Mechanical atherectomy with thrombectomy reduces hospital stay with fewer complications. “From a health economic point of view, studies on femoral-popliteal arteries have shown that the use of mechanical thrombectomy, versus lytics, can reduce the length of a patient’s stay in the hospital as well as intervention time,” remarked Dr Wissgott, recognising the high importance of cost effectiveness in clinical decision-making today. Referring to the potential benefits of using mechanical atherectomy with thrombectomy, he noted that in a study he published in 2008 showed that using Rotarex®S can reduce mean hospital stay to 2.3 days compared to CDT therapy where the mean stay was 8.5 days.

In conversation with LINC Today, he explained that the main issue with treatment was the characterisation of the arterial occlusion, including determination of acute versus subacute versus chronic lesion type, short versus long cul-de-sacs, and embolic versus thrombotic. “Depending on these criteria, you choose the best endovascular tool for the job. This might be angioplasty and/or stenting, or atherectomy with thrombectomy,” he said, adding that, “the Rotarex®S is a fit for all.”

To provide some evidence to support the decision-making involved, Dr Wissgott decided to evaluate the safety and effectiveness of the Rotarex®S atherectomy and thrombectomy device for the treatment of acute, subacute, and chronic native femoral-popliteal artery occlusions in a retrospective analysis of 237 patients treated with Rotarex®S between 2013 and 2018 at his hospital in Heide.

All occlusions treated in the retrospective study were in native femoral-popliteal arteries. Of these, 77 were acute, 103 subacute, and 57 chronic. Two-thirds of patients had diabetes mellitus, and four out of five were smokers. In the acute lesions, length averaged 19.6 cm, in the subacute, 15.0 cm, and in the chronic 12.9 cm. Lesions were long and occluded with one-in-10 being an isolated popliteal artery. In the subacute group, 36.9% had chronic limb ischaemia (CLI), while in the chronic group, 40.4% had CLI.

The analysis showed Rotarex®S delivered a highly successful, rapid procedure avoiding costly thrombolysis and resulting in a significant reduction in the stenting rate,” commented Dr Wissgott. “Technical success was 100% in the acute lesions, 99% in the sub-acute, and 96.4% in the chronic. Treatment time varied between 5.3 to 67 minutes, average stent length was between 16.8% and 21%, and stent length between 72 mm and 85 mm, and there were only three perforations.

“Twelve-month results, in combination with a drug-coated balloon are good and the complication rate was very low with Rotarex®S,” reported Dr Wissgott, adding that, “the typical adjunctive therapy in these types of lesions is 40-50% in this study it was around 20%.”

There was a considerable difference between the initial lesion length and the stent length. The mean lesion length for acute lesions was 22.5 cm versus stent length 7.2 cm, the mean lesion length for subacute lesions was 18.9 cm while the stent length was 8.3 cm, and the mean lesion length for chronic lesions was 15.2 cm while the stent length was 8.5 cm. “At 30 days, there were no distal embolisations with Rotarex®S and importantly no distal embolisation filters were used. There was an avoidance of costly thrombolysis, and no major adverse events,” he remarked.

Rotarex®S with adjunctive DCB and/or stenting resulted in high primary patency rates at 12-months,” he added. These 12-month rates were 71.4%, 73.6%, and 81.2% for acute, subacute and chronic lesions respectively. Rotarex®S with adjunctive DCB and/or stenting resulted in low clinically-driven target lesion revascularisation (TLR) rates at 12-months of 85.7%, 83.9%, and 93.8% in acute, subacute, and chronic lesions respectively.

Arnsberg Clinic Registry of Aspirex®S in acute thrombotic and thromboembolic occlusions Dr Lichtenberg will discuss the latest data on Aspirex®S and Aspirex®S.

We found no bleeding complications with pure mechanical thrombectomy so it was significantly safer than CDT. With at least similar efficacy compared to CDT, mechanical thrombectomy is a clear step forward for treatment of iliofemoral DVT.”

Michael Lichtenberg

Atherectomy with thrombectomy of occluded femoropopliteal arteries using Rotarex®S is safe and effective, minimising the need for stents, and reducing the length of implanted stents to much less than the entire lesion length, according to some of the latest data to be presented at a Straub-sponsored symposium later this morning. Christian Wissgott (Institute for Diagnostic and Interventional Radiology, Heide, Germany) will discuss initial results from a retrospective analysis of the use of the Rotarex®S atherectomy and thrombectomy device in patients with acute, subacute and chronic lower limb artery occlusion, which he lead. He recently spoke to LINC Today. “Good patency rates after 12 months can be achieved with Rotarex®S especially in combination with a drug-coated balloon (DCB) and/or stent,” he said, adding that, “procedure-related complications were rare, and there were no distal embolisations which is especially important as this was done without using distal protection devices.”

Other speakers will include Bruno Freitas (Leipzig, Germany), and Michael Lichtenberg (Arnsberg Clinic, Germany) who also recently spoke to LINC Today about his upcoming talk. Dr Lichtenberg will focus on results from the Arnsberg Clinic Registry examining safety and efficacy in patients with thrombotic or thromboembolic occlusions treated with Aspirex®S. He will also present results of a meta-analysis comparing different therapies and outcomes including catheter-directed thrombolysis (CDT) therapy with pharmaco-mechanical and pure mechanical thrombectomy, for the first time.

Straub Medical’s endovascular rotational catheter atherectomy and thrombectomy systems, Rotarex®S and Aspirex®S, will be discussed for their ability to restore blood flow in occluded blood vessels by mechanically breaking up thrombus and the underlying atheroma, then aspirating and transporting the debris via the catheter into a collecting bag outside of the patients’ body. As a strong and rapid mechanical atherectomy and thrombectomy device, Rotarex®S is used in occlusions of native arteries, occluded stents and occluded bypass grafts, whilst the Aspirex®S offers the same effective solution for venous systems. Occlusions can be crossed at a rate of up to 1 cm per second, depending on the composition of the occluding material.

Safe, successful and cost effective: the latest data on Rotarex®S and Aspirex®S
Aspirex® is a very fast clot-removal system that can be hooked up quickly. “Our experienced team only needs two or three minutes for this. With a 10F device, which is what we mainly used in the study, we can aspirate up to 130 ml per minute, and this is affected using the Archimedes principle which underpins this catheter,” Dr. Lichtenberg conducted a meta-analysis comparing all different therapies and outcomes including CDT therapy with pharmaco-mechanical and purely mechanical thrombectomy. “We found no bleeding complications with purely mechanical thrombectomy so it was significantly safer than CDT, with at least similar efficacy compared to CDT. Mechanical thrombectomy is a clear step forward for treatment of iliofemoral DVT. This meta-analysis will presented at LINC for the first time.”

**Aspirex® and Aspirex®S technical details**

Aspirex® is Efficient, quick and easy to use for arterial occlusions. The Aspirex® family of catheters are over-the-wire, single-use, percutaneous devices for the treatment of occlusions in arterial vasculature. The catheters consist of a flexible outer covering, the catheter shaft. The helix and the catheter head rotate at per minute, and this is effected using the Archimedes principle which underpins this catheter. The catheter is designed in such a manner that when used as directed, over a guidewire and with adequate proximal blood flow, no wall damage would result if contact with a vessel wall should unintentionally occur.

**Aspirex®S catheter for safe and effective removal of thrombus**

The Aspirex® catheter consists of a steel helix with a hydrophobic coating, which has a coaxial, central lumen for the guidewire, rotating inside a single-lumen braided catheter which has a smooth, rounded head, with an aperture fixed to the distal end of the catheter. The catheter is designed to ensure that, when functioning with the guidewire placed inside the lumen and an adequate blood flow, any unintentional contact with the wall will not cause damage to the vessel wall. Contact with the vessel wall is not necessary for the catheter to exert its effect. Available in 6F, 8F and 10F for a range of vessel diameters.

**The Straub Medical Drive System**

The drive system, together with a gearbox in the catheter housing, automatically generates the revolution speed appropriate to the particular catheter, ranging between 40,000 and 60,000 rpm depending on the model. The rotating helix guarantees several functions of the catheter: it produces a strong negative pressure and acts as a conveyor screw for the material to be transported out of the body and into the collecting bag. The negative pressure produced is strong enough to aspirate all the fragments of occlusive material reliably into the catheter. The blood that is aspirated along with the fragments helps to cool the helix and catheter. Despite the strong aspiration, the patient's blood loss is limited to 45 ml/min with 6F catheters, 75 ml/min with 8 F catheters and 130 ml/min with 10 F catheters. The catheter normally opens up to 1 cm of occluded segment per second, which ensures the patient's blood loss usually remains below clinical relevant levels, even in longer occluded segments. The catheters are delivered sterile and are available in usuable lengths of 85 cm, 110 cm and 135 cm, depending on the model.