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THE CENTER FOR VASCULAR MEDICINE MEETS THE TRIPLE AIM OF THE AFFORDABLE CARE ACT

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The Affordable Care Act (ACA) was created with the goals to expand healthcare access, control costs and improve quality. Signed by President Obama in 2010, it introduced the possibility of unprecedented access to healthcare for patients throughout the United States. This legislation, which contains over a thousand pages of provisions and requirements, represents the largest overhaul of the US healthcare system since the introduction of Medicare in 1965, 45 years earlier.

Of the ACA's numerous requirements of employers, patients and insurance companies, one of the most important is the requirement that insurers provide coverage regardless of pre-existing medical conditions. For the first time, patients must be offered coverage despite previous disease diagnoses. This is vitally important to the tens of thousands of Americans who suffer with chronic conditions such as vascular and kidney disease.

Although there is continuing debate regarding the ACA, it is clear that more patients today have healthcare insurance coverage than ever before. An extensive study by the Rand Corporation (Modern Healthcare, May 6, 2015) reports that 17 million more Americans have health insurance coverage since the launch of the ACA. This tremendous increase in patients with coverage has resulted in the demand for enhanced access to both primary care and specialty services.

The ACA also encourages the use of safe and cost-effective healthcare delivery models. The goal is to reduce the growth of healthcare spending that accounts for 17.4% of the Gross Domestic Product (Congressional Budget Office, December 2014). It appears that the emphasis on cost effectiveness is working. The 2013 rate of growth was only 3.6%, the lowest increase ever recorded (Health Affairs, December 2014).

The Center for Vascular Medicine (CVM) is committed to the ACA goals of expanding access to coverage, controlling costs and improving quality. Our clinical offices in Greenbelt, Annapolis, Prince Frederick, Glen Burnie and, Silver Spring, Md., offer patients from a wide geographic region convenient access to board-certified vascular specialists. Patients requiring treatment for venous and/or arterial disorders can typically be treated in our state-of-the-art minimally invasive outpatient angiography suites in Greenbelt, Annapolis and Prince Frederick. eHealthcare costs in outpatient office-based suites are lower than inpatient facilities due to the tighter control of staffing, supplies and scheduling (Becker's ASC Review, January 2015). Our commitment to improved eHealthcare quality is consistently demonstrated by our participation in the Physician Quality Reporting System (PQRS) and our Intersocietal Accreditation Commission (IAC) accreditation. CVM also submits quality data to Medicare to demonstrate our performance.

The Affordable Care Act contains additional provisions that will be introduced in the future. The physicians and providers at the Center for Vascular Medicine will continue to be leaders in demonstrating our commitment to the goals of enhanced access, controlled costs and improved quality. For us the future is now!

POST-THROMBOTIC SYNDROME: A COSTLY COMPLICATION OF DVT

BY GAURAV LAKHANPAL, MD, FACC, RPVI

Post-thrombotic syndrome is the development of symptoms and signs of chronic venous insufficiency following deep vein thrombosis (DVT). It is a common, burdensome and costly complication. The term "post-thrombotic" replaces the prior terminology "post-phlebitic" syndrome.

Pathophysiology: Post-thrombotic syndrome develops as a consequence of long-standing venous hypertension. A combination of reflux due to valvular incompetence, and venous hypertension due to thrombotic obstruction, is thought to contribute to post-thrombotic syndrome. Acute DVT causes obstruction of venous outflow, which can be partial or complete. The inflammatory response to acute thrombosis and the process of recanalization directly damages venous valves.

Reflux occurs early, progressively increasing from 17% of patients at one week to 69% at one year following the diagnosis of DVT.

Epidemiology: The reported incidence of post-thrombotic syndrome varies widely. Among studies that use validated diagnostic criteria, the incidence is approximately 50% in the first year in spite of anticoagulation. Severe post-thrombotic syndrome occurs in 5 to 10% of patients.

Risk Factors: Patient-specific factors that may increase the risk for post-thrombotic syndrome include pre-existing primary venous insufficiency, older age, obesity and varicose veins. There does not appear to be a consistent relationship between gender and the development of post-thrombotic syndrome.

The development of recurrent ipsilateral DVT is strongly associated with the risk for the post-thrombotic syndrome.

Proximal DVT increased the risk for post-thrombotic syndrome twofold compared with distal DVT. The risk of post-thrombotic syndrome is greater in patients who do not maintain adequate anticoagulation during initial treatment for their DVT. The use of thrombolytic therapy to treat acute proximal DVT may decrease the risk of post-thrombotic syndrome by reducing clot burden or possibly preventing proximal vein valve dysfunction; however, it is not clear whether the benefits outweigh the risks involved.

Clinical Features: Symptoms and signs can include extremity pain, venous dilation, edema, pigmentation, skin change, and venous ulcers. Edema occurs in approximately two-thirds of patients with post-thrombotic syndrome, skin pigmentation in about one-third, and venous ulceration in less than 5%.

Diagnosis: The diagnosis of post-thrombotic syndrome is predominantly clinical. Venous imaging, typically duplex ultrasound, may be useful for patients in whom the clinical signs of chronic venous insufficiency are not obvious, those with a clinical history that suggests DVT but that did not undergo studies, and those with severe symptoms.

Treatment: Conservative management includes exercise, limb elevation, compression therapy, and possibly pharmacologic therapy.

Venous intervention: Endovascular or surgical interventions in appropriately selected patients with venous obstruction or reflux may decrease the incidence of recurrent ulceration and skin changes and improve quality-of-life in patients with chronic venous disease. Occluded or stenotic iliac vein segments can be treated using percutaneous angioplasty, with or without stenting, venous bypass or endophlebectomy. Surgical vein bypass is an option for selected patients with severe proximal venous reflux, but only if percutaneous intervention has failed to restore flow; however, it is limited to certain high-volume referral centers. Patients with focal symptoms and venous ulceration may benefit from treatment of incompetent superficial veins.

Quality of Life: Post-thrombotic syndrome causes significant disability and economic burden for patients and the healthcare system. In a study of patients two years after DVT treatmens, quality of life measures of patients with post-thrombotic syndrome were comparable to published norms for those with angina, cancer, or congestive heart failure.

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CURRENT STRATEGIES FOR MANAGING HEMODIALYSIS PATIENTS IN THE OUTPATIENT SETTING

MICHAEL D. MALONE, MD, FACS

With advances in the medical field and prolonged survival rates, hemodialysis patients are a rapidly growing population that provides a unique set of challenges to outpatient vascular laboratories. Currently, hemodialysis allows more than 550,000 patients in the United States to live with the disease.

FISTULA-FIRST CATHETER-LAST WORKSHOP COALITION

The Fistula-First Catheter-Last Workshop Coalition, formed in 1995, is important in the management of hemodialysis access patients today. Its mission is focused on supporting the renal community and End Stage Renal Disease (ESRD) networks to improve vascular access outcomes. This group realizes that appropriate vascular access is the lifeline for these patients. The development and implementation of system changes that support arteriovenous (AV) fistula placement in suitable hemodialysis patients is key to sustainable access. At the same time, this approach reduces central venous catheter use. The use of an AV fistula leads to lower infection, hospitalization and mortality rates while preserving vital Medicare measures.

INITIAL CONSULTATION

At the initial consultation, the vascular team assesses the patient and formulates an appropriate operative plan to ensure proper care given the patient's clinical scenario. As outlined in the Fistula First initiative, all attempts are made to use an autogenous vein as a source of conduit if at all possible. To that end, all patients undergo noninvasive venous duplex ultrasound to evaluate the size of the basilic and cephalic veins as possible conduits for hemodialysis. In addition, the patient undergoes duplex ultrasound of the subclavian and jugular veins to assess for patency. Many of these chronic patients may have had central lines for hemodialysis in the past, and to that end these veins may be scarred or damaged. This allows the clinician to glean additional information about the condition of the central venous vasculature, which may be helpful in preoperative planning, as well as in determining a possible source of the problem if the access does fail.

OPERATIVE PROCEDURE

Based on the finding of the initial assessment and noninvasive evaluation, the patient is scheduled for one of three vascular procedures to provide access for hemodialysis. Ideally, the patient is scheduled for an autogenous arteriovenous fistula where a surgical connection is made between an artery and vein either at the wrist, forearm or upper arm. Autogenous arteriovenous fistulas have the highest patency and lowest infection rates. If an appropriate vein for creating an autogenous fistula is found, the next step is to place a synthetic AV graft. In this instance, a synthetic graft joins the artery to the vein to provide a location where the graft can be accessed for dialysis. Finally, if no suitable conduit is available for creating an arteriovenous fistula and no vein is available for graft placement, then a tunneled catheter can be used for dialysis.

THE FAILING DIALYSIS ACCESS

This subset of patients have had an access procedure that has either occluded or is malfunctioning and needs to be corrected. In the past, these patients would have required an operative procedure to correct their occluded or failing dialysis access. However, with the current technology available at CVM, these patients can be treated on an outpatient basis in our freestanding catheterization laboratory.

CLINICAL ASSESSMENT

The clinician can determine whether this is an acute problem or a chronic problem with a history of prolonged dialysis run times or elevated flow pressures. A history of any hypercoagulable may contribute to premature access failure. On physical examination, clinicians look for a bruit or a thrill to determine if the access is patent on initial assessment. A duplex ultrasound can be performed to look for flow, assess for narrowing or stricture formation and determine non-invasively if there is thrombus formation. In addition, the duplex ultrasound can determine if there are any intrinsic factors such as hematoma or seroma that may be compromising flow in the fistula or graft due to compression. In a slowly maturing AV fistula, side branches can be assessed that may have to be treated at a later date to allow the fistula to mature adequately. This study can be performed in the office in a relatively short period and can help to formulate an appropriate game plan.

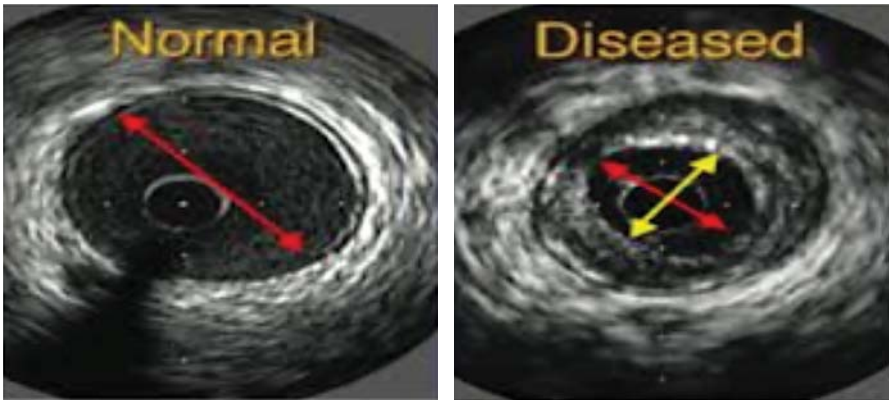
CONTRAST STUDIES/PERCUTANEOUS TREATMENT

In these patients, a percutaneous study can be performed either with a fistulogram or graft study to evaluate the patency of the access site. A declotting procedure can be performed during which a small balloon is inserted under fluoroscopic guidance, and any newly formed thrombus can be removed. Further, clot dissolving agents such as TPA can be used to assist in removing thrombus. Mechanical thrombolytic devices can be used to mechanically dissolve and suction out the thrombus at the time of the contrast study. Once the thrombus is removed, a contrast study can be performed to look for any areas of narrowing in the access site that are amenable to angioplasty. As in the coronary population or in the peripheral arterial disease (PAD) population, a small balloon can be inserted to open up any blocked areas of the graft or native vessels of the fistula or graft. After successful angioplasty, a repeat contrast study can be performed to check for improvement or correction of any abnormalities. If there still appears to be evidence of residual narrowing, a percutaneous stent can be placed as a 'scaffold' to correct abnormalities and allow dialysis to continue.

To meet the needs of the steadily growing hemodialysis population, an action plan has to be developed when their dialysis access graft is not functioning. With newer technology and advances in outpatient catheterization suites (like Center for Vascular Medicine), a great number of these procedures can be performed in a safe outpatient setting that allows these delicate patients to get the individualized attention they deserve.

INTRAVASCULAR ULTRASOUND – CUTTING-EDGE TECHNOLOGY PROVIDES LIFE-CHANGING RESULTS

BY VINAY SATWAH, DO, FACOI, RPVI



The Center for Vascular Medicine (CVM) has been recognized as a national leader in the utilization of intravascular ultrasound (IVUS) in the outpatient setting due to the expertise of its physicians. CVM has become a national training site for physicians that wish to expand their knowledge of this diagnostic technology. In an effort to provide the highest quality of care to patients, CVM has been utilizing IVUS for over two years as a standard diagnostic tool for those suffering from Deep Venous Disease.

What is IVUS?

Intravascular ultrasound, which uses a catheter equipped with a camera to visualize a vessel from the inside, was first introduced to vascular medicine providers in the late 1980s. It is inserted via a sheath, and is valuable in assessing the patency of a vessel. It is also useful in determining the possibility and degree of obstruction and narrowing.It can also allow the interventionalist to obtain dimensions of the vessel wall for the purpose of stent sizing. CVM has applied this technology as a diagnostic modality for deep vein disease.

How does IVUS affect patient care?

Many patients may suffer from venous outflow obstruction (i.e., iliac vein compression) for years without a diagnosis. They typically will present with the following symptoms:

- Unilateral Leg Swelling
- Unilateral Leg Pain
- Non-Healing Leg Ulcers
- Pelvic Pressure
- Varicose Veins in the inner thigh/ buttock/pelvic region

IVUS provides a three-dimensional view of the interior of vessels, allowing physicians to determine the presence and degree of venous disease. In addition, and perhaps more importantly, this technology will determine whether the compression is intrinsic or extrinsic. Intrinsic obstruction occurs due to a problem from within the vessel and extrinsic obstruction results from an external structure causing compression. Both will cause an increase in resistance to blood flow as it attempts to return from the leg.

Who is at risk for venous outflow obstruction?

- Patients with a history of DVT due to post-thrombotic scarring of the vessel wall
- Patients with prior history of pelvic or lower abdominal surgeries
- Obese patients
- Patients with multiple pregnancies (>2)

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TOPIC: New Diagnosis and Treatment Options for Vascular Disease

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