



Press Release

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"Reduce Infection Risks: Potential Savings from Using Intelligent Medical Technology"

In the last few decades the quality of our lives has been significantly enhanced due to the clinical use of medical implants. The increasing use of implants to restore faulty body functions is directly associated to a rise in the risks of infection that have an adverse long term impact on patients and our healthcare systems.

At the medical technology Clustermeeting "Anti-Infective Protection for Implants" at Heraeus Medical in Wehrheim scientific and industrial experts were recently briefed on potential cost-savings in healthcare and on current innovations in the field of medical implants.

The cluster meeting was held as part of the "Bavaria Cluster Offensive" by the Forum MedTech Pharma e.V. in association with Heraeus. Cluster meetings offer innovative companies the opportunity to present products and services to groups of industrial and research experts and thus to generate new projects and pursue closer networking. The hosting company Heraeus Medical leads the field in local drug delivery, especially antibiotic bone replacement materials and bone cements.

Risk of Biofilm Formation

Dr. Reiner Schaumann, Leipzig Institute for Medical Microbiology and Epidemiology of Infectious Diseases, signalled the importance of rising infection rates in everyday clinical situations in his presentation. The reason is especially the ability of many pathogens to develop so-called biofilms on the surface of implants which have a serious impact. "The objective therefore has to be to prevent pathogens sticking to an implant's surface and to promptly eradicate any pre-existing germs in the area of surgery," said Schaumann.

Potential Cost-Savings from Using Antibiotic Bone Cements

Professor Peter Bützer of Isi Technology also underlined the need to avoid a deep infection. "It is expedient to stop the emergence of a local infection through prevention, both from an ethical and economic perspective." Bützer effectively demonstrated how infection-related knock-on costs could be reduced, for example, by using antibiotic bone cements, as fewer revisions would be necessary.



In comparison to the current situation, Bützer calculated annual potential cost-savings of up to 55 million Euros for hip arthroplasty in Germany alone if hip implants only continued to be anchored into bone with antibiotic bone cement.

Novel Anti-Infective Coating Technologies

Dr. Klaus-Dieter Kühn of Heraeus Medical introduced another option for making implants anti-infective and using antibiotics and antiseptics to locally prevent infection. "Evidently anti-infective coatings based on antibiotic-antiseptic complexes of fatty acids can clinically meet the fundamental functions of an ideal local prevention of infection: on one hand biofilm formation has to be prevented during and immediately after a surgical procedure, on the other pre-existing germs need to be actively eliminated in the surgery area."

Using the practical example of vascular prostheses Prof. Dr. Stemberger of Munich Technical University hospital, rechts der Isar, explained the function and effectiveness of special novel coatings "In vascular surgery hydrophobic coatings of active pharmaceutical ingredient such as gentamicin palmitate or chlorhexidin palmitate are a forward-looking and highly effective solution exhibiting anti-thrombotic properties besides an anti-infective effect," said Stemberger.

Infection Prevention with Reabsorbable Osteosynthetic Materials

Prof. Dr. Weinberg of the University Hospital for Paediatric Surgery, Graz, says the topic of preventing infection in treating children's fractures has particular importance. "On one hand, a second surgical procedure and the second anaesthesia risk should, if possible, be avoided; on the other the knock-on costs of secondary surgery are especially high in such a case due to related re-hospitalization." In addition to the socio-economic arguments, Weinberg emphasized the risk of infection in removing an implant, as gentle minimally-invasive accesses need enlarging in the second procedure. Suitable resorbable materials also featuring other substances such as an anti-infective surface coating would be clinically expedient, says Professor Weinberg.

The first steps toward future project cooperation were discussed in subsequent intensive talks at the medical technology cluster meeting.

The precious metals and technology group Heraeus, headquartered in Hanau, is an internationally operating private company with a tradition going back 155 years. Our business areas include precious metals, sensors, biomaterials and medical devices, dental products, quartz glass and specialty lighting sources. Heraeus maintains a leading position in its global markets due to €2.6 billion of product revenues and €



13.6 billion of precious metal trading revenues as well as over 12,300 employees in more than 110 companies worldwide.

With 650 members drawn from all areas of medicine and based in Nuremberg, Forum MedTech Pharma e.V. is one of the largest international networks in the healthcare sector. For over twelve years now it has been initiating successful collaborations and also accompanying innovative projects. The Forum MedTech Pharma e.V. has been the medical technology cluster's management platform since 2006.

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