

Optimal therapy sought for patients who cannot defecate effectively

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Dr. Satish S.K. Rao, (from left) Director of the GHS Digestive Health Center, Dr. Akash Nabh, gastroenterology fellow, and Nurse Annie DeWitt are reviewing a motility study. Credit: By Phil Jones, Georgia Health Sciences University Photographer

Nearly one third of the 40 million Americans with constipation unknowingly work against themselves, squeezing when they should be pushing, and living painfully uncomfortable lives, researchers say.

It's called dyssynergic defecation, which Dr. Satish S.C. Rao and his colleagues have linked to impaired communication between the brain and the gut and vice versa. The biofeedback system Rao developed to

help [patients](#) relearn normal behavior appears to restore normal communication in the process.

"Your stomach hurts, you feel bloated, uncomfortable, [fatigue](#) easily. You feel cloudy," said Rao, Chief of the Medical College of Georgia Section of Gastroenterology and Hepatology at Georgia Health Sciences University and founding Director of the GHS Digestive Health Center.

Rao led a federally-funded study of 150 patients that showed about one-third acquire the dysfunction in childhood and the remainder later in life, possibly as the result of prolonged periods of straining to defecate and/or an anal tear that left patients unwittingly holding in their stool to avoid pain. His patients range from age 5 to 90 but most are 30 to 55.

While [laxatives](#), enemas and other [maneuvers](#) to remove backed-up stool work, they don't address the underlying issue, said Rao, who discovered this specific type of constipation about 20 years ago. "These are individuals who cannot poop on can't poop effectively. In the process of pooping, they retain their own stools or they push their stool back into their system without realizing what they are doing," Rao said.

A \$1.8 million grant from the National Institutes of Health is helping further dissect the disrupted communication between gut and brain by looking again at how communication is changed by biofeedback. They are looking at the bidirectional signaling before and following biofeedback therapy in 50 patients compared to healthy controls. In an effort to make treatment more accessible, in 100 patients Rao is also comparing his office-based system to the efficacy and cost of a battery-powered biofeedback system patients can use at home.

Some people with dyssynergic defecation have the additional problem of a rectum that it either too sensitive or insensitive to stool. "Some patients don't feel it at all, some feel it too much, but both are constipated," Rao

said. So MCG researchers are also looking at whether a barostat, a computer-driven method for maintaining constant pressure, can help re- or desensitize their rectum. To identify the source of hyposensitivity, they also are looking at how the brain-gut communication changes with biofeedback in 70 constipated individuals. To improve sensitivity, they're already using a syringe to increasingly inflate a balloon inside the rectum but hope the barostat will be less unwieldy and more effective, Rao said.

Abdominal pain frequently accompanies hypersensitivity to stool and, while there is currently no therapy for this condition, the researchers have developed a behavioral therapy using the barostat they hope will help. In 60 constipated patients who also have irritable bowel syndrome, they are comparing that therapy to the drug escitalopram, an antidepressant used in irritable bowel syndrome because of its pain-relieving action.

Pressure probes inside the rectum help the physicians determine whether patients aren't pushing effectively or if they are pushing but then obstructing anal sphincter muscles at the same time. "They are unaware of what they are doing. We have to reverse the whole process" Rao said.

"We are teaching them the proper techniques of posture: how to sit, breathe, how to coordinate the pelvic floor muscles and anal muscles to expel stool. This is very natural to many of us, we do it without even thinking, but for these individuals it's all wrong," Rao said.

Biofeedback provides instant feedback of what the muscles are doing then Rao's team shares techniques for learning when to push and when to relax. He's shown about an 85 percent success rate with this approach. The current regimen includes hour-long biweekly office sessions coupled with 20-minute practice sessions several times daily for three months.

To look at brain-gut communication, they put a small probe in the rectum that sends out a slight electrical charge, then use scalp electrodes to measure how the brain receives the signal. Conversely, they generate a small amount of magnetic energy near the area of the brain known to stimulate anal muscles in healthy individuals, then measure communication from that direction to the rectum.

Constipation is a multifactorial, multi-symptom disorder that can include infrequent bowel movements, excessive straining, a feeling of incomplete voiding and hard stools. Typically, two or more symptoms occurring for at least three months constitute constipation. It's more common in women and older individuals and can occur as a side effect of prescription drugs as well as calcium and iron supplements, Rao said. For the majority of people with constipation, overall health tips such as a high-fiber diet, drinking plenty of water, losing excess weight and regular physical activity, can help. Over-the-counter products such as stool softeners and stimulants can assist with transient problems, Rao said.

Provided by Georgia Health Sciences University

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