

Innovations in Gastroenterology & GI Surgery



*Rady Children's - A comprehensive system
focused solely on children.*



PROGRAMS

Multidisciplinary SIRC program manages intestinal failure

The new San Diego Intestinal Rehabilitation Focus (SIRC) Program of the Division of Gastroenterology, Hepatology & Nutrition at Rady Children's Hospital-San Diego exclusively treats children suffering from short bowel syndrome or other forms of intestinal failure. The program aims to improve the nutrition status of these patients and wean them of total parenteral nutrition (TPN).



Dr. Kim

As these patients experience a wide range of problems and have special needs, they are treated by a multidisciplinary team, which includes GI physicians, motility specialists, dietitians, surgeons, TPN specialists, a pharmacist, and social worker. Medical treatment, including dietary therapy and a special lipid formulation, is used to manage complications and nutrition intake. Surgery is performed to lengthen or narrow the bowel, with the goal of improving the child's ability to absorb nutrients. Approximately half of the patients with short bowel syndrome require surgery.

Gastroenterologist [Jae Kim, M.D., Ph.D.](#), sees patients with congenital short bowel syndrome right after they are born and works with motility specialists and surgeons to develop a treatment plan. The SIRC program's current goals are to shorten patients' length of stay following surgery and reduce central line infections by 20 percent through a new quality improvement project.

[Meet the SIRC Program team.](#)



INNOVATIONS

Division to launch gastric pacemaker program

Rady Children's will soon be among a select few children's hospitals offering gastric pacemaker therapy. The therapy will be used to manage patients with gastroparesis or functional dyspepsia.

Both of these conditions cause nausea, abdominal discomfort with meals, bloating, early satiety and vomiting. Children with gastroparesis may feel constantly bloated and nauseated and suffer from malnutrition and significant weight loss. In severe cases, they cannot attend school or participate in daily activities. Children with functional dyspepsia experience



innovation
belongs in every moment

persistent abdominal pain or discomfort. Medical therapy is often suboptimal for both disorders.

In March 2000, the U.S. Food and Drug Administration granted HDE (human device exemption) approval for a pacemaker therapy system. The system uses a gastric electrical stimulator to treat chronic intractable (drug-refractory) nausea and vomiting secondary to gastroparesis of diabetic or idiopathic origin.



The system, which can be programmed externally via remote control, is implanted under general anesthesia. The procedure takes one or two hours to perform. The stimulating electrodes are placed into the anterior stomach wall by laparotomy or laparoscopy. The electrode leads are connected to the neurotransmitter, which is then placed in a subcutaneous pocket in the lower abdominal wall.

[Hayat Mousa, M.D., AGAF](#), clinical director of gastroenterology and the director of the Neurogastroenterology and Motility Center, used gastric electric stimulation with successful outcomes during her tenure at Nationwide Children's Hospital. She and [Timothy Fairbanks, M.D.](#), chief of pediatric surgery, will lead the gastric pacemaker program at Rady Children's.

Patients will be implanted with a temporary pacemaker and be monitored for five to seven days. Those experiencing an improvement in symptoms by 50 percent will get a permanent gastric electric stimulator.

Click here for abstracts on the [efficacy of permanent gastric electrical stimulation](#) and the [improvement of quality of life](#).



Learn more at RCHSD.org

RESEARCH

Discovery identifies novel target for treatment of nonalcoholicsteatohepatitis

Research by the lab of [Ariel Feldstein, M.D.](#), division chief, suggests the potential for developing targeted therapies to treat nonalcoholic steatohepatitis (NASH), a liver disease characterized by fatty infiltration and liver inflammation (steatohepatitis).

The progression of NASH can cause scarring and other complications, as well as the formation of new blood vessels, a process called angiogenesis that requires endothelial cells to migrate and form tubular structures. In



Dr. Feldstein

research by the Feldstein lab, hepatocytes exposed to excess amounts of saturated fatty acids released membrane-bound microparticles that induced angiogenesis when administered to mice. Microparticles from the blood of mice with diet-induced steatohepatitis originated from the liver and triggered migration and tubular structure formation when applied to endothelial cells.

The angiogenic effects of microparticles generated by hepatocytes exposed to saturated fatty acids or of those from mice with diet-induced steatohepatitis involved the uptake of the microparticles by endothelial cells, a process that required Vanin-1, an enzyme located on the surface of the microparticles. The pathological angiogenesis that can occur in steatohepatitis could therefore be reduced by preventing endothelial cells from internalizing Vanin-1-positive microparticles from hepatocytes.

These findings by the Feldstein lab suggest a therapeutic target for NASH. [Click here for the abstract](#).