Post-Concussion Syndrome Treatment Guidelines

Post-concussion syndrome (PCS) is a heterogeneous condition characterized by a range of symptoms across somatic, cognitive, and emotional domains (Dwyer & Katz, 2018). It is not a distinct diagnosis but rather describes patients who experience persistent symptoms following a concussion (Leddy et al., 2012).

While no single treatment cures PCS, various strategies can help manage the condition. In most cases, symptoms gradually improve over time.

Treatment guidelines

- The treatment for PCS is individualized based on each patient's specific symptoms. Often, simple reassurance is the primary approach (Evans et al., 1994).
- Most patients show improvement within three months. In the absence of targeted treatments, a symptomatic approach can be adopted by clinicians (Permenter & Sherman, 2020).
- Treatment should follow a structured, step-by-step approach to managing treatable symptoms that affect functioning, including depression, anxiety, insomnia, headaches, musculoskeletal pain, and vertigo (Dwyer & Katz, 2018).
- Physical and cognitive rest for the first 24 to 48 hours after the injury is recommended (Permenter & Sherman, 2020). However, there is limited evidence supporting the long-term benefits of such rest for advanced recovery (de Kruijk, 2002).
- Cognitive behavioral therapy (CBT) may be considered early after a mild traumatic brain injury, as it is well-tolerated and has the potential to facilitate recovery in patients at risk of developing chronic PCS (Silverberg et al., 2013). This therapy supports patients in regaining cognitive function and developing coping strategies to manage deficits, thereby promoting overall recovery (Concussion Legacy Foundation, n.d.).
- Patients should resume play or regular activities only when they are symptom-free at rest. It is critical to avoid the risk of a second concussion while still recovering from the initial injury. Research shows that patients who rested for two days versus five days returned to their baseline faster (Permenter & Sherman, 2020).
- Individuals with a history of concussion should undergo a comprehensive evaluation that includes tests for vergence, accommodative function, and eye movement. Vision therapy may be beneficial, as it has demonstrated successful or improved outcomes in the majority of cases where treatment was completed (Gallaway et al., 2017).
- Non-contact aerobic exercise may aid individuals experiencing prolonged recovery or PCS (Graham et al., 2014). As long as additional impacts are avoided during the window of vulnerability, exercise does not seem to negatively affect recovery in youth recovering from sports-related concussions (McCrea et al., 2009).
- Several medications and treatment strategies have been employed to manage post-traumatic headache syndromes, particularly in cases of PCS. These include:
    - **Amitriptyline,** a tricyclic antidepressant, has shown effectiveness in treating post-traumatic headaches by inhibiting serotonin and norepinephrine reuptake, which helps alleviate pain and improve sleep quality (Hurwitz et al., 2020).

- **Intravenous dihydroergotamine,** primarily used for acute migraine relief, may also be beneficial for severe PCS-related headaches, acting as a vasoconstrictor and reducing cranial blood vessel inflammation (McBeath & Nanda, 1994).
- **Metoclopramide,** an antiemetic, helps manage common concussion-related symptoms such as nausea and vomiting.
- **Propranolol,** a non-selective beta-blocker, is effective in preventing migraines and managing post-concussion anxiety.
- **Indomethacin,** a non-steroidal anti-inflammatory drug (NSAID), may be considered for headache relief when other treatments prove ineffective.

Additional notes

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