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LOW BLOOD LEVELS OF BICARBONATE LINKED TO EARLIER DEATH IN HEALTHY OLDER ADULTS

Highlight

- Generally healthy older individuals with normal or high bicarbonate levels in the blood had a similar risk of dying during follow-up, but patients with low bicarbonate had a 24% increased risk compared with these groups.

Fruits and vegetables are a source of bicarbonate, which is important for maintaining the body's pH balance.

Washington, DC (January 14, 2016) — Low blood levels of bicarbonate may indicate an elevated risk of premature death in generally healthy older individuals, according to a study appearing in an upcoming issue of the *Clinical Journal of the American Society of Nephrology* (CJASN). The findings suggest that the blood marker is an important health indicator and that future studies should examine the potential of increasing bicarbonate levels to prolong life.

To keep the body's pH in a healthy range so that cells and organs can work properly, the kidneys and lungs work together by varying the levels of bicarbonate (a base) and carbon dioxide (an acid) in the blood. Critically ill patients with severe acid-base abnormalities have a very low likelihood of surviving their illness, but it's unclear whether more subtle changes in the body's acid-base status have an effect on the longevity of relatively healthy older people.

To investigate, Kalani Raphael, MD (University of Utah) and his colleagues looked at how measurements of pH, carbon dioxide, and bicarbonate link with long-term survival in relatively healthy older individuals. Their analysis focused on information concerning 2287 participants in the Health, Aging, and Body Composition Study, a prospective study of well-functioning black and white adults aged 70 to 79 years that began in 1997. Survival data were collected through February 2014, and participants were followed for an average of 10.3 years.

People with normal or high bicarbonate levels had a similar risk of dying during follow-up, but participants with low bicarbonate had a 24% higher risk compared with these groups.

“What we found was that generally healthy older people with low levels of bicarbonate had a higher risk of death,” said Dr. Raphael. “Adding the pH measurement into the equation didn’t change the results, which is important because pH is not routinely measured.

The findings suggest that blood bicarbonate concentrations, which are commonly measured, may help clinicians identify people at elevated risk of premature death. In people with low bicarbonate levels, some may benefit from increasing intake of foods that produce bicarbonate in the body, such as fruits and vegetables.

Study authors include Rachel Murphy, PhD, Michael Shlipak, MD, MPH, Suzanne Satterfield, MD, DrPh, Hunter Huston, MD, Anthony Sebastian, MD, Deborah E Sellmeyer, MD, Kushang Patel, PhD, MPH, Anne Newman, MD, MPH, Mark Sarnak, MD, MS, Joachim Ix, MD, MAS, and Linda Fried, MD, MPH.

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The article, entitled “Bicarbonate concentration, acid-base status, and mortality in the Health, Aging, and Body Composition Study,” will appear online at <http://cjasn.asnjournals.org/> on January 14, 2016. doi: 10.2215/CJN.06200615.

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