Systematic review of therapy for concussion/ mild traumatic brain injury.

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Introduction

PROBLEMS: (1) After traumatic brain injury/concussion there may be slowed information processing, reduced working memory, decreased sustained attention, and difficulty with multiple steps, changing demands and dual tasks.

(2) Fatigue, sleep disturbances, increased visual and auditory sensitivity and anxiety are frequent.

(3) Specialized TBI/concussion rehabilitation assessment and treatment clinics are often overloaded with insufficient places. Many patients receive either no or delayed therapy.

(4) Family or emergency physicians are most likely first to assess and treat.

RESEARCH QUESTION: What is the evidence from randomized controlled trials at low risk of bias that family physicians can initiate therapy (ideally with a psychologist, physiotherapist, and family members?)

Methods

SEARCH: 17 electronic and 9 grey literature databases searched without language/date restrictions.

DATA ABSTRACTION: 3 reviewers independently assessed abstracts/titles, screened 1,028 papers for relevance and abstracted data for 35 RCTs.

DATA ANALYSIS: RCTs were small (largest n = 366).

- Some authors used few and some many outcome measures which were very varied across studies with few measures used in more than three RCTs.
- Thus meta-analysis was not possible either across the entire field of RCTs or within domains.
- Weighted averages were computed for SCAT components and totals

Findings

Finding 1: 28 of the 35 (80%) RCTs found significant positive results for 4 of the key domains in mild traumatic brain injury requiring therapy:

(1) Improve attention and information processing (6 RCTs, n=345): 4 found significant positive results:
1 used cognitive remediation, 1 used Time and Pressure Management Strategies, 2 used methylphenidate

(2) Improve executive function and self-awareness (11 RCTs, n=526): 9 found significant positive results:
6 used metacognitive strategies for problem-solving, planning and organization for everyday problems
2 used strategies to improve information analysis and synthesis
1 used corrective feedback

(3) Improve cognition with cognitive strategies (11 RCTs, n=1245): 10 found significant positive results:
9 rehearsed communication skills in the situations in which the person was living, working, being educated or socializing, and addressed goals patients identified to improve their deficits in social communication and 1 focused on communication skills.

(4) Improve memory (7 RCTs, n=321): 5 found significant positive results:
Used instructional or metacognitive strategies of visualization, repeated practice, retrieval practice; and environmental support (paging, smartphones).

Finding 2 We found no RCT to train family members as communication partners to identify problems, provide assistance and monitor progress of the individual with concussion.

Conclusions

- The **family physician** can begin a useful therapy program if the patient has a long wait for a specialist center.
- A **psychologist** can implement relevant elements of the above RCTs. A physiotherapist can help with sensory problems.
- **Family members as "communication partners"** can:

(1) **Refresh work skills**. Bring the key manual from work, plan usual activities at work based on the manual, solve problems together, suggest strategies to improve comprehension, memory, planning and execution and provide encouragement.
(2) **Plan daily activities at home**. If memory is a problem then list the steps in common tasks, e.g. planning and preparing shopping and meals.
(3) **Diarize tasks.** Modern society runs on coordinating activities and information. Show the patient how to use the cell phone to plan activities and link them to key persons who need contacting for each activity. Follow progress in a common diary and make suggestions and reminders.