Tables

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| **Table** 1**.** **Technical parameters for MR imaging pulse sequences** | | | | |
|  | **T1w** | **T2w** | **pcASL** | **SWI** |
| **Sequence** | 3D FSPGR | 3D CUBE | Multi-shot 3D fast spin-echo | 3D spoiled GRE flow-compensated |
| **Phase-encoding direction** | Coronal | Sagittal | Axial | Axial |
| **TR (ms)** | 7.74 | 2,300 | 4,680 | 30.9 |
| **TE (ms)** | 2.97 | 66.29 | 10.55 | 5 echoes; first echo: 5; echo spacing: 5.24 |
| **Flip angle** | 12° | 90° | 111° | 20° |
| **FOV (cm)** | 20 | 20 | 24 | 25 |
| **Acquisition matrix** | 512 x 512 | 256 x 256 | 128 x 128 | 256 x 256 |
| **In-plane resolution (mm)** | 0.39 x 0.39 | 0.78 x 0.78 | 1.875 x 1.875 | 0.977 x 0.977 |
| **Slice thickness (mm)** | 1 | 1 | 4 | 2, reconstructed to 1 with zero filling (ZIP2) |
| **Number of slices** | 126 | 106 | 50 | 92 |
| **Additional parameters** | n/a | n/a | 1,450 ms label period; 2,025 ms pulse label; 24 control-label pairs | n/a |
| **Scan duration** | 4 min 39 s | 5 min 1 s | 5 min 26 s | 5 min 29 s |
| T1w = T1-weighted; T2w = T2-weighted; pcASL = pseudo-continuous arterial spin labelling; SWI = susceptibility weighted imaging; FSPG = fast spoiled gradient echo; CUBE = General Electric name of sequence, not an acronym; GRE = gradient echo; ZIP2 = through-plane zero filling interpolation | | | | |

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| **Table** 2**.** **Demographic and clinical characteristic of the study sample.** | |
| **Variable** | **Subject data (n = 19)** |
| Gestational age, weeks (mean ± SD) | 28.8 ± 1.68 |
| Corrected gestational age on scan day, weeks (mean ± SD) | 40.36 ± 1.4 |
| Number of male neonates (%) | 10 (52.63) |
| Birth weight, g (mean ± SD) | 1276.05 ± 294.87 |
| Weight on scan day, g (mean ± SD) | 3396.58 ± 597.72 |
| Days spent in NICU (median, IQR) | 53, 23 |
| Days on ventilation (median, IQR) | 31, 28.5 |
| SD = standard deviation; IQR = inter quartile range | |

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| **Table** 3**.** **Summary of acquired physiological parameters.** Mean SD is shown for chi and SvO2 values. The P-value and 95% confidence interval (CI) were obtained through the comparison of values between QSM and paramagnetic maps; (n=19). | | | | | |
| **Region** | **Measure** | **QSM** | **Paramagnetic map** | **p-value** | **95% CI** |
| SSS | Chi (ppm) | 0.1 ± 0.02 | 0.21 ± 0.05 | 2.84e-11 | -0.13, -0.09 |
| SSS | SvO₂ (%) | 72.46 ± 3.43 | 58.14 ± 7.3 | 6.12e-10 | 0.12, 0.17 |
| CCV | Chi (ppm) | 0.13 ± 0.02 | 0.22 ± 0.05 | 6.25e-09 | -0.1, -0.07 |
| CCV | SvO₂ (%) | 68.71 ± 3.46 | 57.69 ± 6.97 | 2.16e-09 | 0.09, 0.13 |
| QSM = quantitative susceptibility mapping; CI = confidence interval; SSS = superior sagitall sinus; CCV = central cerebral vein | | | | | |

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| **Table** 4**.** **Cerebral oxygenation values of neonates and fetuses in the literature.** | | | | |
| **Region** | **Study** | **Subjects** | **Method** | **SvO2 (%)** |
| Whole-brain | Skov et al. (1993) | Preterm neonates (n=9) | NIRS | 53.4 ± 15.4 |
| Whole-brain | Skov et al. (1993) | Asphyxiated term neonates (n=10) | NIRS | 67.3 ± 9.4 |
| Whole-brain | Altman et al. (1993) | Preterm and term neonates with HIE (n=11) | PET | 21.6 ± 21.0 |
| SSS | Gou et al. (2024) | Healthy neonates (n=37) | MRI: TRUST | 66.7 ± 4.9 |
| SSS | Jiang et al. (2019) | Healthy neonates (n=4) | MRI: aTRUPC | 64.8 ± 2.9 |
| SSS | De Vis et al. (2014) | PT-TEA eonates (n=18) | MRI: T2-TRIR | 52.0 ± 12.0 |
| SSS | Yadav et al. (2020) | Late third trimester fetuses (n=33) | MRI: Susceptometry | 58.6 ± 4.8 |
| SSS | **This study** | PT-TEA neonates n=19 | MRI: QSM | 72.46 ± 3.43 |
| SSS | **This study** | PT-TEA neonates n=19 | MRI: chi-separation | 58.14 ± 7.3 |
| CCV | Weber et al. (2021) | Preterm neonates with HIE (n=8) | MRI: QSM | 72.2 ± 6.0 |
| CCV | Weber et al. (2021) | Healthy neonates (n=8) | MRI: QSM | 73.6 ± 2.8 |
| CCV | Jiang et al. (2019) | Healthy neonates (n=4) | MRI: aTRUPC | 70.2 ± 3.3 |
| CCV | **This study** | PT-TEA neonates n=19 | MRI: QSM | 68.71 ± 0.03 |
| CCV | **This study** | PT-TEA neonates n=19 | MRI: chi-separation | 57.69 ± 6.97 |
| PT-TEA = born preterm and scanned at term-equivalent age; late third trimester = >35 weeks gestational age; HIE = hypoxic-ischemic encephalopathy; TRUST = T2-relaxation-under-spin tagging; aTRUPC = accelerated T2-relaxation-under-phase-contrast; T2-TRIR = T2-tissue-relaxation-inversion-recovery; SWI = susceptibility weighted imaging. | | | | |