Personalized implants

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Abstract
Thrombosis and inflammation are responses of blood components to any foreign body. With a few exceptions these responses should be kept to a minimum.

Implant materials are being tested extensively before clinical use with random animal or human blood, with the assumption that all species and recipients show a comparable response to a certain type of material.

However, thrombotic and inflammatory reactions are highly different between individuals, resulting in either tolerance or in unacceptable high levels of activation with the same material. In particular the extend of thrombosis shows marked differences between individuals, which can be visualized and quantified in detail by sensitive surface markers.

Many implant procedures are elective, which allows a screening protocol to be performed in advance. This protocol should be performed with a small amount of blood from the patient in an *in vitro* test system with the implant material. By intensive contact of blood with material is such system data can be obtained in a short period of time. The outcome of the tests could result in choice for another type of material, another coating, or a negative advice to consider implantation of foreign body materials.

Biography

Mr Willem van Oeveren studied Medical Biology and obtained a PhD in medicine on blood activation during use of a heart-lung machine. As associate professor at the university hospital in Groningen, The Netherlands, he (co)authored more than 200 peer reviewed articles.

Since 1999 he participates in the ISO10993 working committee.

In 2004 Willem was the founder of Haemoscan, which is a privately owned laboratory for Blood Compatibility and Biomarker analysis, which he is leading today. Haemoscan became a certified laboratory dedicated to blood activation during contact with biomaterials, which is tested in fresh blood from healthy human volunteers.