Study finds non-invasive colon cancer screening may be promising for African-Americans

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In a first-of-its-kind clinical trial, physician-scientists at University Hospitals (UH) Case Medical Center Seidman Cancer Center and Case Western Reserve University School of Medicine found that a new non-invasive technology for colon cancer screening is a promising alternative to colonoscopy for African Americans. The study recruited patients to compare the effectiveness of stool DNA (sDNA) testing with colonoscopy for detecting large colon polyps.

SDNA is a test that detects colon cancer in its earliest stages, based on analysis of stool DNA. Developed in the laboratory of Sanford Markowitz, MD, PhD, oncologist with UH Seidman Cancer Center and Professor of Medicine at Case Western Reserve University School of Medicine, sDNA is a recommended screening by the American Cancer Society.

"Colon cancer is the second leading cause of cancer deaths in the United States but is a preventable disease," said Gregory Cooper, MD, Co-Program Leader for Cancer Prevention, UH Seidman Cancer Center and Professor, Case Western Reserve University School of Medicine. "Early detection through screening can prevent the development of colon cancer. This promising new test has the potential to improve colon cancer screening rates and decrease mortality from this deadly disease."

In the study presented at Digestive Disease Week, Dr. Cooper and

colleagues studied data from 460 subjects for sDNA and 476 subjects using another non-invasive test called fecal immunochemical testing (FIT). A little more than a third of the subjects were African American.

According to the results, sDNA sensitivity and specificity of advanced lesions and all adenomas (polyps) in African Americans was similar to or exceeded that of other racial groups, and in some respects, more sensitive than FIT, the other non-invasive screening.

"Given the known racial disparities in colonoscopies between African Americans and other racial groups, this noninvasive technology may offer a promising screening alternative," said Dr. Cooper.

Colonoscopy is considered the gold standard for screening because of its ability to not only locate but remove precancerous polyps. All adults over age 50 should undergo colonoscopy, with certain risk factors for screening at an earlier age. However, according to research conducted by Dr. Cooper, many adults do not follow these national guidelines and evidence indicates that African Americans are less likely than whites to get screening tests for colorectal cancer.

Although all men and women are at risk for colon cancer, some people are at higher risk for the disease because of age, lifestyle or personal and family medical history. According to studies, African Americans are at a higher risk for the disease than other populations. Starting at age 50, everyone should begin routine screening tests. Research shows that African Americans are being diagnosed at a younger average age than other people. Therefore, some experts suggest that African-Americans should begin their screening at age 45.

"Colonoscopy is truly the best test but it has its limitations and is vastly underused by the public," says Dr. Cooper, who is clinical Primary Investigator for the study. "SDNA is emerging as a promising alternative

for patients who do not want to undergo colonoscopy or do not have access to the procedure. It also can be beneficial for patients during the years in between colonoscopies."

Dr. Markowitz, who is an alumnus investigator of the Howard Hughes Medical Institute, and his team played an intimate role in developing the new technology for DNA screening for colon cancer. They discovered a specific DNA change, methylation of the vimentin gene, which takes place in colon cancers, and then developed techniques for sensitively detecting this change in DNA shed from colon cancers in the stool. Their technology has been licensed by EXACT Sciences Corporation for commercial development and expanded to include a larger panel of genes.

The study is funded as part of the National Cancer Institute's Specialized Program of Research Excellence (SPORE) in Gastrointestinal (GI) Cancers award to Case Western Reserve University School of Medicine. The $11.3 million SPORE grant focuses on translational research aimed at reducing the incidence and deaths from colon cancers and from cancers of the esophagus.

"Among our guiding principles is to pursue and implement breakthrough medical advancements and practices to deliver superior clinical outcomes for our patients," said Stanton Gerson, MD, Director, UH Seidman Cancer Center and Case Comprehensive Cancer Center, Case Western Reserve University. "Non-invasive sDNA screening is an exciting example of this principle in action and potentially can have a dramatic impact on increasing screening rates and decreasing mortality."

Provided by University Hospitals Case Medical Center