



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

Everyone has experienced, in one way or another, the uncertainty associated with a head injury, whether from a bump to the head to something more serious. The ability to triage head injuries or traumatic brain injuries (TBI) quickly and safely, is a crucial step for not only reducing patient anxiety in the emergency department (ED), but for helping to accelerate patient flow and mitigate resource utilization. The gold standard to assess TBIs in the ED to determine severity and the need for additional care is through computed tomography (CT scan). CT scans use radiation as part of the imaging process to identify intracranial injury. In milder TBI cases (mTBI), widespread use of CT scans 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.

Recognizing that newly available blood biomarkers can help rule-out the need for head CT in patients with suspect mTBI, an integrated clinical care team from Hospital Universitario Virgen de las Nieves, in Spain implemented a novel TBI panel [GFAP (Glial fibrillary acidic protein) and UCH-L1 (Ubiquitin C-Terminal Hydrolase L1)] for use in conjunction with other clinical information to assist in determining the need for a head CT scan in patients  $\geq 18$  years, who present with suspected mild traumatic brain injury (mTBI, Glasgow Coma Scale score 13-15) within 12 hours of injury.

Implementation of this new panel has dramatically changed the way mTBI patients are managed and triaged through the ED at Hospital Universitario Virgen de las Nieves. Within the first 3 months of implementation there has been a 10% reduction in CT scans for patients with suspected mTBI, enabling €4568.85 in mitigated healthcare costs, within 9 months of implementation. It has also enabled a 2-fold reduction in wait-times for patients who have been ruled-out for TBI, saving a total of 132 patient hours over 9 months. Lastly, clinicians noted that the added insights from the panel helped reduce the uncertainty related to the absence of brain lesions, particularly in the non-elderly.

For their efforts, this integrated clinical care team was awarded the UNIVANTS of Healthcare Excellence Recognition of Achievement. Congratulations to Gemma Álvarez Corral, Clinical Laboratory Specialist, Maria Isabel Romero Manjon, Radiologist, Department Director, Francisco Ruiz- Cabello Osuna, Clinical Laboratory Specialist, Department Director, Eva Gutierrez Pérez, Emergency Medicine Specialist, Maria Molina Zayas, Clinical Laboratory Specialist.



From left to right: Gemma Alvarez Corral, Maria Isabel Romero Manjon, Francisco Ruiz-Cabello Osuna, Eva Gutierrez Pérez

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