

Chronic Traumatic Encephalopathy; a mere concern for athletes or single blow victims equally vulnerable?

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Dear Madam, Bennet Omalu's famous autopsy on National Football League (NFL) player Mike Webster, opened doors to Chronic Traumatic Encephalopathy (CTE).¹ Initially defined by Critchley in 1949, CTE is a progressive neurodegeneration that results predominantly from a tauopathy following repeated traumatic brain injury. It is characterized by cognitive, behavioural, mood dysfunction and motor symptoms.² Described for the first time to occur in boxers, people involved in contact sports like football, rugby, soccer and ice hockey, or even military combatants are also at a risk, the latter especially if they had been subjected to blast induced injuries.¹

While several studies have proven CTE to be the consequence of repeated blows to head, the real dilemma arises whether people who have suffered even a single hit can unknowingly be at risk. Our understanding about CTE is insufficient, hence it is not clear whether the frequency, type and severity of injury may have a cumulative effect on the development and course of progression of CTE.² But a recent study by Pischituta F et al³ has revealed that mice exposed to a single severe traumatic brain injury demonstrated pathological changes in their brain not only on the affected side but also on the contralateral hemisphere that correlated with the sensorimotor and cognitive deficits, one year following the injury.³

Mild traumatic brain trauma is extremely common yet severely under-reported, majority cases being a consequence of falls or motor vehicle collisions.⁴ In the current era, where road traffic accidents are on the rise

and incidents of domestic violence, physical assaults, and explosions are frequently witnessed worldwide, we are unaware of the accurate proportion of the vulnerable population to developing CTE.¹ Hay et.al⁵ have supported this notion stating that the reason we don't know if a single traumatic brain injury may lead to CTE is because there has been no study to compare and validate this.⁵

Pischituta's study can provide an insight not only for future research but possibly to validate the importance of screening modalities like magnetic resonance imaging (MRI) for early detection of pathology in high risk groups. Measures need to be taken to address the population in danger and to spread awareness to prevent such accidents that may cause a blow to the head as currently prevention seems a realistic approach to minimize if not halt the long-term implications of a head trauma that may not be a self-limiting event after all.

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