**MRI changes in the thalamus and basal ganglia of full-term neonates with perinatal asphyxia – Supplementary Material**

Short title:

**Asphyxia and time of MRI changes**

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Keywords

Perinatal asphyxia, Hypoxic-ischemic encephalopathy, Diffusion-weighted imaging, Apparent diffusion coefficient, Magnetic resonance imaging

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Appendix (online only)

**MRI parameters of DWI**

An echo-planar imaging technique was used for DW imaging (repetition time ms/echo time

ms = 3800–5200/89), with a 180x180-mm field of view, 4-mm-thick sections, 0-mm section gap, and b factors of 0 and 1000 (1.5 T) or 800 (3.0 T) sec/mm2.

Since October 2013 b-factor of 1000 and a slice thickness of 3 mm was used in the 3.0 T system.

**ADC calculations**

Trace ADC maps were generated on the basis of DW images acquired over the three orthogonal

axes (trace ADC = [ X + Y + Z ]/3). Four regions of interest (ROIs) were manually selected because of their reported sensitivity to hypoxic-ischemic events: left and right basal ganglia and left and right medial thalamus. ROIs were placed on the section of the ADC map just above the superior colliculus of the midbrain by using T2-, inversion recovery–, and DW-weighted images for anatomic reference. ROIs were oval, with a pixel area of 35–60 mm2 (mean 37 mm2 ) in the basal ganglia and 45–70 mm2 (mean 47 mm2) in the medial thalamus. Contact with cerebral spinal fluid and cerebral white matter was avoided.

**Supplemental Table**. Clinical Data categorized by hypothermia and normothermia group.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Hypothermia(n=32) | Normothermia(n=23) | p value |
| Gender (male) | 21 (66%) | 11 (48%) | 0.19 |
| Gestational age (weeks, mean±SD) | 39.9 ± 1.4 | 40.5 ± 1.5 | 0.17 |
| Birth weight (g, mean±SD) | 3423 ± 560 | 3266 ± 527 | 0.30 |
| Apgar 1 min (median, IQR)\* | 1 (2)  | 2 (2)  | 0.008 |
| Apgar 5 min (median, IQR)\*\* | 3 (4)  | 5 (2)  | 0.002 |
| Cord pH (mean±SD)\*\*\* | 6.89 ± 0.20(n=27) | 7.01 ± 0.21(n=20) | 0.052 |
| Sarnat classification |  |  | 0.001 |
|  Moderate | 14 (44%) | 20 (87%) |  |
|  Severe | 18 (56%) | 3 (13%) |  |
| MRI pattern |  |  | 0.98 |
| 　Near total | 14 (44%) | 10 (43%) |  |
| 　Basal ganglia/thalami | 18 (56%) | 13 (57%) |  |
| MRI device |  |  | <0.001 |
|  1.5 Tesla | 1 (3%) | 21 (91%) |  |
|  3.0 Tesla | 31 (97%) | 2 (9%) |  |
| Age at MRI (days, mean±SD) | 3.5 ± 1.3 | 3.6 ± 1.3 | 1.0 |
| Died | 25 (78%) | 13 (57%) | 0.09 |

\*Early group (n=31), Late group (n=22), \*\*Early group (n=31), Late group (n=23) \*\*\*Early group (n=27), Late group (n=20)