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Study of "Shaken Baby Syndrome": Morphological and Diffusion MRI Data

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Shaken baby syndrome (SBS) is the most common cause of death related to child abuse; nonfatal consequences of SBS include varying degrees of visual, motor and cognitive impairment due to severe brain damage in almost 30% of infants with SBS. Brain damage occurs from the biomechanical forces, swelling, ischemia and altered vascular autoregulation and from additionally axonal damage[1].In the present study we want to examine a cohort of 7 patient affected by SBS and compare their data with controls choosen by same range of age, 19 months till 60. Using MRI techniques we define a new paradigm for demonstrating, through voxel based morphometry, deficiencies, connected to white and grey matter regions, in the prefrontal cortex and also in the hippocampus, amygdala, corpus callosum and optical radiation. Adding diffusion tensor imaging technique by constrained spherical deconvolution[2] our study put in evidence connectivity between investigated areas, suggesting neural network abnormalities. With this "state of art" studies we can show a correlation between childhood abuse and brain structures modification. Our aim is to make a longitudinal study on the anatomical data of these patients following their clinical evolution.

References

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