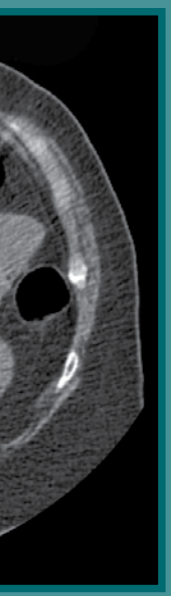
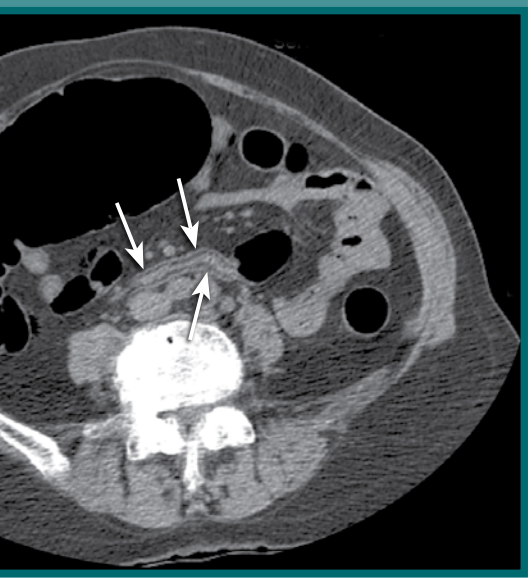
Studying the Effects of **Insulin** on **Heart Damage** in **MI Patients**



A CT image shows fat surrounding the mucosa of the duodenum in a patient with celiac disease. The arrow points to the common bile duct as it enters the duodenum crossing a circular layer of duodenal wall fat, which appears like a black ring in a bull's-eye.



Richard W. Nesto, MD

A heart attack, or myocardial infarction, occurs when there is a sudden blockage in a coronary artery. Because these arteries supply the heart muscle with oxygenated blood, any sudden cessation of blood flow lasting for several minutes causes heart damage, ranging from fairly minor to catastrophic and resulting in death. Researchers at Lahey Clinic have recently begun examining whether lowering elevated glucose levels in patients with heart attacks reduces the risk of death or other serious heart damage.

"What we know is that people with high blood sugar do less well than those with normal sugar levels during or following a heart attack," says Richard W. Nesto, MD, chairman of Lahey's Department of Cardiovascular Medicine and co-principal investigator of the INTENSIVE (Intensive Insulin Therapy and Size of Infarct as a Validated Endpoint by Cardiac MRI) trial. "What we're trying to determine is that if we lower the sugar with intravenous insulin, does this remove or lower the risk to the patient, resulting in less heart damage or lower likelihood of death?"

To answer this question, researchers are administering insulin to patients with high glucose levels during and following a heart attack. Each patient enrolled is randomly assigned to one of two groups: those given intensive, long-acting insulin by intravenous infusion; or those given a lower dose of insulin subcutaneously. Researchers then examine if the difference in therapies affects the outcomes of the two groups.

At 60 days following the heart attack, patients are given an MRI to examine the structure of the heart. "If we find that insulin does reduce the amount of the heart damage, this will become a new standard of care in treating heart attacks," says Nesto. In addition, researchers are studying whether insulin has added therapeutic benefit beyond glucose lowering.

Lahey's Cardiovascular Medicine Department has a long track record of involvement in clinical trials evaluating different treatments for patients with diabetes. Nesto is a principal investigator of the NIH-supported BARI-2D, the largest study ever conducted on heart disease and diabetes.

"This is another piece in our overall commitment to the area of research in heart disease and diabetes," says Nesto. "Lahey Clinic is an acknowledged leader in this field. We are always looking to participate in clinical trials that mesh with our expertise."

Patients at 60 medical centers in North and South America are participating in the two-year INTENSIVE trial, which began in March. Lahey Clinic is a vanguard center, which means it has a key role in developing and refining the final protocol for the trial.