Usefulness of susceptibility-weighted sequences after traumatic brain injury

Three weeks after severe traumatic brain injury (pedestrian hit by a car) and correction of initial intracranial hypertension, a brain MRI is performed in a 22-year-old woman, who remains in a comatose state (Glasgow Coma Scale at 4, with withdrawal to painful stimuli; abolition of photomotor reflex; persistence of corneal and cough reflexes). Fluid-attenuated inversion recovery and T2*-weighted gradient-echo sequences reveal subtle hyperintensities within the brainstem, thalami, corpus callosum, and frontal and temporal lobes, which are not visible with classic T2*-weighted gradient-echo sequence (A) but only with susceptibility-weighted MRI (B, arrows).

Extensive microhemorrhage compatible with diffuse axonal injuries along the brainstem, thalami, corpus callosum, and frontal and temporal lobes, which are not visible with classic T2*-weighted gradient-echo sequence (A) but only with susceptibility-weighted MRI (B, arrows).

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highly sensitive in the detection of magnetic field variation, especially generated by hemoglobin degradation products.\textsuperscript{1} It is more accurate in the detection of diffuse axonal injuries after brain injury, which is mandatory, as their presence is correlated to functional and cognitive prognosis.\textsuperscript{2}

**AUTHOR CONTRIBUTIONS**
Thomas Ritzenthaler: drafting/revising the manuscript, analysis or interpretation of data, accepts responsibility for conduct of research and will give final approval, acquisition of data, study supervision. Leila Chamard: analysis or interpretation of data, accepts responsibility for conduct of research and will give final approval, acquisition of data. Frédéric Dailler: drafting/revising the manuscript, accepts responsibility for conduct of research and will give final approval, study supervision.

**STUDY FUNDING**
No targeted funding reported.

**DISCLOSURE**
The authors report no disclosures relevant to the manuscript. Go to Neurology.org for full disclosures.

**REFERENCES**
Teaching NeuroImages: Usefulness of susceptibility-weighted sequences after traumatic brain injury
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Neurology 2016;87:e83-e84
DOI 10.1212/WNL.0000000000003007

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