# The outpatient clinic for post- concussion symptoms at St. Olavs Hospital

Toril Skandsen

Trondheim 4. May 2017

## Disclosures

- This is not a lecture consisting of any facts, only a description of a suboptimal medical service that need to be developed.
- We do not know what condition we are treating
- We do not know what to do
- We do not know if we succeed

# A clinical service being born

- After initiating research on mild TBI, we started to meet more patients with post-concussion symptoms (PCS)
- As participants in the study
- Referals from GPs and neurologists
- Has become an «agreement» that our clinic is in charge, rather than the neurologists

<u>The patient I am talking about here:</u>

Uncomplicated mild TBI, i.e. no findings on imaging, short duration of amnesia.

Some do not meet «criteria» for mild TBI, i.e. no loss of consciousness, no amnesia, but describe headache, dizziness, nausea after the event.

# Our (my) current understanding

- Theories of the **acute pathophysiology of mild TBI** include the neurometabolic cascade, autonomic dysfunction, abnormalities in cerebral blood flow, widespread traumatic axonal injuries at the microscopic level- not visible on clinical MR ( we need DTI???)
- The evidence of the existence of such pathophysiological characteristics in animals or humans are sometimes the basis of hypotheses of what **the pathophysiology of the PCS** could be
- But this does not explain why **most persons with mild TBI do not** go on to experience the long lasting symptoms of PCS, and definitively not why so many **patients with much more severe injuries** do not develop the PCS
- There has to be something with the response to injury that is very individual
- But what is that? Statistically linked to premorbid problems and emotional disturbances, or to co-occuring issues. Could be anxiety, tress reactions, PTSD?
- Could also be a vulnerable physiology? An intolerance, an «allergy» for stimuli or activity has developed?
- WE DO NOT KNOW

# The extent of the clinical service

- Two specialists in Phys med and rehab, one day per week each
- A physiotherapist, only part time.
- A psychologist helps to sort out need for psychotherapy
- We can refer to Neuropsychological testing in a separate team

Good thing: we manage to see all who are referred within 2-3 weeks

Bad thing: we don't really know what to do

We hope to expand:

- More time for physiotherapist, especially vestibular rehab
- More time for psychologist

# The concept of the  clinical service

- Review diagnosis carefully, how «bad» or «minor» was the initial injury
- History: previous TBI, headache, family history, other things going on?
- A description of the symptoms. They fill inn the Rivermead PCSQ
- Examination targeted to symptoms

# The concept of the clinical service

## Education, general – (minor injury):

- **We do not know** what process in the brain that gives you these symptoms
- but we believe that **the concussion was too mild to produce a structural, permanent damage to your brain**.
- So, we believe that rather, **the concussion has initiated** some dysfunction of your brain networks at the moment, **which is a much better situation**.
- For some reasons, could be genetic, **you are among the few** who are vulnerable to **continue** to experience the acute symptoms. That **does not** necessarily mean that the trigger is still there. The circuits may start to «live their own life» or react to «nothing» compared to before
- **Stress, anxiety, worrying, monitoring** can make you perceive the symptoms as worse. Distractions and stress reduction may therefore help.
- We will help you, and you will get better

# The individual

We see a lot of headache and intolerance of mental and physical avtivity. Not as pervasive as in ME (CFS), but there are sometimes similarities.

- Sleep and headache – we discuss with one neurologist. Often necessary to reduce pain killers, change to other drugs, like amitryptiline for a period
- Physical activity – here is the best evidence
- Realistic time-frame. May take a long time!
- Graded increase in school or work if possible. Sort out how. Difficult part. How much shall we push?
- Relation over time.
- We talk about the emotional part
- If patient experience cognitive problems over time: NP testing sometimes
- Some are referred to cognitive behavioral therapy based interventions or other psychotherapy.

# Physical activity

- Some do not exercise because they beleive that the best thing to do is to rest: they start graded physical activity in steps.
- We agree on a «program», reduce if the following day is worse.
- Non-contact sports

- Some experience a marked exercise intolerance. A dysfunction of the autonomic nervous system, leading to a dysregulation of cerebral blood flow during exercise and rest, or the switching between them?
- BP, heart rate
- Treadmill testing
- Controlled, subsymptom threshold exercise

# Buffalo Concussion Treadmill Test

- Barry Willer, Buffalo. Prof Psychologist. Director of research for the University concussion clinic.
- Has developed a treadmill test.
- The test is based on the Balke cardiac protocol with gradual increase in workload (incline). Determines the HR at the threshold for symptom exacerbation.
- Controlled, subsymptom threshold exercise, at intensity 80 %of threshold, 5-6 days per week up to 20 min.
- We have tried in 6-8 patients
- Partly successful....

# We need to improve

- Better examinations, more sophisticaded for autonomic function?
- Vestibular function?
- Neck is very difficult. Can move it into gthe wrong direction, too
- Better psychotherapy, at our own place
- More systematic documentation of effects
- We need studies
- Together????