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CARDIATIS—TEHMED

Endovascular Multilayer Flow Modulation

New Solution for the Aortic Aneurysm Disease

Endovascular treatment of aortic aneurysm disease provides for a less invasive therapeutic option to open surgery, even in poor surgical candidates.

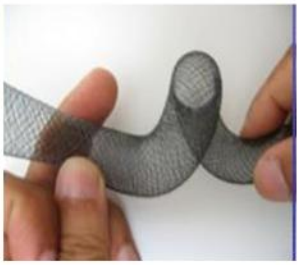
Initially the endovascular techniques were applied to the atherosclerotic aortic aneurysms, but most recently the range of the aortic pathologies has been widened significantly.

In addition to the atherosclerotic aortic aneurysms, the inflammatory aortic aneurysms, intramural hematoma, penetrating atherosclerotic ulcer, traumatic injuries, iatrogenic injuries and aortobronchial and aortoesophageal fistulas are treatable endovascularly nowadays. The same treatment approach is sometimes used in case of infected aneurysms, Takayasu arteritis and aortic dissections. An optimal patient eligibility selection is of outmost importance.

Patients not eligible for the surgical open repair (previous surgery, advanced age and co-morbidities) that is associated with increased mortality and morbidity from cardiopulmonary and renal complications, are good candidates for endovascular treatment.

Various technical advancements in the EVAR treatment as well as design improvements in the fenestrated and branched technology broadened the patient eligibility additionally. However, more than one third of the aortic aneurysms are unsuitable for EVAR, due to the technical imperfections of the commercially available devices.

The new **Cardiatis** (Isnes, Belgium) **Flow Modulator** provides for an ultimate solution for the treatment of the aortic aneurysm disease, allowing for strong reduction of blood inflow into the aneurysm sack, while improving laminar flow in both the parent vessel and the side branches, keeping them patent. The Cardiatis flow modulator is easy to deploy and highly flexible, thereby allowing for accurate placement and high grade of conformability.



Alteration of the aneurysm flow dynamics

The Cardiatic Multilayer Flow Modulator is designed to reduce blood flow inflow into the aneurysms, while modulating turbulent aneurysm flow into the laminar one. The lamination of the remaining flow within the aneurysm will have favorable influence on the generation of a progressive organized thrombus, which will reduce aneurysm size, wall shear stress and the risk of rupture. In the same time the lamination of the blood flow will cause that the side branches, originating from the sack or elsewhere, remain patent. Cardiatis Flow Modulator is a novel solution that is applicable in all the cases that are not treatable with the traditional covered or fenestrated stents, where closed or fenestrated design endograft would compromise blood supply to side branches.

Inside this issue:

Special points of interest:

- *Cardiatis flow modulator results in strong reduction of blood inflow into aneurysm*
- *Cardiatis flow modulator laminates the blood flow inside the aneurysm and results in progressive thrombus organization*
- *Cardiatis flow modulator allows for patency of side branches, even though originating from the aneurysm sack itself*

TEHMED D.O.O.

Neubergerjeva 7
Ljubljana
Slovenija

Phone: +386 31 659 040
Fax: +386 3 5868 695
E-mail: info@tehmed.si

TehMED, certified distributor of Cardiatis products for Slovenia

We are on the web:
www.tehmed.si

TehMED— Who Are We?

TehMED is a young and dynamic company based in Ljubljana - Slovenia. TehMED is the certified distributor of the Cardiatis (Isnes, Belgium) products for the Slovenian market. The company is primarily focused at the distribution of the medical products, used in the interventional radiology and minimally invasive surgery.

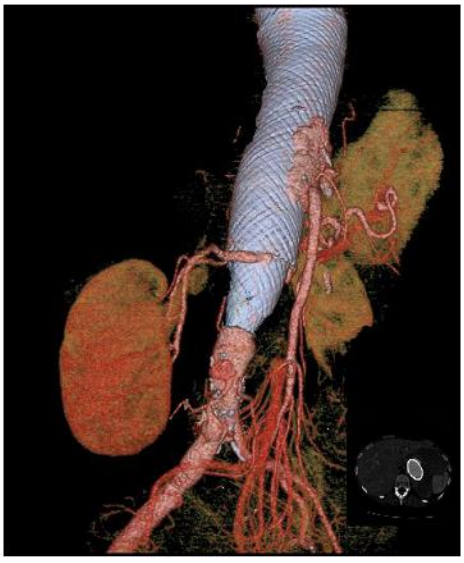
Presentation of the Cardiatis product range can be done upon request to the Commercial and Marketing Department of the TehMED company (see the contact data to the left).

Cardiatis Flow Modulator—Characteristics

Endovascular treatment of the thoracic and abdominal aortic disease suffers from multiple drawbacks that are related to the current technical imperfections of the commercially available solutions. The current products suffer from conformability/kinking, endoleaks, occlusions, frequent strut fractures, component separations, difficulties during deployment, accuracy of deployment, stent(graft) migrations, appositions against the vessel wall etc. Severe neck and iliac angulations and their tortuosity cause additional difficulties that are encountered in many cases. Closed design endografts compromise blood supply to the side branches, which is a frequent problem too.

Fenestrations techniques, introduced recently, gave some advantageous results, but suffer from several limitations either: "post-implantation syndrome", critical shut down of smaller branches and their thrombosis, time delay from stent design to implementation, lack of their availability for off shelf use and very high cost.

Cardiatis Multilayer Flow Modulator provides a new ingenious design of multilayer stent that has multiple advantages over the current prosthetic solutions: it reduces the blood hemodynamic within the aneurysm sack and laminates previously vorticous blood stream. The lamination of the blood flow inside the aneurysm, as well as slow down of the blood stream will increase the blood viscosity and cause rapid generation of physiologically organized thrombus. Of course these phenomenon's will significantly decrease the wall shear stress (friction that the blood stream has with the vessel wall). The lamination of the blood flow will help in maintaining the blood flow into the side branches, even in the cases where those originate from the aneurysm sack itself.



Cardiatis Multilayer Flow Modulators allow for a high grade stent conformability as well as easiness of deployment and deployment accuracy.

Cardiatis flow modulator is considered to be the solution to stay in treatment of the aortic aneurysm disease.