PREVENTION OF PTSD IN THE WORKPLACE

OCCUPATIONAL HEALTH CLINICS FOR ONTARIO WORKERS
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PREVALENCE OF PTSD

- Lifetime risk of exposure 60% men, 50% women
- Lifetime prevalence of PTSD 1% - 14%
- Victims of natural disasters 20% - 30%
- US veterans 10% - 30%, Canadian veterans 8% - 10%
- US police 10% - 20%, Canadian similar
- Canadian correctional officers 17% - 26%
- Canadian paramedics 26%
- Canadian firefighters 17%

SITUATIONAL FACTORS: TRAUMATIC DISTRESS

- Personal experience, witnessing or learning about actual or threatened death, serious injury, sexual violence
- excludes second-hand images, except for first responders/police
- Proximity, prolonged duration
- Human perpetrator vs. act of God
- Intentional vs. unintentional
- Involvement of a child
- grotesques injuries/death, espec. facial disfigurement

SITUATIONAL FACTORS: TRAUMATIC DISTRESS

Traumatic distress intensified for high risk occupations:

- Line of duty injuries or death
- Unpredictable, unexpected
- Chaos, surrealism of scene
- Scrutiny by the public, media
- Repeated exposure causes **sensitization**

INDIVIDUAL FACTORS: TRAUMATIC DISTRESS

Pre-existing vulnerability:

- Neurobiological,
  - genetic endowment, early developmental factors
  - Fear memories and fear conditioning, CNS / ANS stress reactivity
- Pre-existing psychiatric disorder, especially PTSD
- Pre-existing / concurrent psychosocial stressors, overwhelm psychological coping resources

INDIVIDUAL FACTORS: TRAUMATIC DISTRESS

Peri-traumatic vulnerability:

- Subjective appraisal, cognitive dissonance
- Degree of control *
- Negative mood/cognition:
  - helplessness, uncertainty, self-doubt, indecisiveness, self-criticism/judgement, fear, shame, guilt, anger, disgust
- Psychological/psychophysiological symptoms:
  - Anxiety, dissociation
  - CNS, ANS stress reactivity *

INDIVIDUAL FACTORS: TRAUMATIC DISTRESS

Post-traumatic vulnerability:

- Psychosocial supports: family, friends, health professions
- In the workplace: peers, supervisors, management, WSIB, media, the public, oversight organizations
- Labels, stigma
- Self-support: second guessing judgement, actions, culpability
- Acute Stress Disorder
  - >50% develop PTSD

PRIMARY PREVENTION
Universal Interventions

- Screening for vulnerability
- Resilience training
  - 2011 Rand report findings
  - Strongest evidence for 7 factors promoting resilience: positive thinking, positive affect, positive coping, realism, behavioral control, belongingness, positive command / management
  - Scientific evidence for efficacy of training lacking

PRIMARY PREVENTION
Universal Interventions – Resilience Training

- 2013 meta-analysis of Resilience training programs
- 7 studies which met criteria
  - delivered prior to occurrence of a traumatic event
  - data collected regarding psychological well-being post-trauma
  - no evidence of efficacy in preventing PTSD
- 2013, first RCT primary prevention
  - 73 firefighter recruits
  - 4 hr. training, psychoeducation, development of practical coping skills
  - followup 6 & 12 months
  - No evidence prevented mental health issues, improved coping strategies

PRIMARY PREVENTION
Universal Interventions – Resilience Training

- Recent Canadian & Finnish research on police stress & resilience
- Mental Preparedness key component of resilience training
  - Psychoeducation
  - Practise-focused, stress response techniques
  - Sufficient practise translates to *automatic* responses (‘over-learning’)
- Repeated exposure with practise, **de**sensitization
  - conditions response of reduced anxiety, reduced emotional arousal, strengthens self-efficacy

PRIMARY PREVENTION
Universal Interventions – Self-regulation Training

- Relaxation, mindfulness meditation, yoga
- Heart Rate Variability (HRV)
  - refers to ongoing variations in heart rate
  - focus of stress researchers & peak performance training
  - largely under control of ANS
  - impacted by both physical and psychological factors
  - stress and anxiety decrease HRV
  - important indicator of physiological and psychological resiliency and flexibility
- HRV can be trained with biofeedback, quick, objective
- Low HRV may be a risk factor for PTSD

PRIMARY PREVENTION
Universal Interventions – Reducing exposure risk

- No efficacy studies but may have relevance to specific cultures
- Rotation of duties, assignments to allow ‘breaks’
- Evaluate work shifts in light of research on importance of REM sleep in memory consolidation
- Stability in partner/team assignment fosters trust, support, predictability
- Routines such as checklists reduce uncertainty, indecision, risk of errors

SECONDARY INTERVENTIONS

- Screening after exposure
  - Under-reporting – stigma
  - Over-reporting – secondary gain, expectations, WSIB presumptive coverage for PTSD
- Critical Incident Stress Debriefing
  - Controlled studies show CISD does not prevent PTSD
  - Peer support still widely used, no efficacy literature

SECONDARY INTERVENTIONS

- Pharmacological
  - Antidepressants – contraindicated for recent trauma
  - Agomelatine - interferes with serotonin & memory consolidation
  - Beta blockers – lower physiological stress response
- Brief CBT for Acute Stress Disorder
  - Cognitive restructuring
  - Imaginal & in vivo exposure to trauma triggers key
  - Self-regulation/stress management

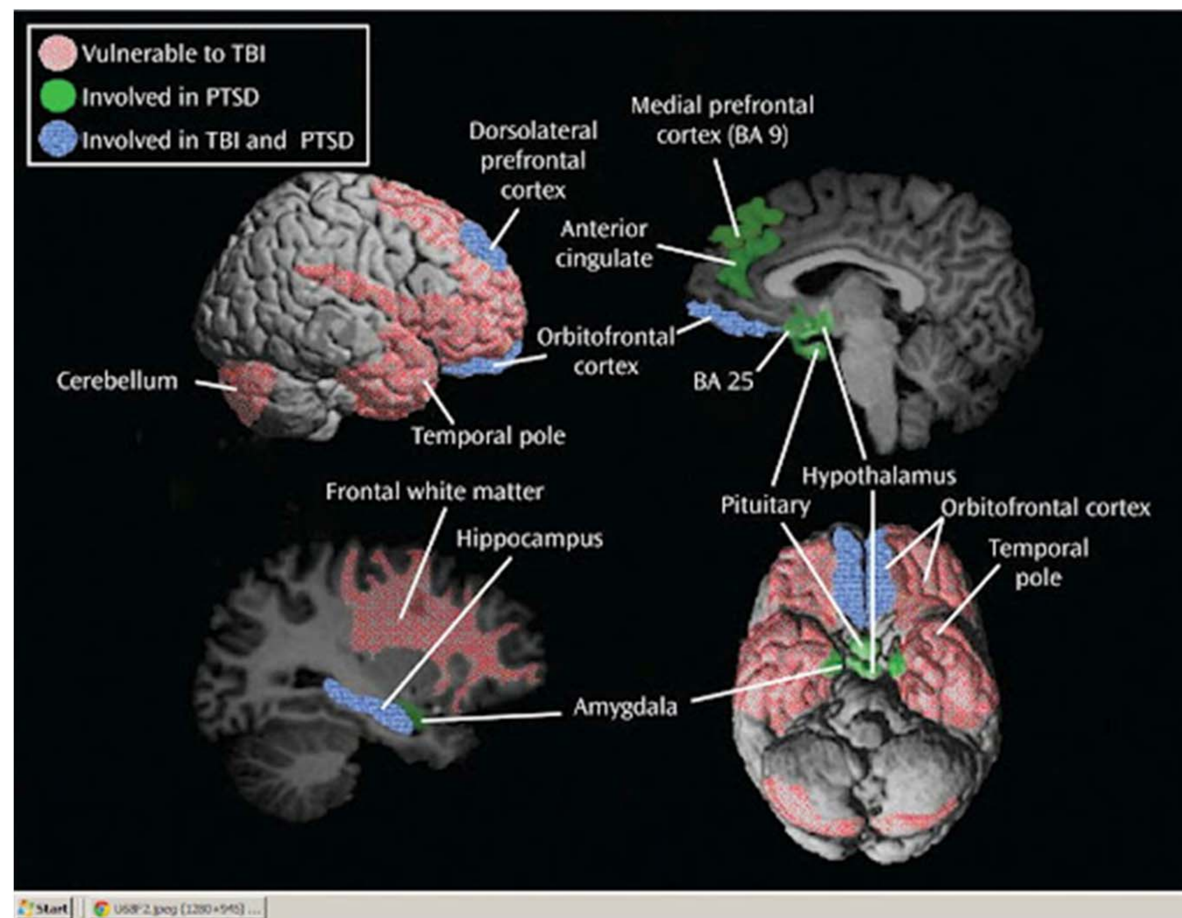
TERTIARY INTERVENTIONS – FOR PTSD

- Cognitive Behaviour Therapy (CBT)
- Eye Movement Desensitization & Reprogramming (EMDR)
  - Imagine traumatic event, engage negative cognition, articulate incompatible positive, adaptive cognition
  - Concurrent rapid saccadic eye movement
  - Protocol for EMDR with recent trauma, no RCT's as yet

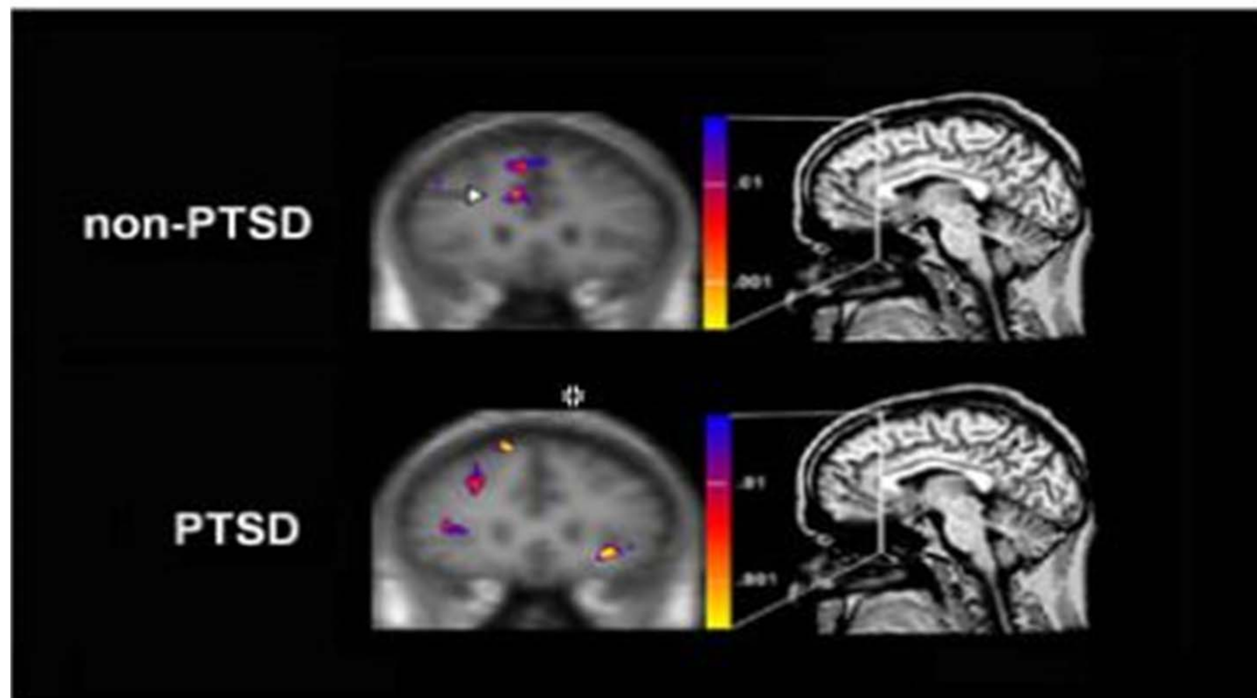
TECHNOLOGY ASSISTED INTERVENTIONS – FOR PTSD

- Biofeedback – HRV, HRV-Respiration Coherence training
- Virtual Reality Assisted Exposure Therapy
- Brain-Computer Interface training
  - Neuroimaging studies of brain changes with PTSD
    - Hippocampus, amygdala, ventromedial prefrontal cortex, hyperconnectivity research
  - Neuroplasticity

BRAIN AREAS INVOLVED IN PTSD



PET, MRI, FMRI, MEG, EEG



NEUROFEEDBACK – TREATMENT OF PTSD

- Neurofeedback with fMRI, EEG biofeedback
- normalize neural activation, connectivity patterns through operant conditioning
- efficacy of neurofeedback with PTSD
  - Integrated in treatment of military, veterans in US, research funding
  - Bessel van der Kolk, "effect sizes of NF in the study were comparable to those reported for the most effective evidence based treatments for PTSD"
- Portable home-use biofeedback technology – HRV, emWAVE, MUSE

MUSE – NEUROFEEDBACK DEVICE

EMWAVE - HRV & COHERENCE BIOFEEDBACK

PREVENTION OF PTSD RELAPSE
AFTER RTW

- PTSD maximum medical recovery (MMR) follows RTW
- final phase of exposure therapy must occur in the workplace
  - Trauma cues & triggers can be concrete, sensory or actions
  - Support and expectations from management, supervisors, coworkers often unavailable, counterproductive, inflexible
  - Strategies must support coping and mastery, not avoidance
  - Liability challenges with first responders

FUTURE DIRECTIONS FOR PTSD PREVENTION

- ***Prevention of PTSD, although not yet a reality, is within our grasp***
- Primary intervention - Resilience training, must include self-regulation component, psychoeducation, coping skills,
- Practise essential, concept of *overlearning*
- Secondary intervention, following exposure
  - screen for Acute Stress Disorder, self-report and objective measures
  - enhanced focus on modulating ANS and CNS dysregulation, objective testing
  - Technology assisted training efficient, cost-effective, engaging, measurable
  - brief individualized CBT with mental health prof. for ASD
- Canadian pilot study of PTSD prevention with high risk occupations