Vitamin D deficiency may contribute to alcohol-related muscular weakness

December 14 2012

Myopathy refers to a muscular disease in which muscle fibers do not function, resulting in muscular weakness and wasting. Vitamin D deficiency is a well-recognized cause of myopathy, and excessive drinking is often associated with low or subnormal levels of vitamin D. A review of studies of the relationship between alcohol-related myopathy and vitamin D deficiency indicates that vitamin D deficiency might partly explain the occurrence of the frequently observed myopathy in chronic alcoholism.

Results will be published in a special online issue of *Alcoholism: Clinical & Experimental Research* and are currently available at Early View.

"Myopathy simply means 'muscle disease,'" said Jan W. Wijnia, a researcher at Slingedael Korsakoff Center as well as corresponding author for the study. "Muscle weakness is by far the most frequent symptom of alcoholic myopathy, causing difficulties in rising from a chair or in climbing a staircase. In alcoholic myopathy, improvement of muscle weakness usually occurs six to nine months following alcohol abstinence."

"It seems that 40 to 60 percent of alcoholics suffer from alcohol-related myopathy," said Frits A. J. Muskiet, a professor of pathophysiology and clinical chemical analysis at the University Medical Center Groningen. "Many subjects with chronic alcoholism have low vitamin D, which prompted the authors to raise the question whether the well-known muscle weakness might be caused by vitamin D deficiency. The answer

is that indeed the symptoms of myopathy in alcoholism and vitamin D deficiency are very similar, but since these symptoms are rather aspecific, this is no more than an association, which is obviously not the same as a proven cause-and-effect relation. There are similarities, but also differences."

Study authors reviewed articles on alcoholic myopathy and hypovitaminosis D myopathy (n=93) that were listed on PubMed from January 1985 through to September 2011. They analyzed and compared the pathophysiological findings in order to designate or "chart" possible pathways of vitamin D action in the development of alcohol-related myopathy.

"Our review links possible interdependent deficiencies of vitamin D, phosphate, and magnesium with muscle weakness in chronic alcoholism," said Wijnia. "Previous studies had suggested that changes in alcoholic muscle disease were not due to dietary deficiencies, but our review is one of the few to examine the effects of severe vitamin D deficiency in alcoholic myopathy."

Muskiet agreed. "They have reviewed the literature to show to us that vitamin D deficiency might – at least in part – explain the occurrence of the frequently observed myopathy in chronic alcoholism," he said. "The paper is important because of this connection, but the real proof of the pudding should now be provided by doing research trials."

"The causes of vitamin D deficiencies in alcoholics may include liver dysfunction, lack of sun exposure, malabsorption, and inadequate dietary intake," added Wijnia.

"It is well known that chronic alcoholism causes people to have abnormal diets that, in their turn, may cause many mineral and vitamin deficiencies," noted Muskiet. "Alcohol has a high caloric value. The

combination of poor appetite and possibly less money to spend on good-quality food contributes to eating a poor diet. Thus, the situation in chronic alcoholism is much more complicated than vitamin D deficiency, which in otherwise healthy people is usually due to insufficient exposure to sunlight."

"We recommend future research focusing on possible beneficial effects of vitamin D supplementation and on optimal dosages," said Wijnia. "It is possible that Vitamin D supplementation may assist in prevention and treatment of alcohol-related chronic myopathy, thus, assessment of vitamin D status may help clinicians to early diagnose severe vitamin D deficiency and hence offer appropriate treatment. Further research is needed to determine if this can improve muscle function if alcohol consumption ceases, and what dosages of vitamin D may be optimal."

"Diet is more than some assembly of nutrients," said Muskiet. "It is the balance that counts. We need to first correct poor diets and widespread vitamin D deficiency in the general population. For this, medical doctors might have to become educated in nutrition and lifestyle in general. But this is of course not only their responsibility. There is good evidence that 90 percent of type 2 diabetes, 80 percent of coronary heart disease, and 70 percent of colon cancer and stroke can be prevented if people pay more attention to their weight, physical activity, excessive alcohol drinking, smoking, vegetables/fruits, etc. A small daily amount of alcohol keeps the doctor away. With no alcohol and especially with too much alcohol there is higher chance of many diseases, including all cause mortality, cardiovascular disease, stroke, cancer, etc. Again, it is a matter of balance."

Provided by Alcoholism: Clinical & Experimental Research