Treatment of PTSD in Children
Why Treat PTSD in Kids?

- Distress & Disabling
- Impairs Functioning
- Development Affected
- Co-morbid Problems
- Chronicity
Limited research on Child PTSD Treatment

- Combined approach to treatment
- Cognitive Behavioural Therapy
- Psychotherapy
- Drugs
Aim of PTSD Treatment

- Relieve Distress
- Reduce Impairment
- Resume Development
- Prevent Co-morbidities
- Prevent Chronic Disorders
Essential Components of Treatment

- Psycho-education
- Stress Management
- Direct Exploration of Trauma
- Exploration & Correction of inaccurate attributions
- Parental Involvement
- Drug Treatment
Psychoeducation

- Symptoms of PTSD
- Course of Untreated PTSD
- Rationale of Treatment
- Treatment Goals
- Treatment Components
Relaxation Techniques

- Gain control over thoughts & feelings
- Give confidence & Increase capacity to explore trauma
- Handle Re-experiencing phenomena
Direct Exploration of Trauma

Encourage child to relax & describe event with diminished hyper-arousal and negative affective states.

Expose child to the phobic stimulus in a safe and supportive environment & help gain mastery over trauma.
Identify, Challenge and Reconsider negative cognitive attributions related to trauma such as “It was my fault”, “The world is not a safe place”
Parental involvement

Parents’ issues & distress resolved so they are perceptive & responsive to child’s emotional needs.

Parents learn behavioural strategies to help child deal with trauma.
Drug Treatment
In Paediatric PTSD
Studies have shown that stress or trauma affects different neurotransmitter, neuro-endocrine systems and neuroanatomical structures.
Why Drugs for PTSD?
Evidence of medication efficacy in adults

- Comorbid conditions respond well to drugs

Failed Response to CBT

Neurobiological abnormalities noted in Child PTSD
No randomized, double blind, placebo-controlled clinical trials in drug treatment of Childhood PTSD.

Cohen et al – 95% who treat childhood PTSD use drugs together with psychodynamic and cognitive behavioural therapy.
Drugs for PTSD

Drugs treat symptom clusters of PTSD and co-morbid disorders.

Usually adjunct.

No / Partial response to Psychotherapy.

Severe Symptoms (agitation, aggression, anxiety, insomnia, depression or self mutilation).
Chronic, Disabling PTSD
Disabling Co-morbid conditions
No Access to Psychosocial Treatments

Treating even 1 disturbing, disabling PTSD symptom can bring great relief & improve child’s functioning
Drug Treatment

- Alleviate distressing symptoms that interfere with daily functioning and hinder psychotherapy
- Treat co-morbid disorders such as depression, anxiety, panic, ADHD
Choice of drug tailored to patient’s needs, concerns & preferences

- Broad-spectrum drugs to target a range of symptoms

- Specific drugs targeting specific co-morbid conditions

Drug Combinations
Drugs in Childhood PTSD

Adrenergic Agents

Dopiminergetic Agents

Serotonergic Agents

Mood Stabilisers
Amydala & Normal stress

Integrate multimodal sensory information & attaches emotional valence to it

Triggers stress response

Amydala hyper-responsiveness in veterans in response to fear stimuli compared to controls
HPA & PTSD

Increased cortisol levels in Child PTSD

Stress stimulates HPA Axis & increases cortisol levels

Cortisol helps in Stress

Excess Cortisol Toxic to Hippocampus
Trauma & Neuroanatomical Damage

Hippocampal damage – affects emotional regulation, learning, memory

Trauma affects Prefrontal Cortex

PFC Damage – Poor Judgement, Impulsivity, Fear response
Children with PTSD

- Lower intracranial, corpus callosum volume than carefully matched controls

- Co-related with age & duration of abuse (DeBellis et al., 1999)

Trauma Toxic to Brain Development

Early, Effective Intervention Vital
Noradrenaline / Adrenaline & Normal Stress

NE Release from Amygdala, Locus Coeruleus, PFC, Hypothalamus & Hippocampus

Sympathetic arousal, anxiety, frontal lobe activation, mood regulation, thinking & perception.
Activates “Flight or Fight” Response

Increases Cortisol production

In PTSD, sustained increased adrenergic tone & reactivity

Hyperarousal symptoms in PTSD
Adrenergic Agents

Alpha 2 agonist – Clonidine, Guanfacine

Beta antagonist – Propranolol

Adrenergic agents mainly target Re-experiencing and Hyperarousal symptoms
Perry et al – 17 PTSD children had improvement in anxiety, concentration, mood & impulsivity with low doses of clonidine

Famularo et al – Propranolol reduced symptoms significantly in 8/11 abused children with PTSD.
Serotonin System and PTSD

Involved in satiety, mood, aggression, anxiety, impulsive compulsive behaviours

PTSD - aggression, obsessive, intrusive thoughts, substance abuse, panic, dissociative symptoms, flashbacks may be due to serotonin disturbance
Serotonin System and PTSD

Comorbid conditions of PTSD (depression, suicidality) also mediated by serotonin

SSRIs - Prozac, Sertraline, Paroxetine

Most commonly used first line drug in Childhood PTSD
SSRI Drugs & Trauma

Have broad-spectrum action on mood, anxiety & obsessive, compulsive symptoms

Safe & well tolerated

Reduce re-experiencing, anxiety, panic, mood symptoms

Side effects – GIT symptoms, headache, insomnia, sleepiness
Dopamine System in Stress

Amygdala excitation increases Dopamine release from PFC & other sites

Sexually abused girls, abused children with PTSD have increased urinary DA & DA metabolites

(Debellis et al., 1999)
Stress & Dopamine

Dopamine excess causes Prefrontal Cortex under-activity & failure to extinguish conditioned fear responses, hyper-vigilance & paranoia

Dopamine blocking drugs help hyper-vigilant, agitated & paranoid PTSD patients
Dopaminergic agents

Olanzepine, Risperidone & quetiapine used in severe PTSD cases

Horrigan & Barnhill, 1999

13/18 kids with PTSD & high rates of co-morbid psychiatric disorders, had remission of symptoms with Risperidone
Side Effects – Rigidity, Bradykinesia
Acute dystonia, Akathesia, Tardive dyskinesia

Limited to severe PTSD - psychotic symptoms, severe aggression, intense flashbacks, self destructive behaviour
Anticonvulsants – Carbamazepine, Sodium valproate

Carbamazepine – labile mood, anger, flashbacks, nightmares, intrusive memories, sleep disturbance

Sodium Valproate – avoidance, numbing, hyperarousal, sleep difficulties, anger, rage
Tricyclic antidepressants & Venlafaxine

Benzodiazepines - addictive potential, rebound effects

Lithium

Methylphenidate & Bupropion (ADHD)
Endogenous Opiate System

Stress releases endorphins from substantia nigra & mesolimbic regions

Causes pain analgesia

In PTSD, excessive endorphins may lead to psychic numbing

Endorphins raised in combat veterans with PTSD
Opiate Antagonists

Glower, 1992 – Naltrexone reduced numbing but not PTSD symptoms, worsen in some others

In Child PTSD, self injurious behaviour (SIB) common

Naltrexone may be helpful in reducing SIB
Drug Treatment in Childhood PTSD

Assess Target PTSD & Comorbid symptoms

Treat & Monitor response & Progress

Add Additional Drugs if necessary
Drug Treatment in Childhood PTSD

May need to treat Comorbid conditions prior to or concurrent with CBT for PTSD

Consider pre-morbid history, medical conditions
Stress & Amygdala

Locus Coeruleus – Noradrenaline

Hypothalamus – Hypothalamo-Pituitary Axis

Ventral Tegmentum – Dopamine release to Prefrontal cortex

Central Grey Matter – Conditioned “freezing”
4 criteria to make a DSM IV diagnosis of PTSD

- Exposure to major stressor
- Re-experiencing of the event
- Avoidance of stimuli or numbing of general responsiveness
- Persistent Hyperarousal
DSM IV Criteria for PTSD

A. Person has been exposed to traumatic event in which both of the following were present:

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Person experienced, witnessed or was confronted with an event/events that involved actual or threatened death or serious injury, or a threat to the physical integrity of other

Person’s response involved intense fear, helplessness, horror (Agitation, disorganization in children)
B. Traumatic event persistently re-experienced in 1 or more of the following ways:

   Recurrent, intrusive distressing recollections of the event (images, thoughts or perceptions, repetitive play with themes or aspects of trauma)
Recurring distressing dreams of the event

Acting or feeling as if traumatic event were recurring (sense of reliving the experience, illusions, hallucinations, dissociative flashbacks, trauma specific reenactment in children)
Intense psychological distress at exposure to internal / external cues that symbolize or resemble an aspect of traumatic event.

Physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of traumatic event.
C. Persistent avoidance of stimuli associated with trauma & numbing of general responsiveness, as indicated by 3 (or more) of the following:

Efforts to avoid thoughts, feelings, or conversations associated with trauma.

Efforts to avoid activities, places or people that arouse recollections of the trauma.
Inability to recall an important aspect of the trauma

Markedly diminished interest or participation in significant activities

Feelings of detachment or estrangement from others

Restricted range of affect

Sense of foreshortened future
D. Persistent symptoms of increased arousal as indicated by 2 (or more) of the following:

- Difficulty falling or staying asleep
- Irritability or anger outbursts
- Difficulty concentrating
- Hyper-vigilance
- Exaggerated startle response
E. Duration of disturbance is more than 1 month

F. The disturbance causes clinically significant distress or impairment in social, occupational or other important areas of functioning