The relationship between memory and PTSD symptoms in children after admission to PICU

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Great Ormond St Hospital, London UK
Why look at this group?

• Theoretical high risk of PTSD in children and parents
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• Evidence of distress in adult ICU patients
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- Potential for preventative work and intervention
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- Theoretical high risk of PTSD in children and parents
- Evidence of distress in adult ICU patients
- Potential for preventative work and intervention
- Predictable steady workload (as compared with after disaster)
Inherent Difficulties

- Significant risk of death
Inherent Difficulties

- Significant risk of death
- Majority of patients aged under 5y
Inherent Difficulties

• Significant risk of death
• Majority of patients aged under 5y
• Patients unconscious
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- Carers in extreme distress (capable of informed consent)
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- Significant risk of death
- Majority of patients aged under 5y
- Patients unconscious
- Carers in extreme distress (capable of informed consent)
- No formal follow up structure
Inherent Difficulties

- Significant risk of death
- Majority of patients aged under 5y
- Patients unconscious
- Carers in extreme distress (possibly incapable of informed consent)
- No formal follow up structure
- High proportion of deprived families
Deprivation

Townsend Deprivation Quintile

Frequency

Townsend Deprivation Quintile
Prevention Model:
Addressing traumatic stress
in the pediatric healthcare setting

Persistent distress or risk factors.
Arrange psychosocial and mental health support.

Acute distress or a few risk factors present.
Provide extra support and anticipatory guidance.
Monitor ongoing distress and refer if needed.

Most children and families are understandably distressed but coping well.
Provide general support — help family help themselves.
Provide information regarding common reactions. Screen for indicators of higher risk.

Clinical / Treatment
Targeted
Universal

www.NCTSNet.org
Adult ICU findings

- Menzel (1998) fear tube in situ
- Schelling et al (1998) PTSD 4yrs later
- Scragg (2001) link between ICU experiences and PTSD

- Jones et al (2001) on link between delusional memories and PTSD
Child ICU findings: short term

• Only 67% remember anything, predominantly neutral/positive (n=40)
  

• 100% remembered something, 50% negative memories (n=50)
  
  Karande et al (2005)
Child ICU findings: longer term

• PTSD higher in children (52% v 9%) 6-8 wks after critical illness
  \textit{Landolt et al (1998)}

• PTSD higher in children (26% v 0%) 6-12m after critical illness (n=35)
  \textit{Rees et al (2004)}

• Association between no. of invasive procedures and PTSD symptoms at 6 months (n=60)
  \textit{Rennick et al (2004)}
Pilot Work

Child interviews 9 months post PICU (n=15)
What I remember about PICU
Quotes: Feeling changed

• “I am not as scared as I was …now when I get a cut it is just nothing”

• “I really miss the way I was before”
Child Interviews

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<tbody>
<tr>
<td>Depression</td>
<td>4/15 above cut off</td>
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<td>(Birleson Scale)</td>
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<tr>
<td>Post traumatic stress</td>
<td>4/15 above cut off</td>
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<td>(IES)</td>
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<td>Behaviour problems</td>
<td>2/15 above cut off</td>
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Fear Schedule SD scores
Great Ormond Street Hospital
GOS Research Project

- Relationship between memories and PTSD symptomatology
- Relationship with parental psychopathology
Sample

• Survivors over 7 years of age

Exclusions

• Learning difficulties; readmitted to PICU; professional refusal (eg palliative care)
Design

• Info sheet included in discharge pack

• Family invited to o/p appt at 2 months (with option of home visit if preferred)

• Postal/telephone follow up at 1 year
Psychological measures

Child

- Peds QL (physical, emotional, school, social, fatigue level)
- ICU Memory Tool (factual v delusional memories)
- Child Impact of Event Scale (post traumatic stress)
Psychological measures

Parent

• Hospital Anxiety and Depression Scale
• SPAN (brief post traumatic stress scale)
How got good response (75%)?

- Chased original letter by phone
- Willingness to do home visits/ fit in round other appts at GOS
- Use of interpreters
- ?offer to pay fares (only minority asked)
- GOS effect?
Sample characteristics

- 21 male, 18 female
- Mean child age 12yrs (7-17)
- Mean parent age 39yrs (30-50)
- Mean length of stay 4 days (1-25)
Reason for admission

- Elective surgery
- Trauma
- Other
Case example: John 13y

- Sustained serious head injury falling from bike (no helmet)
Case example: John 13y

- Sustained serious head injury falling from bike (no helmet)
- Remembers getting into ambulance to local hospital
Case example: John 13y

- Sustained serious head injury falling from bike (no helmet)
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- Deteriorated in A&E ⇒ GOS PICU
Case example: John 13y

- Sustained serious head injury falling from bike (no helmet)
- Remembers getting into ambulance to local hospital
- Deteriorated in A&E ⇒ GOS PICU
- Transferred back to local after 2 day admission
Case example: Tim 15y

- Friedreich’s Ataxia with unstable gait and back pain
Case example: Tim 15y

- Friedreich’s Ataxia with unstable gait and back pain
- Elective Spinal fusion operation
Case example: Tim 15y

- Friedreich’s Ataxia with unstable gait and back pain
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- Extubated spontaneously in recovery but admitted to PICU as planned for obs
Case example: Tim 15y

- Friedreich’s Ataxia with unstable gait and back pain
- Elective Spinal fusion operation
- Extubated spontaneously in recovery but admitted to PICU as planned for obs
- Transferred to GOS surgical ward next day
Case example: Nina 10y

- In treatment at local hospital for chemo
Case example: Nina 10y

• In treatment at local hospital for chemo
• Suffered allergic reaction to new drug ⇒ seizures ⇒ intubated and ventilated
Case example: Nina 10y

- In treatment at local hospital for chemo
- Suffered allergic reaction to new drug ⇒ seizures ⇒ intubated and ventilated
- Retrieved to GOS PICU for 1 day
Case example: Nina 10y

- In treatment at local hospital for chemo
- Suffered allergic reaction to new drug ⇒ seizures ⇒ intubated and ventilated
- Retrieved to GOS PICU for 1 day
- Transferred back to local hospital
Preliminary results (n=39)

67% remembered some factual information about PICU
Factual Memories

• Pre PICU
  accident, collapse, feeling unwell
• During PICU
  family, staff, (monitors), (tubes)
• Post PICU
  ward, injections, ambulance to local hospital
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<tr>
<th>Time</th>
<th>Activity</th>
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<td>8:00</td>
<td>Event</td>
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“It was very hard to be sick lying down obviously…”

13y boy, head injury
Delusional Memories

- 11 children (28%) experienced hallucinations
- 12 children (31%) experienced nightmares or unusually vivid dreams
Content of Hallucinations

Family members (inc deceased)
Content of Hallucinations

Family members (inc deceased)
Cup of coffee
Content of Hallucinations

Family members (inc deceased)
Cup of coffee
Bleeding cat on ceiling
Content of Hallucinations

Family members (inc deceased)
Cup of coffee
Bleeding cat on ceiling
Bob the builder with hammer
Content of Hallucinations

Family members (inc deceased)
Cup of coffee
Bleeding cat on ceiling
Bob the builder with hammer
Giant talking flower (+)
Content of Hallucinations

Family members (inc deceased)
Cup of coffee
Bleeding cat on ceiling
Bob the builder with hammer
Giant talking flower (+)
Butterflies and clouds (+)
“When I came back from the hospital I was seeing lots of things on the walls.....Um wherever I looked I would see some things ......Yea crawly things”

10y girl, cancer
Proportions of parents and children scoring above PTSD cut offs
Intrusive thoughts

“It came into my mind … sort of like a video clip … going towards the edge … and then the whole of my body just chucked itself forward as if I was crashing. It was really weird”

13y boy, head injury
Associations with PTSD score

• Age NS
Associations with PTSD score

• Age  NS
• Sex   NS
Associations with PTSD score

- Age: NS
- Sex: NS
- Length of stay: NS
Associations with PTSD score

- Age NS
- Sex NS
- Length of stay NS
- Elective v emergency p=0.04
Associations with PTSD score

- Age: NS
- Sex: NS
- Length of stay: NS
- Elective v emergency: p=0.04
- Parent’s PTSD score: p=0.01
Associations with PTSD score

• Age NS
• Sex NS
• Length of stay NS
• Elective v emergency p=0.04
• Parent’s PTSD score p=0.01
• Factual memories NS
Associations with PTSD score

- Age          NS
- Sex          NS
- Length of stay NS
- Elective v emergency  p=0.04
- Parent’s PTSD score  p=0.01
- Factual memories NS
- Delusional memories  p=0.03
Child’s PTSD score by type of memory

![Box plot showing PTSD score by type of memory]
Preliminary 1 yr follow up data
Child PTSD at 3 months
Child PTSD at 1 year
Child PTSD above cut off at 3 mths and 1yr
Child PTSD below cut off at 3 mths and 1 yr
Main findings

• Significant minority of children displaying PTS symptoms 3 months after PICU
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• Twice as many parents affected
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• Children’s distress related to traumatic memories before during and after ICU
Main findings

- Significant minority of children displaying PTS symptoms 3 months after PICU
- Twice as many parents affected
- Children’s distress related to traumatic memories before during and after ICU
- Also related to presence of hallucinations, parental PTS and emergency admission
• Suggestion that some (older?) children become more symptomatic over the year, particularly if parent is also distressed
# Traumatic Stress in Ill or Injured Children

**After the ABC’s consider the DEF’s**

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<tr>
<th>D</th>
<th>Distress</th>
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<td>• Assess and manage pain.</td>
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<td>• Ask about fears and worries.</td>
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<td>• Consider grief and loss.</td>
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<th>Emotional Support</th>
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<td>• Who and what does the patient need now?</td>
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<td>• Barriers to mobilizing existing supports?</td>
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<tr>
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<tr>
<td>• Assess parents’ or siblings’ and others’ distress.</td>
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<td>• Gauge family stressors and resources.</td>
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<td>• Address other needs (beyond medical.)</td>
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How to Assess: Emotional Support

TRAUMATIC STRESS IN ILL OR INJURED CHILDREN

What Does The Child Need Now?
- Ask parents: “What helps your child cope with upsetting or scary things?”
- Ask child: “What has been the best thing so far that helps you feel better?”

Who Is Available To Help The Child?
- Do the parents understand the illness or injury and treatment plan?
- Are they able to help calm their child?
- Are they able to be with their child for procedures?

How Can Existing Supports Be Mobilized?
- Ask parents: “Who can you or your child usually turn to for help or support? Are they aware of what’s happened?”

NCTSN
The National Child Traumatic Stress Network
www.NCTSN.net.org
Eight Ways You Can Help Your Child Cope After Being in The Hospital

1. **Go back to everyday routines.** Normal routines help children feel safe. Help your child go back to doing his/her usual activities—as much as the injury or illness allows.

2. **Be patient and give everyone time to readjust.** Keep in mind that people in the same family can react in different ways. Brothers and sisters can feel upset too. Most family members just need time and reassurance that things are returning to normal.

3. **Set normal limits.** You may be tempted to relax the rules in order to help your child feel special, or to make up for the hard times that he or she is experiencing. However, it is often better for your child if you set normal limits on behavior and keep most of your family rules and expectations the same.

4. **Allow your children to talk about feelings and worries, if they want to.** For younger children, encourage play, drawing, and story-telling. Ask your child (and brothers and sisters) what they are thinking, feeling, and imagining. Be a good listener—and share the facts, as well as your feelings and reactions.

5. **Encourage your child to spend time with friends.** After a serious illness or injury, some children feel a little “different.” They may also wonder how their friends will react. Invite a few of your child’s friends to visit, and help your child plan a few fun activities. It may be helpful to assist your child in answering questions his or her friends may have about the illness or injury (Is it contagious? How long will the bandages be on? etc.)

6. **Help your child do some things on his or her own.** It is often tempting to do things for your child after he or she is injured or ill. But it is more helpful for children to do things again on their own. As much as the injury or illness allows, encourage your child to do the things (including chores) he or she used to do.

7. **Take time to deal with your own feelings.** It will be harder to help your child if you are feeling really worried, upset, or overwhelmed. Talk about your feelings with another adult, such as a friend, your doctor, a counselor, or a member of the clergy.

8. **Follow up with the doctor.** Even if your child is getting better, the doctor needs to know how your child is coping, especially since some injuries and illnesses have behavior changes associated with them. For children and families who need extra help dealing with their reactions, helpful treatments are available. Your doctor will be able to help you figure out what’s best for you and your family.

*Developed by the Medical Traumatic Stress Working Group of the National Child Traumatic Stress Network.*
Critical Care Focus

The Psychological Challenges of Intensive Care

Edited by
Saxon Ridley