

## Neonatal perforator stroke (PS): a postnatal more than a perinatal origin in preterm

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**Objective.** Perforator stroke (PS) is a subtype of perinatal arterial ischaemic stroke (PAIS) that involves small branches of middle cerebral artery and may affect important brain structures and functions. Very few studies of PAIS have focused on characteristics and risk factors of the PS subgroup. We report our single center experience.

**Materials and Methods.** We retrospectively collected data of patients who underwent cerebral MRI from March 2012 to March 2022. We analyzed perinatal and postnatal features of patients with perforator stroke focusing on timing of diagnosis.

**Results.** Out of 1705 patients we found PAIS in 41 (13 preterm and 8 with asphyxia). PS was present in 16 cases (39% of PAIS, incidence 0.93%), 8 of them (50%) were VLBW preterm (61%

in preterm with PAIS) and 8 were term babies (4 asphyxia, 1 hypoglycemia, 3 seizures). PS was identified in 8 of preterm babies with ultrasound (mean age 32 days, range 7-60 days) and with MRI in 5. Placenta data were available in 7 patients, all abnormal although only 2 "malperfusion". Sepsis was diagnosed prior to PS in 33% patients, all of them preterms.

**Conclusions.** PS represents the most common form of PAIS in preterm babies and in 50% of babies suffering asphyxia. In all preterm babies, diagnosis followed a previous negative ultrasound, 33% had sepsis prior to PS. Placental malperfusion suggesting a thromboembolic origin of PAIS seems to be pretty rare in our population. These data suggest a postnatal development of PS in premature babies more than a perinatal one.