

New approach to brain trauma by chemical combination

Adrian Harel

President and Founder, Medicortex Ltd., USA

Brain injury (concussion) is one main cause of mortality and morbidity among children, young adults, military personnel and athletes. It is manifested by early primary biochemical events and delayed secondary structural alterations that include axonal degeneration, cell apoptosis and tissue necrosis, resulting in neurological deficits.

Due to the degenerative characteristic and the multiple interdependent biological reactions occurring during the secondary injury, a simultaneous, multi-factorial intervention is needed. Previous clinical attempts focusing exclusively on a single factor (for example: metal ion chelation) in patients suffering from TBI or stroke have failed to halt the degenerative process.

We present here a novel family of molecules that cross the blood-brain barrier and target various biochemical pathways occurring at different time points post-injury. Novel family of chemically verified molecules each possesses a chemical spacer with a penetrating head ("door opener") and two or more of the following properties for preventing secondary brain deterioration: binding of free metal ions, anti-oxidation, anti-inflammation, edema reduction or anti-bacterial. MediCortex's novel, multi-functional approach aims both at decreasing circulating toxic ions in the brain as well as minimizing oxidation by free radicals. This synergistic approach is expected to prevent the cascade of events leading to secondary brain degeneration. Taken together, this kind of multi-functional drug agents will be able to attenuate and might even prevent secondary TBI-associated neuronal death and neurological dysfunction. We expect that this unique family of molecules suggested for development, once proved to be safe and efficacies will be further developed to become a new drug for the treatment of TBI.

hareladrian@yahoo.com