

Ochsner Research Update

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Academic year 2011-2012 was a productive one for Ochsner Research, an effort as always characterized by patient-centered research in the translational, clinical, and health service areas.

In the Institute of Translational Research, the Cellular Immunology Laboratory continued to make strides in several areas, such as the investigation of follicular dendritic cells' role in the development and maintenance of various forms of lymphoma. The importance of understanding the function of these cells cannot be overstated as can be appreciated by the fact that the 2011 Nobel Prize in Medicine or Physiology was awarded, in part, for the discovery of this cell type. The laboratory is also making good progress in identifying the role of cancer stem cells in the etiology of various forms of cancer, including colon and prostate cancer. In this area of research, laboratory personnel work closely with clinical departments such as Colon and Rectal Surgery and Urology. The Molecular Genetics Laboratory continues to move forward in the study of the vasoactive peptide angiotensin II. Recent observations have led to the development of a novel method for reducing cell surface expression of the receptor for this peptide and thereby reducing blood pressure. In addition, atypical intracellular receptors for angiotensin have been identified, and these appear to play an important role in the pathogenesis of hypertension and its sequelae. The Hypertension Research Laboratory continued its studies of the pathological role of salt on the vasculature—a harmful role over and above the blood pressure-elevating effects of a high-salt diet. Recently, the laboratory has focused on determining pharmacological means to prevent these adverse salt-induced changes. Within the past year, the laboratory has reported that certain newly developed beta adrenergic-blocking drugs can prevent salt-induced fibrosis in specific tissues. The Neuroscience Laboratory continued its pursuit of novel biological therapies designed to improve peripheral nerve healing, while the Infectious Disease Research Laboratory is developing novel synergistic antibiotic therapies. The Transplant Research Laboratory examined new methods of organ preservation. Finally, the Molecular Cardiology Laboratory is studying why coronary artery stenting is less effective in diabetic patients than nondiabetic individuals and has

recently discovered a pharmacological approach to improving the outcome of stenting in diabetic patients.

Clinical research, as in past years, is ongoing in virtually every clinical department. The Department of Cardiology, while continuing its many existing projects, has recently joined a large national trial of the use of renal nerve ablation to treat refractory hypertension. This novel experimental therapy is carried out percutaneously by Ochsner intervention-*alists* and involves only an overnight stay. The hypothesis is that destroying renal nerves prevents the brain from inducing sodium reabsorption by the kidneys via increased sympathetic tone. If this therapy is proven safe and effective, it could have a major impact on the treatment of severe high blood pressure, and in time, perhaps the treatment of mild hypertension. Several investigators in the Department of Cardiology are using the large Ochsner database of clinical images to define the characteristics of high-risk patients with coronary artery disease and congestive heart failure to develop preventive interventions. The Department of Rheumatology continues its work with the Cellular Immunology Laboratory on the cellular mechanisms by which antibody production is inappropriately increased in systemic lupus erythematosus. The Department of Anesthesiology has a very active research program that includes studies conducted in conjunction with the Department of Pharmacology at Tulane focusing on vasoactive peptides and their potential therapeutic role in pulmonary hypertension. The Department of Endocrinology continues to investigate the causes and prevention of osteopenia and the optimal treatment of osteoporosis. These examples represent the large body of clinical research occurring at Ochsner, work aimed at improving the care of the patient.

The health service research initiative, particularly at the Center for Health Research, continued to make steady progress. In addition to the initial findings of its groundbreaking National Institutes of Health-funded study of medication adherence in older adults—a study that defines the characteristics of good and poor patient adherence—the center has gone on to track changes in adherence over time and is actively working to define the causes of such changes. These efforts are extremely innovative in that no studies on

changes in adherence have been conducted elsewhere. This area of research is critical in developing strategies to overcome the morbidity associated with poor adherence to medical therapeutic regimens. Also, over recent years, nursing research has continued to expand, with Ochsner nurses studying a variety of practice improvement procedures as well as novel methods of patient care in oncology, pediatrics, and many other disciplines.

Much more progress has been achieved over the past year than can be outlined here. Suffice it to say that the Ochsner research program is vibrant and well. Nothing is more important to a medical research enterprise than the safety of patients who participate in research activities. Ochsner has always prided itself

on adhering to the highest standards of research subject protection. For this reason, the organization is extremely pleased that its Human Subject Research Protection Program has received full accreditation from the Association for the Accreditation of Human Research Protection Programs. This accreditation is an important external affirmation of the Ochsner commitment to research excellence. Finally, it should be pointed out that the educational program in research, including events focused on all branches of biomedical science as well as the responsible conduct of research, has continued to grow, thereby enhancing the quality of ongoing research.

In conclusion, the academic year has been productive, and we collectively look forward to next year.