

P229

Neuroinvasive West Nile disease (NIWND): a case series of the 2018 Tunisia outbreak

D Ben Braiek, K Meddeb, N Fraj, W Ammar, C El Marzougui, W Zarrougui, M Boussarsar

Farhat Hached University Hospital, Medical Intensive Care Unit, Sousse, Tunisia

Critical Care 2019, 23(Suppl 2):P229

Introduction: Tunisia has already suffered recurrent outbreaks since 1997. 2018 outbreak started relatively earlier this year. We were interpellated by the frequency of neuroinvasive presentation of the disease.

Methods: We report a case series of 11 patients presented to ICU with NIWND.

Results: We report 11 cases of NIWND with different severe presentations overlapping neurological manifestation including encephalitis (n=8/11), meningitis (n=10/11) and flaccid paralysis (n=8/11). Almost all patients live in the locality of Sousse. Six patients presented a long course of isolated fever before developing neurological signs. Cerebrospinal fluid was consistent with encephalitis within the 11 patients. Cerebromedullar MRI identified brain lesions (n=8/10), myelitis (n=1/10) and polyradiculoneuritis (n=1/10). Three patients had electromyography for flaccid paralysis showed diffuse axonal polyneuropathy with motoneuron involvement. Ten cases had a positive WNV IgM antibody and nine had a positive WNV IgG antibody in serum. Urine polymerase chain reaction was positive for WNV in 8/10 patients. Ten patients were mechanically ventilated. All patients were managed symptomatically. Two received high doses of methylprednisolone for 3 days, one patient received polyclonal immunoglobulin intravenous and one patient had plasmapheresis. Two patients died consecutive to brainstem lesions. Two patients recovered significantly and discharged with no complications. Five other patients evolved to persistent flaccid paralysis with a minimal consciousness state and weaning difficulties requiring tracheostomy. The last remaining patient is still evolving.

Conclusions: Modification of the regional climatic conditions accounted probably for the early 2018 outbreak of NIWND. This initial case series displays the severity and the poor outcomes of NIWND with higher incidence compared to past epidemics.

P230

Noninvasive estimation of intracranial pressure with transcranial Doppler: a prospective multicenter validation study

C Robba¹, C Iaquaniello², A Mazeraud³, M Czosnyka⁴, D Savo⁵, M Saini⁶, G Citerio⁷

¹Policlinico San Martino IRCCS for Oncology, Anaesthesia and Intensive Care, Genoa, Italy; ²Università degli Studi "Milano Bicocca", Scuola di specializzazione in Anestesia, Rianimazione, Terapia Intensiva e del Dolore, Milano, Italy; ³Tertiary Hospital Européen Georges Pompidou, Paris, France; ⁴University of Cambridge, Department of Clinical Neurosciences, Cambridge, United Kingdom; ⁵ASST-Monza, Neurointensive Care Unit, Monza, Italy; ⁶ASST-Monza, Neurointensive Care Unit, Monza, Italy; ⁷Università degli Studi "Milano Bicocca", Milano, Italy

Critical Care 2019, 23(Suppl 2):P230

Introduction: Invasive intracranial pressure (ICP) monitoring through an intraventricular or parenchymal catheter is crucial in neurological critically ill patients. Non-invasive bedside ICP measurement techniques have been developed but results are questionable. Transcranial Doppler (TCD) Ultrasonography has shown promising results, as variation in the flow velocity waveform may reflect ICP changes. The aim of our study is to assess if a published formula [1] based on the TCD diastolic flow velocity correlates with invasive ICP in a cohort of brain injured patients.

Methods: We designed a prospective multicenter observational study of patients admitted in two tertiary neurocritical care units (Monza, Italy and Addenbrookes Hospital, Cambridge, UK) with a diagnosis of acute brain injury that required invasive ICP (ICPi) monitoring. Non-

invasive ICP (ICPtcd) values were derived from the flow velocities measured by the TCD of the middle cerebral artery (MCA): MCA pulsatility index (PIa) and an estimator based on diastolic flow velocity (FVd). We applied the Bland-Altman method, and assessed sensitivity and specificity of the method through the ROC and the AUC analyses.

Results: 115 patients were enrolled, 314 paired ICPI and ICPtcd measures were performed. 25 patients (29%) had at least one episode of intracranial hypertension (ICP>20 mmHg). In the Bland-Altman approach [Fig. 1], mean bias was -3.24 mmHg (limits of agreement are ± 2 SD 24.6 mmHg). 7.5% measures were outside the limit of agreement in the overall population. However, when ICP was high, 43% of measures were out of the limit of agreement. The AUC [Fig. 2] was 0.344 and 0.362 for ICPtcd and for PIa respectively, with a mean bias of -3.24 mmHg (SD 12.28 mmHg with limits of agreement -27.8 - 21.32 mmHg).

Conclusions: According to our results, the method is not enough reliable to be used in clinical practice for substituting invasive ICP monitoring. Further studies are needed to confirm the hypothesis.

Reference

- [1] Czosnyka M et al. J. Neurosurg., 88:802-808, 1998

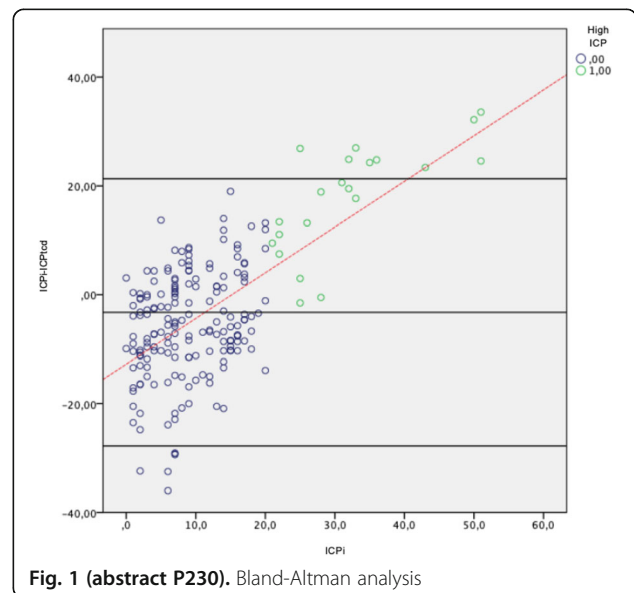


Fig. 1 (abstract P230). Bland-Altman analysis

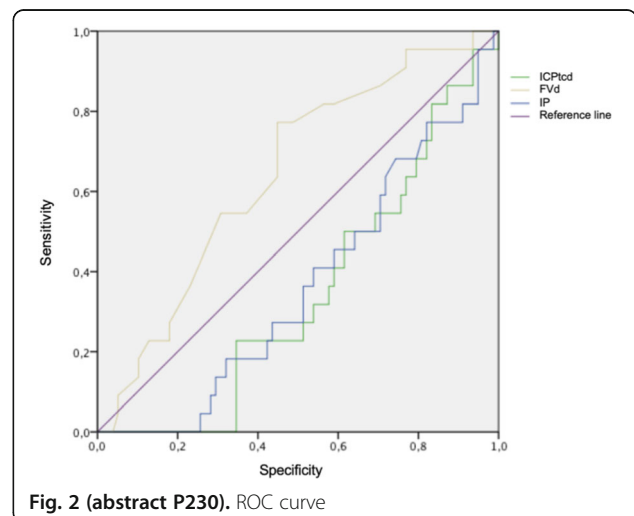


Fig. 2 (abstract P230). ROC curve