

# Innovative mechanical thrombectomy devices in complex venous thromboembolism: the Argentine Perspective

## Dispositivos innovadores de trombectomía mecánica en tromboembolismo venoso complejo: la Perspectiva Argentina

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### INTRODUCTION

Venous thromboembolism, which includes both deep vein thrombosis (DVT) and pulmonary embolism (PE), remains one of the leading causes of morbidity and mortality worldwide. Emerging mechanical thrombectomy devices such as ClotTriever and FlowTriever, along with other similar devices, offer new alternatives for the treatment of complex cases. In Argentina, these procedures are more and more frequently performed by us, interventional cardiologists, a notable shift from the global trend where such interventions are most commonly conducted by interventional radiologists. However, the limited availability of these devices through national social security systems continues to pose challenges.

### CASES OF CLOTTRIEVER USED TO PREVENT DVT IN MAY-THURNER SYNDROME<sup>1</sup>

May-Thurner syndrome (MTS) is a relatively uncommon condition characterized by compression of the left iliac vein by the right iliac artery, which increases the risk of left-sided deep vein thrombosis (DVT). Traditional treatment options, such as anticoagulation, are often insufficient to prevent serious complications. In these cases, the ClotTriever system (Inari Medical) was used for mechanical thrombectomy. The aim was to effectively remove large thrombi without the need for thrombolysis, which is often contraindicated due to the entailed bleeding risk.

#### Clinical outlook

This is a non-thrombolysis mechanical thrombectomy system specifically designed for large-vessel venous thrombosis<sup>2</sup>. Unlike traditional catheter-guided thrombolysis, this alternative does not rely on lytic drugs, thus being suitable for patients with contraindications for thrombolysis.

The system was effective in rapidly removing clots, improving venous flow, and preventing post-thrombotic syndrome. This clinical condition is a much-feared common long-term complication of DVT<sup>3</sup>.

### CASE OF FLOWTRIEVER USED TO PREVENT PULMONARY EMBOLISM (INTERMEDIATE-RISK PE, HIGH HEMORRHAGE RISK)<sup>4</sup>

High-risk pulmonary embolism sometimes requires treatment through thrombolysis alone or through thrombectomy systems, whether alone or combined with thrombolysis<sup>5</sup>. The aforementioned system, used in the clinical case presented, has revolutionized PE treatment by providing a mechanical alternative to thrombolysis<sup>6</sup>. In this case, a patient with intermediate-risk PE presented a high risk of hemorrhage, thus excluding the use of systemic thrombolysis. The FlowTriever device was successfully used to remove the pulmonary embolism, resulting in rapid hemodynamic improvement without the use of lytic agents.

#### Clinical outlook

This is the first FDA-approved mechanical thrombectomy system designed for the removal of emboli from the pulmonary arteries. It is particularly beneficial for patients at high risk of hemorrhage who cannot receive systemic thrombolysis. Studies have demonstrated device safety and efficacy, showing a significant reduction in right ventricular overload and improvements in oxygenation and hemodynamic parameters.

### THE ARGENTINE SCENARIO: LIMITED ACCESS TO ADVANCED THROMBECTOMY DEVICES

Despite the proven efficacy of such devices, their use in our country remains limited. Access to these advanced mechanical thrombectomy systems is restricted by high costs and the slow approval process by our national social security system. For interventional cardiologists, access to these devices can be a drawn-out process that delays timely intervention in acute cases. Despite late authorization, their use in a subacute stage can still be beneficial to reduce the much-dreaded post-thrombotic syndrome<sup>7</sup> and its sequelae: chronic edema, pain, and ulcers.

## CHALLENGES

The cost of these devices is excessively high for many patients, particularly those relying on the state-funded healthcare system or social security, which often delay or deny reimbursement for advanced technologies.

This underscores the need for advocacy within the medical community to ensure faster approval processes for life-saving devices and increased campaigning for medical insurance providers to cover these treatments.

## CONCLUSION

Mechanical thrombectomy devices, as used in the cases presented in our current issue, entail innovative advancements in the treatment of DVT and PE. They offer significant benefits for patients with contraindications to traditional thrombolysis. However, the limited availability of these devices, particularly through our national social security system, constitutes a major challenge for timely and effective intervention. As interventional cardiologists continue to advocate for the use of these technologies, it is crucial to address the barriers posed by the system itself that prevent broader access.

**Dr. Carlos Fernández Pereira, PhD, FACC, FESC, FSCAI**

Editor-in-Chief of the Argentinian Journal of Interventional Cardiology (RACI)

cfernandezpereira@centroceci.com.ar

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