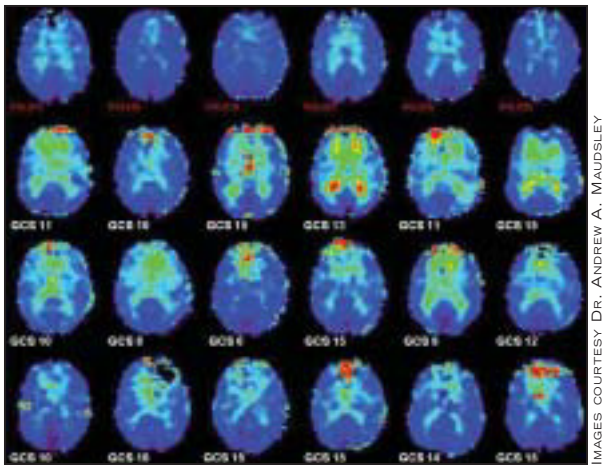

IMAGES COURTESY DR. ANDREW A. MAUDSLEY

Magnetic resonance spectroscopic imaging of the brains of 18 traumatic brain injury patients (bottom three rows) show widespread alterations in the ratio of choline to *N*-acetyl aspartate (light blue to green color), unlike the brains of 6 control subjects (top row).

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in the brain. The pilot study compared the average of all measured values from 22 patients who were classified as having mild brain injury with the average values from 67 age-matched controls. MRSI scans took place a median of 21 days after the patients' injuries, which were caused by motor vehicle accidents (17), falls (2), or assault (3).

Assessments of the group averages revealed that brain injury was associated with a significantly decreased level of *N*-acetylaspartate (a marker of neuronal and axonal viability), as well as an increased level of choline (a marker of membrane metabolism). The ratio of choline to *N*-acetylaspartate was the most sensitive marker for injury.

Overall, 90% of the patients had small and well-localized lesions on normal MRI, findings that are typical for mild TBI. But on MRSI, the researchers found widespread metabolite alterations throughout the cerebrum.

The patients' scores on neuropsychological tests were significantly correlated mostly with metabolite changes in the right frontal region. In one patient who underwent follow-up scans, the concentrations of *N*-acetylaspartate and choline continued to change significantly at 7 and 15 months post injury.

Dr. Maudsley said that he and his team hope to obtain longitudinal assessments of metabolite levels to determine if their short-term levels can predict future outcomes of patients with mild TBI. Outcomes at 6 months in close to half of the patients have shown some correlations between metabolite levels and scores on neuropsychological tests, he said.

"It's my feeling that these metabolites really take several days, if not a couple of weeks, to change. In the one example in which we had a more severe injury, things were actually worse at 6 months than they were at 5 weeks," he added.

The use of the 3-tesla MR scanners that Dr. Maudsley and his associates used in their study is beginning to extend beyond academic medical centers and into regular clinics, especially for brain MRI applications.

Neither Dr. Huang nor Dr. Maudsley had conflicts of interest to report. ■

Corrections

There was an error in the article, "After Methotrexate, Glatiramer Acetate Improves MS Outcomes" that appeared on page 17 of the December 2008 issue of CLINICAL NEUROLOGY NEWS. The treatment described by the investigator involved mitoxantrone, not methotrexate.

There was an error in the caption for the image that appeared in a recent "Neuroscience Today, Neurology Tomorrow" column (November 2008, p. 14). The caption should have said that the neurons and dendrites were located in the dentate gyrus of the mouse's hippocampus, not in the CA1 area.

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