

Medical sleuthing linked muscle, kidney problems to kava tea

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When a 34-year-old bicyclist was found collapsed on a roadside and rushed to the University of Rochester Medical Center emergency room on the verge of kidney failure and muscle breakdown, doctors were surprised to discover that a trendy tea derived from the kava plant was the cause of his ills.

The URMC team reported the case study, believed to be the first of its kind in the scientific literature, in the *American Journal of Emergency Medicine*. They described it as a cautionary tale, emphasizing the importance of taking a thorough medical history, including the use of any and all herbal remedies and pharmaceuticals.

In this instance the patient recovered; and doctors noted that adverse effects are somewhat rare. However, across the country the number of kava bars is on the rise – a recent article noted at least three new businesses in Palm Beach, Fla., -- despite several documented health problems due to kava ingestion.

"With the increased use of herbal remedies, we in the medical field have become accustomed to asking patients about their use," said URMC Department of Emergency Medicine Chair Michael F. Kamali, M.D. "What concerns us is the lack of controls in producing and distributing these products as well as some lack of knowledge of the potential harm by those people using the product."

Kava (*Piper methysticum*) is a plant in the pepper family that grows

naturally throughout the western Pacific. Hawaiians have been using it for 3000 years for its sedating properties and as a celebratory drink. Regular drinkers of kava tea claim it eases anxiety, insomnia, and menopause symptoms. Some people drink it in place of alcohol.

The sale of kava root and its extract in pill form are legal in the United States and can be found on the Internet. However the U.S. Food and Drug Administration and the Centers for Disease Control and Prevention have issued warnings due to concerns about liver and kidney toxicity.

The URMHC patient told physicians he had been a longtime user, drinking kava tea a couple times a week for anxiety. But on this day, he said, he drank twice the amount as usual. When he arrived at URMHC's Strong Memorial Hospital, he was agitated, rigid and combative to the point that medical personnel had to physically and chemically restrain him, the case study said. Later he reported severe muscle weakness and fatigue, and routine blood tests revealed that his creatine kinase (CK) levels (which provide important information about the condition of the muscles, including the heart muscle) had soared to 32,500 IU/L.

Typically doctors see CK levels that can be as low as 17 IU/L and still be normal, and as high as 400 IU/L. Abnormally high levels often indicate heart and brain damage, and lead to [kidney failure](#). In this patient, it took six days of intense hydration and treatment to lower his levels to 2,066 IU/L. His kidney function was normal upon discharge.

Kamali and his team explained in the AJEM report that the active ingredients in kava are kavalactones, which create mild sedation without disrupting cognitive function. They also act as a muscle relaxant and decrease blood flow to the kidneys, and thus higher doses can have an effect similar to that of a local anesthetic.

The patient recalled riding his bicycle a normal distance (he often rode

to work) but becoming so tired that he had to lay down to rest along the road. Ultimately, URMIC physicians diagnosed him with rhabdomyolysis, the breakdown of muscle fibers that results in the release of a potentially harmful protein pigment called myoglobin into the bloodstream.

One possible explanation for the rhabdomyolysis in this patient, Kamali said, was that the kava induced muscle weakness that led to over-exertion and stress as the bicyclist attempted to go about his normal routine. Alternatively, the kava might have caused direct muscle toxicity, or the kava might have contained a foreign impurity.

Whatever the explanation, this situation reinforced the importance of taking a detailed medical history, particularly when symptoms of organ toxicity are evident.

Ryan P. Bodkin, M.D., the URMIC Emergency Medicine chief resident who treated the patient, said most cases of toxic poisonings in the ED involve an overdose of standard medications such as Tylenol or anti-depressants, for instance; or alcohol abuse, or illegal drugs such as cocaine, marijuana or heroin.

"It is extremely unusual to see toxicity like this," Bodkin said. "Liver damage from [kava](#) has been reported occasionally, and only one other case of myoglobinuria (muscle damage) has been reported. This is not to say it never happens, but we were fortunate to recognize it because it is so rare."

Provided by University of Rochester Medical Center

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