

# Origin of the intraventricular haemorrhage (IVH) in preterm infants: germinal matrix or choroid plexus?

Chiara **Andreato**<sup>1,2,\*</sup>, Maria Fay **Cortella**<sup>2</sup>, Paolo **Massirio**<sup>1,2</sup>, Maria Grazia **Calevo**<sup>3</sup>, Andrea **Rossi**<sup>4,5</sup>, Mariasavina **Severino**<sup>4</sup>, Domenico **Tortora**<sup>4</sup>, Luca Antonio **Ramenghi**<sup>1,2</sup>

<sup>1</sup>Neonatal Intensive Care Unit, Department of Mother and Child, IRCCS Istituto Giannina Gaslini, Genoa, Italy.

<sup>2</sup>Department of Neurosciences, Rehabilitation, Ophthalmology, Genetics, Maternal and Child Health (DiNOGMI), University of Genoa, Genoa, Italy.

<sup>3</sup>Epidemiologic and Biostatistical Unit, IRCCS Istituto Giannina Gaslini, Genoa, Italy.

<sup>4</sup>Neuroradiology Unit, IRCCS Istituto Giannina Gaslini, Genoa, Italy.

<sup>5</sup>Department of Health Sciences (DISSAL), University of Genoa, Genoa, Italy.

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**Objective.** We know IVH can originate from the germinal matrix (GMH-IVH) or the choroid plexus (CP-IVH). GMH-IVH has been widely studied via ultrasound and MRI in the most premature babies while no guidelines related to CP-IVH diagnosis are available with any of the neuroradiological techniques. Our aim is to investigate MRI findings able to differentiate GMH-IVH from CP-IVH.

**Materials and Methods.** 181 babies with IVH out of a total of 1018 preterm (< 37 weeks of GA) studied with cerebral MRI at term equivalent age (TEA) between 2012-2022 were enrolled. Conventional MRI and Susceptibility-Weighted Imaging (SWI), so far, the most sensitive to detect hemosiderin were used. The origin was presumed by identifying the biggest clot adjacent to one of the two different sites. Lack of GMH clot was confirming CP-IVH in case of clot adjacent to CP.

**Results.** 159 out of 181 infants bled from a sole origin showing 225 bleedings distributed as follows: 144/225 (64%) from the caudothalamic groove matrix (CTG-GMH) only; 51/225 (22.7%) from the posterior matrix (P-GMH); 30/225 (13.3%) from the choroid plexus (CP-IVH). P-GMH and CP-IVH were

distributed, respectively, inversely (11.6%-0.9%) and directly (1.3%-6.2%) proportional to the GA (23-36 weeks). All the diagnosis were based on SWI albeit T2 weighted scans correctly identified the origin of GMH-IVH in 35.4% of the cases.

**Conclusions.** GMH-IVH is confirmed to be the most frequent form of IVH and is inversely proportional to the GA. CP-IVH is more represented in babies closer to full term.

