each of the three causes contributed to her death. In Dr Steen's evidence had the cause been noted earlier, her fluids would have been restricted But by then Claire's condition

H.M. Coroner's Findings... Continued

was irreversible, even if prompt action had been taken.

As the O'Hara Inquiry is already aware of Claire's death <<HMC John Leckey had already been in consultation with Mr John O'Hara before the opening of the Inquest>> all that I need to do - is to NOTIFY the Inquiry.

I will leave it up to Mr. O'Hara, to decide whether to INCORPORATE ~~[redacted]~~ CLAIRE'S death into the HYPONATRAEMIC-RELATED DEATHS IN CHILDREN'S INQUIRY, - IF IT IS WITHIN THE REMIT SET BY the MINISTER for HEALTH.

hmc JL] Mr Leckey concluded by asking the Roberts family (Claire's father & mother) whether Claire's organs had been donated, (possibly in an attempt to seek some 'good' coming out of these events and blame tragic death) He had failed to check notes before asking this question - There was an embarrassed silence for a short time Then the family replied [No]

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