The April issue of *Vascular Disease Management* presents an article by Jason Salsamendi, MD, on the use of the AngioVac vacuum-operated thrombectomy tool (AngioDynamics) to remove large venous thrombus mechanically without the need for chemical lytic therapy. The AngioVac device is one of several new mechanical thrombectomy devices designed to treat organized thrombus.

Thrombus removal is an integral part of peripheral arterial and venous intervention. Surgical embolectomy and thrombectomy is established and is often highly effective, but it is not always practical. Although lytic infusion is effective in treating arterial and venous thrombus, requires critical care monitoring and occasional prolonged infusions, and is associated with a risk of bleeding, which in some cases can be fatal.

The combination of mechanical devices and thrombolytic drugs has been shown to shorten the course of therapy but is still associated with bleeding risk and the need for close hemodynamic monitoring. Many patients with thrombus are not ideal candidates for lytic therapy because of advanced age, concomitant cancer, bleeding disorders, recent surgery, prior stroke, profound hypertension, anemia, thrombocytopenia, and many other reasons. There is obviously a role for direct thrombus removal without lytic, because it may lessen the risk of bleeding and result in more rapid removal of the thrombus. Large thrombi and emboli consisting of older, organized thrombus have historically not responded well to first-generation mechanical thrombectomy devices. Newer devices are showing promise in the treatment of these disorders without the need for concomitant administration of thrombolytic drugs.

The AngioVac device utilizes a 22 Fr suction cannula coupled to an extracorporeal veno-venous bypass circuit to aspirate thrombus and blood then return blood to the patient. The AngioVac system has successfully demonstrated removal of old organized thrombus primarily in the venous system without the need for lytic drugs. Typically this is utilized to create a large channel following which the patient is maintained on anticoagulant drugs allowing the body’s intrinsic thrombolytic system to clean minor residual thrombus. This has the potential to dramatically decrease bleeding risk, rapidly remove thrombus, shorten hospital stay, and expand the potential pool of patients that can be treated interventionally. The device is large, but it is typically well tolerated in the venous system. Other lower profile devices have shown promise in removing large amounts of organized thrombus in the arterial system. The Indigo system by Penumbra couples aspiration and a distal macerator to break the thrombus into smaller pieces, facilitating removal by suction aspiration. This device allows tracking into smaller arteries to retrieve distal emboli. In Europe, the Rotarex device (Straub Medical) utilizes an Archimedean screw to macerate and retrieve thrombus. This system also allows tracking through distal vessels.

Thrombolytic therapy has allowed clinicians to successfully treat patients with acute and chronic thrombus. Unfortunately, some patients are not suitable candidates and, rarely, even ideal candidates have major complications. Newer mechanical devices show great promise in treating acute and chronic thrombus. It will be important to comprehensively assess the overall costs as well as the benefits of these new devices.