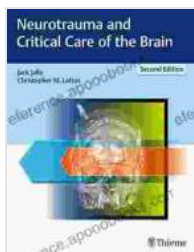


Neurotrauma and Critical Care of the Brain: A Comprehensive Guide to the Assessment and Management of Traumatic Brain Injury

Traumatic brain injury (TBI) is a major public health problem, affecting an estimated 1.7 million people in the United States each year. TBI can result in a wide range of disabilities, from mild cognitive impairment to severe coma and death. The economic burden of TBI is also substantial, with an estimated cost of \$76.5 billion per year in the United States.

Neurotrauma and Critical Care of the Brain is the definitive guide to the assessment and management of TBI. This comprehensive reference provides detailed information on the pathophysiology, diagnosis, and treatment of TBI, with a focus on the latest advances in critical care management. Written by a team of leading experts in the field, Neurotrauma and Critical Care of the Brain is an essential resource for neurologists, neurosurgeons, intensivists, and other healthcare professionals who care for patients with TBI.

TBI is caused by a blow to the head that disrupts the normal function of the brain. The severity of TBI depends on the force of the impact, the area of the brain that is injured, and the duration of the injury.



Neurotrauma and Critical Care of the Brain

by Christopher M. Loftus

★★★★☆ 4.5 out of 5

Language : English

File size : 42255 KB

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Enhanced typesetting : Enabled
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The pathophysiology of TBI is complex and involves a number of different mechanisms, including:

- **Direct mechanical injury:** This occurs when the force of the impact directly damages brain tissue. Direct mechanical injury can cause contusions, lacerations, and hemorrhages.
- **Indirect mechanical injury:** This occurs when the force of the impact causes the brain to move within the skull. Indirect mechanical injury can cause axonal shearing and diffuse axonal injury.
- **Ischemia:** This occurs when the blood supply to the brain is interrupted. Ischemia can cause neuronal death and infarction.
- **Excitotoxicity:** This occurs when excessive amounts of glutamate are released into the brain. Glutamate is a neurotransmitter that, in excessive amounts, can cause neuronal death.
- **Oxidative stress:** This occurs when free radicals are produced in the brain. Free radicals can damage neuronal membranes and DNA.

The diagnosis of TBI is based on a combination of clinical and radiological findings.

Clinical findings that may suggest TBI include:

- Loss of consciousness
- Confusion
- Amnesia
- Headache
- Nausea and vomiting
- Seizures
- Focal neurological deficits

Radiological findings that may confirm TBI include:

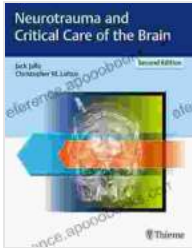
- Computed tomography (CT) scan
- Magnetic resonance imaging (MRI) scan
- Diffuse tensor imaging (DTI) scan

The treatment of TBI depends on the severity of the injury.

Mild TBI (mTBI) is typically treated with rest, pain medication, and observation. Most patients with mTBI recover completely within a few weeks.

Moderate TBI (mTBI) is typically treated with hospitalization and observation. Patients with mTBI may require surgery to remove blood clots or repair skull fractures. Most patients with mTBI recover within a few months.

Severe TBI (sTBI) is typically treated with aggressive critical care management, including intubation, mechanical ventilation, and sedation. Patients with sTBI may require surgery to remove blood clots or repair skull fractures



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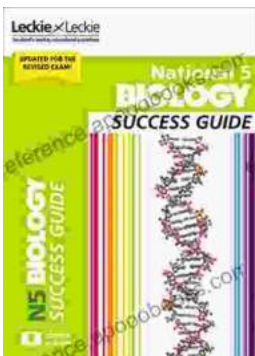
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