Hemodynamics and Cardiovascular Intervention have evolved over the last three decades as the result of improvements in diagnostic procedures and the arrival of new minimally-invasive therapeutic interventions. Percutaneous coronary intervention, along with pharmacological therapy, is the strategy of choice for the treatment of cardiovascular ailments in the majority of patients, and as a complement to the surgical treatment of selected patients.

The practice of our specialty has arrived at a very important stage, offering new and better diagnostic options, as well as highly effective and safe therapeutic alternatives for the treatment of coronary disease, peripheral vascular disease, and structural, valvular and congenital heart diseases.

Our modern technology enables us to obtain better image quality and to offer patients greater safety. We have four fully-equipped rooms, state-of-the-art Siemens Axiom Artis flat panel digital equipment with 3D reconstruction systems, radiation control and optimal high-resolution imaging, intravascular ultrasound with virtual histology software, and intracardiac echocardiography and polygraphs for invasive monitoring, which enable us to properly diagnose cardiac and pulmonary pathologies.

Our department treats more than 2,500 adult patients per year, performing percutaneous coronary interventions on more than 700 patients, and treating 1.4 coronary arteries/patient, with 1.5 implanted stents/patient. We use medicated stents in more than 50% of patients and we use only second-generation stents.

The foregoing is complemented by an education program for patients with implanted coronary stents, which enables us to provide monitoring and continuing education for patients and their families.

Our coronary disease diagnosis and treatment indicators are excellent: angiographic success rate of 96.2%, Major Adverse Cardiac and Cerebrovascular Event (MACCE) rate of 2.4%, mortality rate of less than 1%, myocardial infarction rate of less than 1.0%, emergency surgery rate of 0.0%, cerebrovascular accident rate of 0.0%, one-year treated vessel revascularization (TVR) rate of less than 8%, and definite or probable stent thrombosis rate of less than 0.5%.

We have more than 20 years of combined experience treating 35,000 patients and performing more than 60,000 procedures.

Dr. Darío Echeverri
Chief, Hemodynamics and Cardiovascular Intervention Department
WHAT IS HEMODYNAMICS?

It is a subspecialty of cardiology that studies the dynamics and diseases of the circulatory system, and performs anatomical and functional analyses of the myocardium, coronary circulation and heart valves.

The information obtained is indispensable for carrying out therapeutic procedures such as coronary artery, valve and peripheral vascular intervention, endomyocardial biopsies, support measures, cardiovascular protection and invasive techniques for intravascular evaluation of coronary lesions through imaging procedures.

Hemodynamics and therapeutic cardiovascular intervention constitute an excellent therapeutic and advanced technology option in the management of severe coronary disease and structural heart disease, using local anesthesia, outpatient procedures, rapid recovery and short-term disability.

HOW DOES THE FCH-ICS HEMODYNAMICS DEPARTMENT FUNCTION?

Our team is fully trained in adult cardiology and has extensive experience in offering diagnostic and therapeutic procedures involving the heart, lungs, aorta, neck vessels, renal arteries and lower limbs.

Our three hemodynamics and interventional cardiology specialists are certified, accredited and recognized nationally and internationally, and they have more than 20 years of teamwork experience. They lead a medical team of 20 people that has treated more than 35,000 patients with more than 60,000 procedures, of which 35% have been therapeutic.
More than 20 specialists on the adult hemodynamics team work in coordination with 5 other services – pediatric hemodynamics, electrophysiology, interventional radiology, orthopedics and interventional neurology – and a group of professional nurses specializing in intensive care, cardio-cerebral-pulmonary resuscitation and radio-protection training, in a specially-designed 500-square-meter space.

This space is complemented by 4 rooms with flexible and ergonomic architecture and state-of-the-art high-resolution equipment, polygraphs, intravascular ultrasound, support technology, complementary diagnostic measures, and database software for storing information about each patient.

Fundación Cardioinfantil Instituto de Cardiología provides comprehensive support to the Hemodynamics and Cardiovascular Intervention Department with support teams from emergency medicine, cardiovascular surgery, peripheral vascular surgery, intensive care, pneumology, imaging, blood bank and laboratories.
Percutaneous coronary intervention: Patient / Vessel / Stent Ratios

Number of Coronary Vessels / Patient

Number of Stents / Patient

Coronary Stent Penetration over the Last 5 Years

Total No. Stents  Medicated Stents
2010 CORONARY INTERVENTION QUALITY INDICATORS

Safety Indicator Intra-Hospital MACCE (Mortality, IAM, CABG, ACV)

Effectiveness Indicator Angiographic Success

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Effectiveness Indicator Angiographic Success
Procedures

- Carotid intervention.
- Aortic, mitral and pulmonary valvuloplasty.
- Endomyocardial biopsy.
- TAVI.
- ASD – PFO.

Treatment of complex coronary disease

- Primary angioplasty in acute myocardial infarction.
- Chronic total occlusions.
- Bifurcation lesions.
- Small vessels.
- Left main stem disease.
- Venous bridge disease.
- Ostial lesions.
- Post-transplant vasculopathy.

- PDA.
- Coarctation of the aorta.
- Asymmetric septal hypertrophic cardiomyopathy.
- Renal artery intervention.
- Peripheral vascular intervention.
PERCUTANEOUS CARDIOVASCULAR INTERVENTION

Percutaneous cardiovascular intervention is an alternative treatment for congenital heart disease. It allows the most frequent and complex congenital diseases to be treated by percutaneous means.

The Hemodynamics and Cardiovascular Intervention Department performs more than 50 procedures per year to treat adult congenital cardiopathies in a comprehensive manner, with the participation of the clinical cardiology, echocardiography, pediatric cardiology and cardiovascular surgery groups.

Through the comprehensive evaluation of patients and the planning and execution of procedures, we have achieved success in the majority of cases with minimal complications considering their high complexity.

TREATMENT OF STRUCTURAL HEART DISEASES

- Hypertrophic cardiomyopathy.
- Aortic, mitral and pulmonary valvular stenosis.
- Adult congenital cardiopathies, such as atrial septal defects
- Patent ductus arteriosus.
- Ventricular septal defect
- Coarctation of the aorta, among other vessels.
- Treatment of severe aortic stenosis with percutaneous aortic valve implantation.
PATIENTS WITH HIGH SURGICAL RISK

The evolution of interventional therapies and new technologies has increased the number of alternatives for treating structural cardiopathies and valvular heart disease.

Percutaneous aortic valve replacement is an alternative for treating aortic stenosis in patients with high surgical risk. The percutaneous implantation of the aortic valve is done through small incisions in peripheral arteries. We have performed aortic valve procedures on a group of patients specially selected for their clinical and anatomical characteristics. These procedures have been successful in all cases without post-discharge 30-day mortality, and the minor complications experienced by this group of patients are within the standards described in the international literature.

PULMONARY HYPERTENSION STUDY

We are working with the Colombian Pneumology Foundation (Fundación Neumológica de Colombia) on the study of invasive diagnoses of patients with pulmonary hypertension.

Today, treatment alternatives for patients with pulmonary hypertension have substantially changed their quality of life and prognosis. The proper evaluation of, and interdisciplinary focus on, these patients improves the chances of treatment success.

Pulmonary hypertension specialists provide us with ongoing support in carrying out and interpreting pulmonary vascular reactivity tests and in performing pre-test patient evaluations.

ADVANCED STUDIES

- Intravascular evaluation of atherosclerotic plaque and non-atherosclerotic lesions.
- Intravascular and intracardiac ultrasound.
- Virtual histology.
- Follow-up studies on post-heart transplant patients.
- Endomyocardial biopsy.
- Coronary angiography with intravascular ultrasound.
EDUCATIONAL PROGRAM
FOR PATIENTS WITH
CORONARY STENTS

Educating patients about coronary disease and the need to follow medical recommendations brings us closer to patients and their families.

Interventions, stents, endovascular devices and medications are keys to the success of hemodynamic and cardiovascular intervention procedures. These have become the solution for the treatment of severe coronary disease with very good medium- and long-term results in cases indicated by the specialist.

The Fci-Ic’s Hemodynamics and Cardiovascular Intervention Department created a continuing education program for patients undergoing coronary angioplasty with stent implantation. In biweekly sessions and with the support of visual media, patients undergoing percutaneous coronary intervention learn about the most important steps to take in caring for their cardiovascular health.
CARDIOVASCULAR REFERENCE CENTER

The Hemodynamics and Cardiovascular Intervention Service has received national and international recognition for the quality of its procedures and the professionalism of its specialists.

With our integrated quality indicator program we can compare ourselves to international quality standards. The experience, technology, procedures, accreditation, training and specialists of Fundación Cardioinfantil Instituto de Cardiología, and its achievement of results that are comparable to the best centers in the United States of America, have made us a Cardiovascular Medicine Reference Center. We have won the Calidad en Salud Colombia (Colombia Health Quality) prize three times, have obtained health accreditation from ICONTEC and the Ministry of Social Protection within the Unified Health Accreditation System that forms part of the Mandatory Quality Assurance System, and we are making continuous improvements toward excellence in order to strengthen our service exportation strategy.
SCIENTIFIC MEDICAL TEAM

Specialists in Adult Hemodynamics and Cardiovascular Intervention

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Every time you use the services of Fundación Cardioinfantil
you help us save the lives of underprivileged children with heart disease.