Traumatic Brain Injury: Prevention and Repair

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Abstract:
Traumatic Brain Injury (TBI) damages the brain within seconds and then continues to evolve for weeks to months after injury. Clinical trials for drugs to treat TBI have failed, in part, due to a rapid loss in efficacy when dosed hours to days after injury. My laboratory have studied the efficacy of the drugs minocycline and N-acetylcysteine (MINO plus NAC) to understand the response of the brain to a single TBI to the parietal lobe. A first dose of MINO plus NAC at 12 hours post-injury prevents damage to synapses, dendrites and maintains synaptic plasticity in both hippocamppi. In contrast, a first dose of MINO plus NAC at 72 hours post-injury produces similar therapeutic outcomes, but only in the hemisphere contralateral to the injury. These findings suggest that injury evolves asynchronously in different brain regions which increases the time window to treat TBI.

Bio:
Peter Bergold received his Ph.D from Cornell Medical College in 1986 followed by a post-doctoral fellowship at the Howard Hughes Medical Institute at Columbia University. In 1990, he joined the faculty of SUNY-Downstate Health Sciences University as an Assistant Professor and is presently a Professor of Neurology, Physiology and Pharmacology.