

## Researchers identify new syndrome

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Researchers from Boston University School of Medicine (BUSM) have identified a new syndrome affecting potentially thousands of hospital inpatients. Coined SHAKE (Supplement-associated Hyperammonemia After C(K)achetic Episode), the condition, which results in altered mental status and difficulty walking, can be prevented by excluding high protein dietary supplements in a patients' diet if they have experienced poor eating for more than a week prior to their admittance. The condition is described in the March issue of the *Archives of Internal Medicine*.

Altered mental status describes a disorder of impaired cognition, diminished attention, reduced awareness or an altered consciousness level. Ten to 50 percent of hospitalized patients will experience acute altered mental status which accounts for a significant portion of neurological inpatient consultation.

In the study, the neurology researchers describe two cases in which both patients were admitted to the hospital (medical sick for different reasons) after a period of poor eating for more than a week. The first patient was put on high-protein dietary supplements three times daily on day three of his stay. By day five, this patient had slowed cognition and an unsteady gait requiring assistance. The patient's ammonia level had doubled from baseline but his liver function tests were normal. Typically, patients exhibiting high ammonia levels present with [liver disease](#) but this patient had no history of it. On day seven the high-protein supplements were discontinued and within 24 hours his symptoms disappeared.

The second patient was also put on high-protein dietary supplements three times daily on day three. By day six, her family noticed that she seemed confused and would fall when walking. On day seven, her supplements were discontinued. She too had high ammonia levels but normal liver function tests and had no history of liver disease. Within 24 hours of stopping the supplements, her mental status, ability to walk and ammonia levels had returned to normal. Both patients resumed a regular diet with normal protein intake and returned to normal activity after hospital discharge.

After excluding for other causes, the researchers concluded that the confused mental status and high levels of ammonia in the blood were due to introducing high amounts of protein too quickly into the patients' diet after weeks of poor eating.

"When an altered mental status occurs in the inpatient setting, many possible causes are considered. However, in these two medically complex patients, the initiation of high-protein [dietary supplements](#) was probably discounted, if even noticed," said senior author Michael Perloff, MD, PhD, a fourth year resident in the department of neurology at BUSM. "With advances in nutritional education and supplements, this syndrome likely occurs thousands of times per year in hospitals across the United States. We believe it may account for more than 10,000 hospital days, countless morbidity and even some mortality," added Perloff.

Provided by Boston University Medical Center

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