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Bactiguard's coating reduces thrombo-inflammatory reactions and acute stent thrombosis – new study published

The medical and technology teams at Bactiguard have, together with KTH, Sweden's largest technical university (Division of Micro and Nanosystems), and Karolinska Institute (Department of Clinical Neuroscience), performed a study on the impact of using Bactiguard's noble metal coating to reduce thrombo-inflammatory reactions and acute stent thrombosis. In short, the conclusion of the study is that when adding the Bactiguard's coating to implant materials, the body's reaction to foreign objects is significantly reduced.

Any medical device that is inserted into the blood stream will cause a so called thrombo-inflammatory reaction. This includes activation of the coagulation system, which potentially can result in a thrombosis. A stent is a metal net designed to open a blood vessel that is obstructed. Activation of the coagulation system and build-up of a thrombosis within a stent is a very serious complication that may lead to injury, or even to death.

The unique feature of Bactiguard's noble metal coating is that it reduces microbial adhesion on the surface of a medical device. Other studies have previously suggested that the coating also can reduce the thrombo-inflammatory reaction. This specific study on the impact of using Bactiguard's coating to reduce thrombo-inflammatory reactions and acute stent thrombosis was performed to gather even more clinical data and proof points of the coating's efficacy. For innovation and future application development purposes, two versions of the coating were applied to the stents in the study – Bactiguard's "standard" coating consisting of gold, silver and palladium, and a modified version including neodymium.

The research methods used were both in vivo (in pigs) and in vitro (through blood marker analysis which also included human samples). The pigs underwent implantation of coated and non-coated stents in a blinded fashion, where the interventionist did not know which stents were coated and which were not. The experiment was terminated after two hours, representing the acute phase of the implantation. The stents were placed in the lingual artery with one coated and one uncoated on each side. The volume of the stent was analyzed using CT-scans data and performed by a treatment blinded assessor. The researchers also conducted laboratory tests using both human and pig blood. Note that the study obtained consent from all human participants involved.

The measurements showed that the coated stent group had a notable decrease in blood clot volume compared to the control group. This effect was observed as early as one hour after the stent was implanted and became even more accentuated after two hours. The in vitro data, using both human and pig blood, showed a significant decrease in markers of coagulation and inflammation in the coated group compared to the control group.

Stefan Grass, Chief Medical Officer at Bactiguard, says: "The finding of this study is promising and yet another set of important data supporting the efficacy of Bactiguard's coating. The combination of infection prevention without increased risk of thrombosis is very appealing and unique for a coated intravascular device."

The study was presented at the ISTH 2023 Congress in Montréal late June, a conference for healthcare professionals working in the fields of thrombosis and hemostasis. The study titled "A novel noble metal stent coating reduces in vitro platelet activation and acute in vivo thrombosis formation: a blinded study" is now published in Scientific Reports. https://www.nature.com/articles/s41598-023-44364-4

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About Bactiguard

Bactiguard is a global medtech company that develops antibacterial, biocompatible and safe technology and solutions to prevent medical device related infections across five therapeutic areas – orthopedics, urology, intravascular/critical care, dental, and wound care.

Bactiguard's unique technology is based on a thin noble metal coating that prevents bacterial adhesion and biofilm formation on medical devices. Bactiguard's infection prevention solutions make a positive impact by decreasing patient suffering, saving lives and unburden healthcare resources. They also fight against antimicrobial resistance, one of the most serious threats to global health and modern medicine.

Bactiguard operates through license partnerships with leading global medtech companies, such as BD and Zimmer Biomet, enabling them to bring medical devices with the company's unique infection prevention technology to the market. Bactiguard also has a portfolio of wound management products and sutures.

Bactiguard is headquartered in Stockholm and listed on Nasdaq Stockholm.

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