Regionally Impaired Redox Homeostasis in the Brain of Rats Subjected to Global Perinatal Asphyxia: Sustained Effect up to 14 Postnatal Days

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 The present report evaluates the effect of global perinatal asphyxia on several parameters of oxidative stress and cell viability in rat brain tissue sampled at an extended neonatal period up to 14 days, a period characterised by intensive neuritogenesis, synaptogenesis, synaptic consolidation, pruning and delayed cell death. Perinatal asphyxia was induced by immersing foetus-containing uterine horns removed by a caesarean section from on term rat dams into a water bath at 37 °C for 21 min. Asphyxia-exposed and sibling caesarean-delivered foetuses were manually resucitated and nurtured by surrogate dams for 1 to 14 postnatal (P) days. Brain samples (mesencephalon, telencephalon and hippocampus) were assayed for glutathione (reduced and oxidated levels; spectrophotometry), tissue reducing capacity (potassium ferricyanide reducing assay, FRAP), catalase (the key enzyme protecting against oxidative stress and reactive