

For immediate release



Review of haemodynamics in stent development shows spiral flow may be key to improving peripheral arterial stent performance

Review in Annals of Biomedical Engineering suggests re-introduction of spiral flow after endovascular treatment for PAD may support endothelial function and increase patency rates

Dundee, UK, 3 November, 2015 – Vascular Flow Technologies, the medical device company using proprietary Spiral Laminar Flow (SLF™) technology to replicate natural blood flow for enhanced patient outcomes, today announces that *'Haemodynamics and Flow Modification Stents for Peripheral Arterial Disease: A Review'*, co-authored by VFT's non-executive Medical Director Graeme Houston, has been published in the *Annals of Biomedical Engineering*. The paper reviews the importance of haemodynamics in stent development as a method of improving patency and longevity of the stent.

Peripheral artery disease (PAD) is a serious risk factor for myocardial and cerebrovascular events, and is a result of impaired blood supply to the effected peripheral area. Although there has been an increase in the use of stents as treatment for PAD, failure rates are high due to re-narrowing of the stented region (in-stent restenosis) caused by the vessel's immune response to the stent and the trauma of implantation. Using stent design to re-introduce spiral flow ultimately aims to reduce responses such as neointimal hyperplasia and therefore improve stent and vessel patency rates for PAD patients.

Following successful clinical results of its Spiral Flow™ vascular grafts, VFT has developed an arterial spiral inducing stent for the treatment of PAD, which uses a spiral internal ridge to induce helical flow. CFD stimulations showing the spiral outflow of the stent, compared to the disturbed flow found in the outflow of control devices are included in the study. Post-operative hematological analysis following Spiral Flow™ peripheral arterial stent implantation also shows significantly reduced thickening of the arterial walls. The stent is currently in pre-clinical testing.

Bill Allan, CEO of Vascular Flow Technologies commented, "Stent development has traditionally focused on stent failure due to in-stent restenosis and fracture of the frame. This review shows that there is a clear need to address abnormal blood flow before failure rates can be improved. We are delighted to be a part of such industry-leading research."

Computational fluid dynamics (CFD) and other flow models are used by the authors to investigate the effect of the force and direction of blood flow on a vessel that result from current stent designs. According to the review, potential benefits of inducing spiral flow following PAD treatment include:

- Increased blood mixing
- Reduced blood flow stagnation
- Increased protection of the arterial wall due to enhanced oxygen and nutrient delivery
- Reduced risk of acute thrombus formation and neointimal hyperplasia in the implant
- Reduced size of disturbed flow zones

These factors have been shown to potentially suppress restenosis after stent implantation.

'*Haemodynamics and Flow Modification Stents for Peripheral Arterial Disease: A Review*' is available online [here](#).

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Notes to Editors

About Vascular Flow Technologies

Vascular Flow Technologies is a leading innovator focused on the research, development and commercialisation of devices to improve blood flow in compromised or diseased blood vessels utilising its proprietary Spiral Laminar Flow™ (SLF™) technology. Natural blood flow has a distinctive singular spiral flow pattern and the patented SLF™ technology is the only clinically-proven design to replicate this.

VFT has two CE marked and FDA approved devices commercialised in Europe and the US, the Spiral Flow™ peripheral bypass (PV) graft and the Spiral Flow™ arteriovenous access (AV) graft. The SLF™ technology is used to create a longer lasting graft or stent, producing a better quality of life for the patient due to reduced vascular complications and improved longevity of the implant. VFT is a privately held company with headquarters in Dundee, UK.

Further information is available at www.vascular-flow.com.

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