

UC San Diego

Spring 2011 - UC San Diego Health Journal of Nursing: The Unique Power of Nursing

Title

Interventional Radiology: The Original Minimally-Invasive Service

Permalink

<https://escholarship.org/uc/item/7711h063>

Journal

UC San Diego Health Journal of Nursing, 4(1)

Author

Martin, Rhonda, RN, MS, CNS, ACNP

Publication Date

2011-04-01

Peer reviewed

Interventional Radiology

THE ORIGINAL MINIMALLY-INVASIVE SERVICE

By Rhonda Martin MLT (ASCP) MS, RN , CCRN, CNS/ACNP-C

Over the last few years, there has been much discussion in the healthcare literature on the advantages of minimally invasive surgery and procedures. Techniques in which the body is entered and manipulated through tiny incisions or needle punctures results in less inflammation, infection, pain, scarring, faster recovery times, and quicker return to normal activities. The service that has been on the forefront of this concept for decades is Interventional Radiology (IR). Over 40 years ago, Dr. Charles Dotter, a radiologist, used a catheter to open the blocked arteries in the leg of an 82-year old woman, saving her leg, and creating a new medical specialty. Angioplasty and vascular stenting were developed by Interventional Radiologists, and their use has revolutionized the practice of medicine.(1) Interventional Radiologists are physicians who use imaging techniques, such as fluoroscopy, computed tomography (CT), and ultrasound, to perform delicate, precise, targeted procedures throughout the human body. There are two separate IR teams at the University of California San Diego (UCSD), Vascular Interventional Radiology (VIR) and Neuro Interventional Radiology (NIR).

The IR suites are on the first floors of both Hillcrest and Thornton UCSD Hospitals, where a multidisciplinary team provides this specialized service. Patients are brought to the Holding Area and prepared for the procedures by specially trained registered nurses. Unless you have accompanied a patient there, or have been one yourself, chances are you have never been in the Procedure Rooms. These areas are specially equipped with the latest fluoroscopic and ultrasound

technology, enhancing the physician's ability to diagnose and treat diseases. By using two fluoro cameras, biplane fluoroscopy can create near-holographic images of vessels and anomalies. Dyna CT rotates the camera around the patient, creating a rotating 360 degree view of a body area, allowing for precise diagnosis and placement of instruments for intervention.

IR nurses and technicians position and secure the patient for each procedure. Radiologic Technologists (RT) "scrub" in on procedures and operate the imaging equipment. IR nurses administer oxygen, sedation, medications, blood products, and carefully monitor the patient throughout the procedure. Nurse Practitioners (NP) perform specific procedures within the suites, the Emergency Departments, or the inpatient units. NPs also attend patients in clinic, provide patient follow-up, and triage inquiries by phone and pager. After joining the staff of IR and understanding the complexity of the practice and myriad procedures they perform, I came to the conclusion that they are "The Smartest Team You'll Never (or Seldom) See". Common IR procedures are listed in Table 1.

Interventional Radiology is vital in supporting the Trauma, Transplant, Dialysis, Hepato-Biliary, Oncology, and Stroke Programs at UCSD. The team of IR nurses, radiologic technicians and physicians is on call to perform procedures 24 hours a day, 7 days a week. Approximately 2,000 individual pieces of specialty equipment are kept stocked and available at all times for use. At Hillcrest alone last year, the IR teams performed approximately 2,500 procedures. Both hospitals conduct IR Clinics for the evaluation and monitoring of



Rhonda Martin, RN, MS, MLT(ASCP), CCRN, CNS/ACNP-C, is a Nurse Practitioner/CNS, for Vascular Interventional Radiology. She received her AA degrees in Medical Technology and Nursing at Allegany College, Cumberland, Maryland, a BSN from the University of San Diego, and Masters as a Critical Care CNS and Post-Master's Certificate as an Acute Care NP from California State University, Long Beach. Rhonda has had a wonderful 26-year career at UCSD, as a clinical nurse, educator, manager, CNS, and NP.

patients undergoing procedures.

Interventional Oncology is a rapidly growing subspecialty of IR practice. Tumors can be treated by accessing the femoral artery, and by delivering chemotherapy or radiation beads directly to the site then embolizing the vessels feeding the tumor. Percutaneous, or "through the skin" treatments are performed using ultrasound or CT guidance. Microwave or cryotherapy probes are guided into lesions, and then activated to generate heat or cold to destroy the lesion. The VIR Service also supports clinical trials

of new cancer treatment with the Moores Cancer Center. Some of the promising therapies on the horizon include vascular delivery of oncolytic viruses, which are programmed to seek and destroy tumor cells, and arterial chemo-infusion of medications.

In addition, UCSD Medical Center is one of only eleven Centers of Excellence in the U.S. for the diagnosis and treatment of Hereditary Hemorrhagic Telangiectasia (HHT). Also known as Osler-Weber-Rendu Syndrome, HHT is an autosomal dominant genetic disorder that affects approximately 1 in 5000 people in North America. It is characterized by the tendency to form vessels that have no capillaries between an artery and vein, resulting in small, fragile skin and mucous membrane sites called telangiectasias, or larger arterio-venous malformations (AVMs) that occur within vital organs. These malformations can result in spontaneous, sometimes life threatening bleeding, or shunts that can cause strokes. The HHT Center is based with Vascular IR, which has a specialized clinic, and collaborates with the pulmonary, cardiac, head and neck surgery, gastroenterology, and Neuro IR teams for the interdisciplinary diagnosis and treatment of these patients. Pulmonary AVMs are routinely embolized by inserting coils under



Rhonda Martin with patient Denise McNelty

fluoroscopic guidance to prevent stroke and improve the patient's oxygenation and overall function. It is truly gratifying to see these patients return to clinic, free of epistaxis and anemia, with normal oxygen levels and return to a normal lifestyle.

Collaboration is essential for the smooth functioning of the service and a seamless patient experience. Clinical nurses, nurse coordinators, radiologic technicians, schedulers, storekeepers, unit nurses, nuclear medicine technicians, anesthesia teams, unit and ICU nurses, and specialty medical services all must coordinate efforts to make these complex procedures a success. But the greatest satisfaction we get is from the patients themselves. Our team is often complemented on their

caring, friendly, and confident approach. We regularly hear from our long-term patients' that coming to IR is "like coming to see family".

The Third Annual UCSD IR Conference will be held on April 2, and is open to all nurses and technicians who care for radiology patients. This conference is coordinated by IR nurses, Babette Ortiz and Patty McGill, and is one of the few conferences that focus on this area of practice. The Association for Radiologic and Imaging Nurses (ARIN) is the nursing organization for this specialty. For additional information, please visit the IR website, at <http://www.ucsdir.org>.

References

1. *Interventional Radiology Sourcebook* (2005). Society of Interventional Radiology, p3.
2. HHT Foundation International website, www.hht.org. Accessed March, 2011



COMMON VASCULAR INTERVENTIONAL RADIOLOGY PROCEDURES Arteriography • Venography • Vascular Interventions • Thrombolysis/Angioplasty of Dialysis Fistulas and Grafts • Fenestration of Dissecting Aortic Aneurysms • Percutaneous or Transvenous Biopsy • Fluid or Abscess Drainage/Drain Placement • Percutaneous Nephrostomy Tube Placement/Removal • Nephro-Ureteral Stent Placement/Removal • Gastrostomy/Jejunostomy Feeding/Decompression Tubes • Biliary decompression, plasty, stenting, and drain placement • Cholecystostomy • Needle Localization of Lesions for Video-Assisted Thoracic Surgery (VATS) • Acute Stroke Thrombolysis • Arterio-Venous Malformation and Aneurysm Embolization • Discograms • Kyphoplasty • Nerve Root and Epidural Injections for Pain • Uterine Artery Embolization for Fibroids • Balloon Artery Occlusion for Placenta Acreta • Transvenous Intrahepatic Portosystemic Shunt (TIPS) Placement and Revision • Percutaneous Bland or Alcohol Ablation of Tumors • Transarterial Chemoembolization (TACE) • Transarterial Radioembolization (TARE) • Microwave Ablation of Tumors (MWA) • Cryotherapy of Tumors