

Real Time Assessment in Treatment of TBI

I. Introduction

- A. Who am I
 - 1. Qualifications
 - 2. Experience
- B. What I am talking about
- C. Goals of talk
 - 1. Understand functional neurology approach to TBI
 - 2. Take home skills and tools to use

II. What is functional Neurology

- A. Term is a description rather than a definition
- B. My description, four components
 - 1. Assess
 - 2. Treat
 - 3. Measure
 - 4. Prescribe

III. Who do we treat

- A. Anatomical damage with deficits(TBI)
 - 1. Previously diagnosed
 - 2. Previously treated
 - 3. Last stop
 - 4. 1-3 years post injury
- B. Deficits without anatomical damage (mTBI)
 - 1. First treating physician
 - a) MVA
 - b) Sports
 - c) Falls
 - 2. Previously diagnosed but rarely treated
 - 3. Undiagnosed and untreated
 - 4. Tractography revealing damage previously not seen
- C. Principles of Treatment is same for both groups

IV. *Getting started*

- 1. *Discard bias*
- 2. *Develop strong observational skills*

- a) *See what's there*
 - 1) *Common not equal to normal*
 - 2) *Persistent not equal to normal*
 - 3) *Devil is in the details*
 - 4) *When in doubt record and take pictures*

3. *Accept the evidence*

4. *Triple Match*

- a) *History*
- b) *Exam*
- c) *Imaging and instrumentation*

V. *Principles of Management*

- A. *Identify the areas of dysfunction*
- B. *Identify areas of viability*
- C. *Can we use connective pathways*
- D. *Apply therapeutic activity*
- E. *Observe the response*
- F. *Prescribe treatment*

VI. *Identifying the area of dysfunction*

A. *Physical Exam*

1) *History*

- a) *Onset of symptoms*
Original, with time and new
- b) *List of symptoms*
- c) *Prior assessment, interventions*
- d) *outcomes*
- e) *Current plan and prognosis*
- f) *General health questions review of systems*
- g) *prior injuries*
- h) *What specifically would you hope we could help you do*

2) *Exam procedure with some video*

a) *Gait include get up from chair, wide base, amplitude and cadence, turn both directions, narrow passageway*

dual task, arm swing and tandem walk

b) *Rombergs ioncluding fall, sway, posture, yaw, titubation, tremor*

c) *Arms outstretched- placement, postural tremor, bat arms away, finger to nose, finger movement dysdiodochokinesia shoulder movement and stability*

d) *Single leg stance with head in different positions*

e) *Sitting Eyes*

1) *OPK vertical and horizontal*

2) *pursuits and saccades*

3) *Any nystagmus*

4) *Skew*

5) *Near response*

6) *Gaze stability*

- 7) *Pupillary Response, symmetry, fatigue, aversive reaction or salutary response*
- f) *sitting; rest of tests*
 - 1) *Facial symmetry and sensation*
 - 2) *Tongue and palate*
 - 3) *Auditory*
 - 4) *Neck*
 - 5) *Shoulders*
 - 6) *Upper extremity*
 - a) *Tone*
 - b) *Strength*
 - c) *DTR*
 - d) *Sensation*
- g) *Prone*
 - 1) *Hip strength and mobility*
 - 2) *Foot strength*
 - 3) *Knee strengths*
 - 4) *Heel to shin and patella tap*
 - 5) *Sensation*
 - 6) *Tone*
 - 7) *Babinski*
 - 8) *DTR*
- h) *Supine*
 - 1) *Spinal tone*
 - 2) *Spinal percussion*
 - 3) *Spinal Gallant*

B. Instrumentation

1 Neurocom

- a) *mCTISB*
 - b) *L.O.S.*
- 2) Interactive Metronome*

C. Imaging studies and prior records

VII Treatment

- A) *Triple match*
- B) *Apply therapeutic applications*
 - 1) *Vision*
 - a) *Opk*
 - b) *Pursuits and saccades (remembered, antisaccades, express saccades, etc.)*
 - c) *Vergence*
 - d) *Light with movement, hemistim, eyelights, patterns*
 - e) *Big picture little picture activity*

- f) mirror image
- g) Gaze stabilization
- 2) Sound different tones
- 3) Proprioception including walking, balance activity, manipulation, complex multiplanar movements fine motor skills and core stabilization Tendon taps
- 4) Vestibular activities including spinning, sinuisoidal, VOR
- 5) Smells
- 6 IM number of different protocols
- C) Measure the Response
 - 1) Immediate change usually short term potentiation
 - 2) Lack of response
 - a) Poor technique
 - b) Wrong area or wrong type of treatment
 - 3) Watch for fatigue
- D) Prescribe and train
 - 1) Develop plastic changes through long term potentiation
 - 2) Low and slow
 - a) Less intensity
 - b) Greater frequency
 - 3) Perfect technique
- E) Repeat the next visit
 - 1) Therapeutic applications change with patient
 - 2) Use time in office to assess further utility of current regimen and develop new activities
- F) Videos of treatment, testimonial
- G) Closing