The Dreaded Post Concussion Syndrome

Ricardo Guirola MD M Ed
Pediatric Rheumatology and Pediatric Sports Medicine

Objectives

• Define post-concussion syndrome and controversies on definition

• Describe multidisciplinary approach for post-concussion syndrome

• Describe additional early interventions for management of post-concussion syndrome
Few Words on....Post Concussion Syndrome

• Typical concussion 7-10 days recovery
• Symptoms
  – Prolonged weeks to months
  – EVEN YEARS!!
• Definition poorly understood
  – Controversial

Definition ICD-10

• Traumatic Brain Injury
• 3>symptoms
  – Headache
  – Fatigue
  – Irritability
  – Insomnia
  – Cognitive deficits
  – Intolerance of stress
  – Emotional liability
Controversies on Definition

• Non specific symptoms
• Premorbid pathology
• Psychosocial
• **Symptom reporting**
  – Over reporting
  – Under reporting

What other syndromes have similar definitions??

• Fibromyalgia
• Systemic Exertional Intolerance Syndrome
• Chronic Migraines

• **AMPLIFIED PAIN DISORDERS**
• **DEPRESSION/ANXIETY**
Post Concussion Syndrome

- **Headache/Chronic pain**
- Dizziness
- Insomnia
- **Exercise intolerance**
- Depressed mood
- Cognitive problems
  - Memory loss
  - Poor concentration
  - Fatigue

What Happens to Brain in Post Concussion Syndrome?

- **Mostly unknown**
  - Decreased myelin
  - Increased acceleration and deceleration
  - Decreased synapsing

- **Concerns for increased risk in children and adolescents**
Who can get Post Concussion Syndrome?

- Younger patients?
- Females?
- Learning Disabilities
- Neuropsychiatric Disorders
- Family History

Who can get Post Concussion Syndrome?

- No proven correlations
  - Severity of injury
  - Structural damage
  - Genetics
    - APO E
Imaging

- Conventional Studies
  - MRI
  - CT
- Promising Research
  - fMRI
  - PET SCAN
  - DTI

Neurocognitive Testing

- IMPACT
  - Repeat multiple times until

- Neuropsychological testing
  - Full testing
  - More information
  - Education
Post Concussion Syndrome Management

- **Time major factor**
- Recovery is frustrating
  - Academics
- **Multidisciplinary management**
  - Neuropsychology
  - Cognitive therapy
  - Rehabilitation
  - Progressive return to exercise

Education, Education, Education

- GETTING YOUR BELL RUNG IS A
  - CONCUSSION
  - IT TAKES A TEAM TO
    - Keep CONCUSSIONS in the Darkness
First and Foremost...Getting back to Regular Lifestyle

- **Prolonged rest**
  - Detrimental
    - Depression
    - Deconditioning
- **Early reintroduction to validating life activities**
  - **School-kids job**
  - Social
  - Nutrition
  - Sleep

Role of Physical Therapy

- **Strong association**
  - Vestibular dysfunction
  - Cervical spine dysfunction
- **Vestibular/Cervical Therapy**
  - Balance
  - C spine exam
- **Early recognition**
Early Return to Exercise

- **Reintroduction to exercise**
  - Symptom threshold
  - Graduated

- **Controlled Aerobic Rehabilitation**
  - HR/BP/VO2
  - Treadmill
  - Symptom scores

Cognitive Therapy and Biofeedback

- **Interventions to improve**
  - Attention
  - Anxiety
  - Depression
  - Cognition
  - Pain

- **Neuropsychology input**
Medications

• Headaches/Sleep
  – Amitriptyline
  – Early use
  – Low doses
• Depression
  – SSRI
• Omega 3 fatty acids?
• AVOID OPIATES!!

Goals for Management

• The earlier.....the better
• OK to encourage and push
• MULTIDISCIPLINARY APPROACH
Conclusions

- Prolonged symptoms result in Post Concussion syndrome
- More common in youth and females
- Definition poorly understood like other chronic disorders
- Testing usually not helpful
- Early recognition and intervention are goals to therapy and recovery

Bibliography

- Gagnon I, Galli C, Friedman D, Grilli L, Iverson GL. Active rehabilitation for children who are slow to recover following sport-related concussion. Brain Inj.2009 Nov;23(12):956-64. doi: 10.3109/02699050903373477