TBI IN KIDS: SPEEDING UP RECOVERY REPORT #2756

BACKGROUND: A traumatic brain injury (TBI) is caused by a bump, blow, or jolt to the head that disrupts the normal function of the brain. The severity of a TBI may range from “mild” (a brief change in mental status or consciousness) to “severe” (an extended period of unconsciousness or memory loss after the injury). Most TBIs that occur each year are mild and commonly known as concussions. Close to 3 million TBI-related emergency department (ED) visits, hospitalizations, and deaths were reported in the United States, including over 837,000 of these among children. Almost 49% of TBI-related ED visits among children 0 to 17 years were caused by falls, and 81% TBI-related ED visits in older adults aged 65 years and older were caused by falls. Effects of TBI can include impairments related to thinking or memory, movement, sensation (vision or hearing), or emotional functioning (personality changes, depression).
(Source: https://www.cdc.gov/traumaticbraininjury/get_the_facts.html)

STAGES AND RECOVERY: Swelling, bleeding, or changes in brain chemistry often affect the function of healthy brain tissue the first few weeks following a brain injury. There are a few terms that be used in the early stages of recovery. A coma is when the person is unconscious, does not respond to visual stimulation or sounds, and is unable to communicate or show emotional responses. A vegetative state is when the person has sleep-wake cycles, and startles or briefly orients to visual stimulation and sounds. Finally, a minimally conscious state is when the person is partially conscious, knows where sounds and visual stimulation are coming from, reaches for objects, responds to commands now and then, can vocalize at times, and shows emotion. In the first six months after injury is when the fastest improvement happens. During this time, the injured person will likely seem to be steadily getting better. The person continues to improve between six months and two years after injury, but this varies for different people and may not happen that fast. Improvements slow down substantially after two years but may still occur many years after injury.
(Source: https://www.brainline.org/article/understanding-tbi-recovery-process)

HOPE FOR PATIENTS: Joseph Giacino, PhD, program director and principal investigator for the Spaulding-Harvard Traumatic Brain Injury Model System, and his team, have used functional magnetic resonance imaging (fMRI) to determine consciousness. A person in a coma is put in a scanner and instructed to perform a mental task, such as thinking of the word “truck.” When they do, the language areas of their brain light up, and the same thing happens for motor function if you ask someone to think about raising their right hand. Giacino says, “We know now that between 15 and 30% of people who don’t show behavioral signs of conscious awareness actually perform these tasks in a scanner. That’s a big deal.” Another new development is diagnostic and prognostic tools for TBI. Biomarkers and imaging are helping doctors create more specific subcategories of TBI, which could lead to better treatments. “This idea of phenotyping traumatic brain injury has taken off in a big way and will likely change the complexion of the field,” Giacino said.
(Source: https://www.aamc.org/news-insights/hope-patients-traumatic-brain-injury)

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