MAYO CLINIC

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Dialogue

News for physicians about Mayo Clinic

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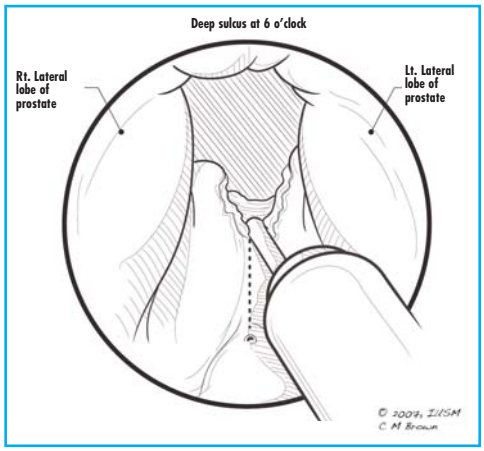
New Treatment Provides Faster Relief and Maximum Benefit for BPH Patients

CLINICAL TIP

HoLEP is a state-of-the-art procedure that maximizes outcomes in BPH patients with minimal morbidity.

A state-of-the-art therapy for patients with benign prostatic hyperplasia (BPH), providing the resection benefits of traditional prostatectomy with few of the drawbacks of an open procedure, is now available. Holmuim Laser Enucleation of the Prostate (HoLEP) is performed transurethrally, using a Holmium laser to separate the plane between the adenoma and the prostate capsule. The adenomous tissue is then removed using a tissue morcelliation device, bypassing the need for an incision.



Shown here is the urologist's view through the laser resectoscope looking through the prostatic urethra into the bladder. Demonstrated is the initial incision through the prostate adenoma to the prostate capsule with the holmium laser fiber depicted at the 6 o'clock position.

HoLEP offers a number of benefits including:

- Next-day catheter removal with limited swelling, generally allowing patients to void painlessly and immediately. This represents a remarkable life-improvement opportunity for patients who are catheter-bound, with most patients making a full return to regular activities within 10-14 days.
- Tissue preservation for pathologic examination, unlike ablative procedures which destroy adenomatous tissue completely.
- Accurate and consistent post-operative PSA readings, generally less than 1.0, for improved follow-up care. "Unlike other minimally invasive BPH treatments, HoLEP generally removes as much tissue as traditional open surgical alternatives resulting in a PSA of 1 or less," says Mitchell Humphreys, M.D., Mayo Clinic urologist and surgeon.
- Complete resection of all adenomatous tissue, minimizing the possible future need for retreatment as compared with other therapies.

"This procedure has really emerged as one of the best options for the minimally invasive treatment of BPH," says Dr. Humphreys. HoLEP may not be appropriate for patients with smaller-sized prostates (the ideal gland size being from 50 to 150 grams), but it is distinguishing itself as a safe alternative for larger prostates with a quicker return to normal activity with maximal urinary symptom improvement. ■

Magnesium Supplementation to Lessen Tinnitus Studied

CLINICAL TIP

Phase II trial examining the potential benefit of magnesium supplementation in lessening the severity of tinnitus underway at Mayo Clinic.

The last several decades have revealed clinical and experimental data regarding the importance of magnesium (Mg) in hearing. Increased susceptibility to noise damage, ototoxicity and auditory hyperexcitability are linked to states of magnesium deficiency. The suggested mechanism for these effects proposes that magnesium deficiency may contribute to a metabolic cellular cascade of events leading to increased permeability of the cochlear hair cells to calcium. Increased intracellular calcium contributes to releases in associated neurotransmitters. These imbalances in magnesium and calcium may be an underlying feature of the nature and behavior of subjective tinnitus. It is noteworthy that the daily dietary intakes for Americans fall short of the RDA by 100mg daily for all age groups.

Recent studies in both noise-induced hearing loss and idiopathic sensorineural hearing loss have suggested magnesium supplementation may mitigate hearing loss as well as the severity of the associated tinnitus. Michael Cevette, Ph.D., Section Head of Audiology, is principal investigator for a phase II trial that will examine any potential benefit of magnesium supplementation in lessening the severity of tinnitus. In this study, subjects with mild to severe tinnitus will receive daily magnesium supplementation for three months. If a positive effect of magnesium supplementation for tinnitus treatment is seen in this limited study, a more comprehensive and well-controlled study is planned. For more information or to enroll patients in this study, please call the Department of Otolaryngology, (480) 342-2983. ■

Small Bowel Imaging Update

CLINICAL TIP

New imaging techniques can provide a complete evaluation of small bowel disorders and allow treatment without invasive surgery.

The small bowel (SB) has been difficult to evaluate and treat in the past because of its structure and the limitations of available technology. A number of effective non-invasive and minimally invasive SB imaging techniques are now available, including:

- **Capsule endoscopy (CE)**, during which a pill-sized camera is swallowed with a glass of water and takes an approximately 8-hour journey through the small bowel, capturing two extremely clear images per second in transit. In the majority of cases, CE provides a complete and detailed view of the SB. CE can help identify obscure GI bleeding and lesions beyond the reach of push endoscopy and assist in the diagnosis of SB tumors.
- **CT enterography (CTE)**, which employs increased speed and resolution to effectively and noninvasively evaluate the SB. CTE is different from abdominopelvic CT, allowing better visualization of the SB wall by using thin sections and large volumes of a neutral oral contrast along with intravenous contrast.
- **MR enterography (MRE)**, which uses new imaging techniques to provide high-contrast soft tissue resolution while reducing motion artifact. MRE provides information regarding inflammation, wall thickness and extraintestinal findings. It offers a number of potential advantages over CTE because no ionizing radiation or intravenous contrast is required so it is safe for patients who are pregnant or experiencing renal failure.
- **Double balloon enteroscopy (DBE)**, which allows minimally invasive diagnosis and therapeutic intervention of the entire small intestine. DBE technology uses an over-tube and balloon system that fits over a dedicated enteroscope. Physician-controlled inflation and deflation of the balloons pleats the SB onto the endoscope, allowing safe and smooth visualization and treatment.

"These technologies provide an unparalleled ability to evaluate the integrity of the small bowel," says Jonathan Leighton, M.D., gastroenterologist. "CE appears to be a reasonable screening tool for suspected SB pathology. When obstruction or mass lesions are suspected, CTE and MRE are reasonable and complementary alternatives. If a lesion has been identified or is suspected, DBE is an effective diagnostic and therapeutic technique." ■

Isolated Pancreas Transplant May be Effective Treatment for Type I Diabetics

CLINICAL TIP

Patients who have difficulty controlling Type I diabetes despite optimum medical management may benefit from a pancreas transplant.

Despite optimum medical management, some of the more than 2 million patients in the United States with Type I diabetes are unable to control this disorder. "Patients with advanced diabetic neuropathies especially if they lack good social support are often unable to recognize hypoglycemic reactions placing them at risk of potentially dying of a severe reaction," says Marek J. Mazur, M.D., Pancreas Transplant Program medical director.

"This group of patients faces significant risk of mortality if they don't take action, and their quality of life can be extremely poor," adds Kunam S. Reddy, M.B.B.S., surgical director of the Kidney and Pancreas Program. "For such patients, a pancreas transplant can potentially save their life and restore their independence."

Mayo Clinic physicians cite the American Diabetic Association's recommended indications for pancreas transplant in the absence of kidney failure:

- Frequent, acute and severe metabolic complications (hypoglycemia, hyperglycemia or ketoacidosis) requiring medical attention
- Clinical and emotional problems with exogenous insulin therapy that are so severe as to be incapacitating
- Consistent failure of insulin-based management to prevent acute complications

Patients meeting these indications are prime candidates for an isolated pancreas transplant.

Since Mayo Clinic's program opened in Arizona in 2003, 85 pancreas transplants have been performed. Of this number, 59 were simultaneous pancreas and kidney transplants (SPK), 24 were pancreas-after-kidney transplants (PAK) and two were pancreas transplants alone (PTA). Program outcomes exceed national averages in all categories-including one month, one year and three year graft and patient survival rates. ■

Research Protocol

Intramyocardial Injections of G-CSF Mobilized Auto-CD34+ Cells for Reduction of Angina Episodes in Patients With Refractory Chronic Myocardial Ischemia (ACT34-CMI)

Primary Objective:

The primary objective of this multicenter phase II clinical trial is to evaluate the efficacy, tolerability and safety of autologous CD34 cells administered via intramyocardial injection in "no option" subjects with refractory chronic myocardial ischemia (CMI).

Inclusion:

1. Males and females who are at least 21 years old.
2. Subjects with chest pain or refractory angina
3. Subjects must be identified as unsuitable for conventional revascularization.
4. Subject must be willing and able to comply with specified follow-up evaluations.

Exclusion:

1. Predominant congestive heart failure symptoms (CHF)
2. Myocardial infarction (Q wave or non-Q wave defined as CKMB >3 times normal) within 60 days of treatment
3. Documented stroke or transient ischemic attack (TIA) within 60 days of study enrollment
4. History of moderate to severe aortic stenosis (aortic valve area < 1.5 cm2) or severe aortic insufficiency; severe mitral stenosis (mitral valve area <1.5 cm2); or severe mitral insufficiency.

For information or to enroll a patient, please contact: Christa Hannasch at (480) 342-2906.

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