

Press-release

bilispect® continues the development of non-invasive measuring devices: bloodless, safe, fast and painless.

As a follow-up to **haemospect®**, MBR Optical Systems GmbH & Co. KG have now developed another highly innovative product called **bilispect®**:

For the first time ever in history, Bilispect allows bilirubin levels to be measured quantitative without drawing a drop of blood!

This comes as a particular blessing for preterm and newborn babies suffering from jaundice: exact measurement of their blood's bilirubin levels is essential for optimal therapeutic decision-making, which is in turn decisive for the future health or even life and death of a child.

What do the bilirubin levels of preterm and newborn babies imply?

Bilirubin is a breakdown product of red blood cells.

Jaundice is evident in almost 60 % of all mature, healthy newborns on the first day of their life. The reason for this lies in an adaptation disorder in the early postnatal phase. On the one hand the neonatal liver's glucuronyl transferase is still at a lower level than in adults, and on the other hand the part of catabolised fetal haemoglobin is accumulating. This is because the erythrocytes of a newborn have a shorter life span than the red blood cells of adults.

Any unconjugated bilirubin that is bound to albumin can cross the blood-brain-barrier and act as a neurotoxin. The accumulation of bilirubin in brain tissue can hence cause irreversible brain damage and an infant can even die from this.

What is the status quo?

Up to now, the bilirubin levels needed to be established by taking several blood samples, which can be an ordeal, especially with newborns. Some newer non-invasive devices do exist where the bilirubin content of the skin is measured and the blood levels are then calculated from these measurements. But this is merely an estimate, especially at high values whereby blood tests will be necessary again.

What can bilispect® do?

The MBR technology allows the exact levels to be established directly and quantitative in the blood, which means that therapeutic decisions can be arrived at earlier optimized.

In addition, the **bilispect®** measuring device's button sensor provides the option of tracking the bilirubin breakdown caused by blue light therapy in a continuous measurement, and hence allows exposure times to be optimally dosed.

How does the measurement work in principle?

A fibre optic cable with a button sensor is placed on the skin (e. g. on the forehead) and irradiates white light (daylight-equivalent) to the tissue underneath. The irradiated light is partly absorbed and partly reflected by the various components of this lower tissue. Any light reflected by the physical conditions is then returned to the device via another fibre optic cable. Here the light is broken down into its wavelengths by a spectrometer and analyzed in an attached electronic evaluation unit. The resulting data are then processed using an algorithm developed by MBR Optical Systems and displayed on the device screen in the form of quantitative measurements for the parameters described above. Individual as well as continuous measurements can be taken online.

Who is behind all this?

Prof. Dr. med. Michael Schietzel

is a radiologist and oncologist and until 2004 managed the radiology department and tumour ambulance of the Witten/Herdecke university "Gemeinschaftskrankenhaus" health centre as a chief consultant. Following many years of serving the Research Ministry department for „unconventional cancer treatment methods“ in an advisory capacity, he established the non-profit cancer research association „Krebsforschung Herdecke e.V.“, which focuses on immunological treatment methods. Professor Schietzel began researching reflection-spectroscopic methods for qualitative and quantitative substance analysis as early as in the 1980s. He is the author of various publications in German as well as international science journals. In 2007 he established MBR Optical Systems GmbH & Co. KG in partnership with Dr. Holger Jungmann and Heinz Schmersal, and now manages this company as one of two managing directors.

Dr. rer. med. Holger Jungmann

was for many years employed by the Max Planck Institute as a mathematician and physicist in pure research. He is the intellectual creator, jointly with Prof. Dr. med. Michael Schietzel, of the reflection-spectroscopic method applied within the device, and responsible for the research and development of the device technology introduced here. Dr. Jungmann is the author of various publications in several important German and international science journals. Besides Heinz Schmersal and Prof. Dr. Schietzel, Dr. Jungmann is the third partner of MBR Optical Systems GmbH & Co. KG.

Dipl. Ing. Heinz Schmersal

studied mechanical engineering and is a managing partner of the Schmersal Group. The Schmersal Group with its workforce of over 1200 employees at various locations around the world specializes in the development and production of highly sensitive safety technology for industrial, hygiene, and also medical uses. As the second managing partner of MBR Optical Systems GmbH & Co. KG, Heinz Schmersal contributes his know-how appertaining to the design of manufacturing, production and quality systems.

If you require more information, please either visit us online at our homepage or in person at MEDICA in Düsseldorf, hall 3, booth 3E51, on 18.11.-21.11.2009.

We are of course also available for direct meetings, if required.

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Press agent:

Doris Andernach-Schröder

dandernach@mbr-os.com

MBR Optical Systems GmbH & Co. KG
Hölker Feld 5, D-42279 Wuppertal
Phone +49 (0)202 – 64 74 550, Fax +49 (0)202 – 64 74 560
mbr@mbr-os.com
www.mbr-optical-systems.com