Intracranial hemorrhages in full-term newborns: nosological and etiological insights in a large monocentric cohort *(Winner of the SIMP EUBRAIN Award, in memory of Sir John William Little for his fundamental study of 1862)*

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Objective. Intracranial hemorrhage (ICH) is a pathological accumulation of blood within the cranial vault. Complications during delivery remain the most relevant risk factor. The use of Susceptibility Weighted Imaging (SWI) MRI represents the most sensitive diagnostic technique.
The aim is to find associations in a large cohort of babies as SWI has been pioneered and introduced into daily practice since 2012 at Gaslini Children's Hospital.
Materials and Methods. We enrolled children born at GA ≥ 37 week, showing neurological signs within 28 days of life who underwent brain SWI-MRI between 2012 and 2022 and were diagnosed an ICH. In these subjects, we registered the site of hemorrhage, the total maturation score of the brain (TMS), and perinatal history.
Results. 103 newborns were analysed out of 209 scanned for symptoms (total of 1200 MRI of term neonates). Median TMS 12. 78.6% were born by VD, 15.3% needed the use of vacuum. ICH was more frequently detected in VD if compared to the CSs ($p = 0.04$). A subdural hemorrhage was detected in 54, subarachnoid in 7, subpial in 4, intraparenchymal in 25, IVH in 39, posterior cranial fossa (PCF) in 53. PCF ($p = 0.02$) and subarachnoid ($p = 0.04$) were most detected in case of vacuum. IVH was associated with a lower TMS ($p < 0.001$).
Conclusions. The most frequent form of ICH was subdural. VD represented a significant risk factor for all ICHs. Vacuum was accompanied by increased PCF hemorrhages. The association between IVH and a lower TMS suggests that immature structures may favor this form, commonly due to choroid plexus bleeding at term of gestation.