Improved and accelerated diagnostic pathway for patients that present to the emergency department with suspected mild traumatic brain injury

Hospital Universitario Virgen de las Nieves
Granada, Spain

KEY PARTNERS / STAKEHOLDERS

Gemma Alvarez Corral | Maria Molina Zayas | Francisco Ruiz-Cabello Osuna | Maria Isabel Romero Manjon | Eva Gutierrez Pérez

Traumatic brain injury (TBI) is the greatest contributor to death and disability amongst all trauma-related injuries. TBI may also increase the risk of developing a neurodegenerative syndrome, like dementia, in later life. The gold standard to assess TBI in the emergency department (ED) is through the use of computed tomography (CT) a technology that uses radiation, which has been linked to increased risk of developing cancer over the long term. CT is used to identify patients with TBI who require additional care, this is typically more severe TBIs. However, in the case of mild TBI (mTBI) the widespread use of CTs may not be necessary as CT-detected intracranial injury is <10% for patient with mTBI and may unnecessarily expose patients to radiation, put unnecessary strain on hospital resources and increase costs of care[1].

An integrated clinical care team from Hospital Universitario Virgen de las Nieves, in Spain strategically implemented a novel TBI panel for use in conjunction with other clinical information to assist in determining the need for a CT scan of the head for patients 18 years of age or older, who present with suspected mild traumatic brain injury (mTBI, Glasgow Coma Scale score 13-15) within 12 hours of injury.

The new panel facilitates in vitro diagnostic measurements for the semiquantitative interpretations of GFAP (Glial fibrillary acidic protein) and UCH-L1 (Ubiquitin C-Terminal Hydrolase L1) as found in human plasma or serum. Post implementation of this panel for all patients with suspected mTBI in the emergency department has led to enhanced clinical confidence, improved patient safety, improved resource utilization and reduced overall healthcare costs. Standout metrics include a 10% reduction in CT scans within the first 3 months of implementation, as well as mitigated overuse of limited resources within the emergency department by 143 total ED hours in a 9-month period.

1. Bazarian JJ et al. Serum GFAP and UCH-L1 for prediction of absence of intracranial injuries on head CT (ALERT-TBI): a multicentre observational study. Lancet Neurol. 2018 Sep;17(9):782-789. doi: 10.1016/S1474-4422(18)30231-X. Epub 2018 Jul 24. PMID: 30054151.

UNIVANTS™
OF HEALTHCARE EXCELLENCE