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Gut bacterial makeup may exacerbate pain in sickle cell disease

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An overabundance of the bacteria Veillonella in the digestive tract may increase pain in patients with sickle cell disease (SCD). Researchers from Howard University will present their findings today at the American Physiological Society's Physiological and Pathophysiological Consequences of Sickle Cell Disease conference in Washington, D.C.

Previous studies have reported that Veillonella, a bacterium that normally lives in the mouth and gut, forms a film in the gastrointestinal tract. Streptococcus bacteria may attach themselves to this film, making them stronger and more virulent. Streptococcus is responsible for diseases such as strep throat, meningitis and bacterial pneumonia.

The researchers studied fecal DNA of people with SCD and found they had higher levels of Veillonella in the gut than a control group of healthy people did. In addition, all of the SCD patients in the trial had been hospitalized in the previous year—some multiple times—for vaso-occlusive crisis (VOC), a severe pain event common in SCD. VOC occurs when the misshapen, sickled red blood cells block blood flow in the blood vessels.

Overgrowth of Veillonella "might exacerbate pain crises primarily due to blood vessels occlusion," the research team wrote. Red blood cells might attach to the film of Veillonella and cause increased pain, explained Hassan Brim, PhD, first author of the study. More research is needed to determine how to best rebalance the bacteria in the digestive tract and potentially reduce symptoms, Brim noted.

Provided by American Physiological Society