



The Intensive Connection

PRESS RELEASE (EMBARGO): RESULTS FROM GLOBAL "SYNAPSE-ICU" STUDY PUBLISHED IN THE LANCET NEUROLOGY

~Under embargo until 23:30hrs UK time / 6.30pm New York time, Wednesday 16th June, 2021.

Haemorrhagic stroke and head injury, therapies guided by ICP monitoring improve outcomes in severe patients

A study initiated by the ESICM Neuro-Intensive Care Section on people admitted to 146 intensive care units worldwide published on 'The Lancet Neurology'

Monitoring intracranial pressure in patients arriving in intensive care units with an acute brain injury may positively impact long-term outcomes. This conclusion emerges from a study coordinated by Giuseppe Citerio, Editor-in-Chief of the ESICM Intensive Care Medicine Journal and Professor at the Department of Medicine and Surgery of the University of Milano-Bicocca. The results of two years of work are summarised in the paper "Intracranial pressure monitoring in patients with acute brain injury in the intensive care unit (Synapse-ICU): an international, prospective observational cohort study", published in the prestigious journal "The Lancet Neurology".

The practice of continuously measuring intracranial pressure (commonly referred to as ICP) in comatose patients after haemorrhagic stroke or head injury is standard practice in many countries. However, it is uncertain whether monitoring-guided therapies will yield significant results. Nevertheless, data collected from the study confirms what already seemed evident from experience. Furthermore, it offers valuable scientific support for both those realities where monitoring had not been used and for those where this nonetheless invasive practice has already been used for years.

The study is an observational one made solid by the extensive database collected on five continents. The team coordinated by Professor Citerio signed agreements with 146 intensive care units operating in 42 countries. A total of 4,776 patients were examined, 2,395 of whom were included in the study because they met the set parameters. Slightly more than half of the cases analysed were patients with traumatic brain injury; the remainder were almost equally divided between patients with intracranial haemorrhage and patients with subarachnoid haemorrhage.

The first element that emerged was the considerable variability in using intracranial pressure monitoring in the ICUs involved. After randomly selecting two ICUs, it was observed that the probability of using this practice varied by 4.5 times from one centre to another when compared with cases with similar characteristics. The most encouraging results came from analysing the data on outcomes at six months: a lower mortality rate was found for monitored patients than for non-monitored patients (34% for monitored, 49% for non-monitored), and better neurological outcomes were reported for patients alive after six months.

"As monitoring is a standard procedure in high-income countries,' explains Prof Citerio, 'for ethical reasons, it was not possible to proceed with a randomised controlled trial. Hence, we designed a large-scale prospective, observational study. Synapse-ICU is the largest study in this field and provides a clinical response to evidence lacking it: the results showed that ICP monitoring could be associated with a more intensive treatment approach and lower six-month mortality. The research documents that treatment of intracranial hypertension, guided by monitoring, should be considered in severe cases."

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Notes to Editors:

The paper will be published in "The Lancet Neurology" on June 16, 2021 (embargoed until 4:00pm CEST, Wednesday 16 June):

Post-embargo link: [http://www.thelancet.com/journals/laneur/article/PIIS1474-4422\(21\)00138-1/fulltext](http://www.thelancet.com/journals/laneur/article/PIIS1474-4422(21)00138-1/fulltext)

The European Society of Intensive Care Medicine (ESICM) supports and promotes the advancement of knowledge in intensive care medicine, in particular the promotion of the highest standards of multidisciplinary care of critically ill patients and their families through education, research and professional development. <http://www.esicm.org>

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