



TECHNOLOGY INFO SHEET



A tonometric probe for the examination and diagnosis of regional perfusion disorders

Development status

Proof of concept
Development
Product development and Testing

▶ Entering to market

Market development

IP status

In priority year
PCT I.
PCT II.
National/regional phase

▶ Validation

Challenge

Gastric tonometry has been used for decades to examine patients all over the world. A relatively old, traditional instrument of gastric tonometry is the balloon catheter, which is guided into the stomach and filled with fluid or air. There, while the balloon, through diffusion, draws in the body's CO₂ partial pressure, which changes due to illness; a diagnosis is thus possible without drawing blood. Widespread methods today are invasive, and the duration of measurements is long. In addition, a previously widely applied balloon gastric tonometer was removed from the market due to its technical limitations, thus, an opportunity arose for new products. The object of the present invention is to provide a solution which allows easier examination with less stress for the patient, needs shorter times, and can be used on patients with any age, including infants and premature babies with small weight.

Technology

The technology developed at the University of Szeged is a new, balloon-free gastric tonometric probe, which overcomes these drawbacks and, given its advantageous features, makes it possible to take non-invasive measurements. Reflecting the technology, the tonometric probe is a balloon-free silicone tube, which is guided into the stomach and which is capable, along its entire length, of drawing in CO₂ and thus taking measurements. This solution significantly shortens the duration of the measurements. Also, the diameter of the probe is tiny compared to those currently used.

A second prototype probe has also been developed. With this sublingual probe it is possible to make measurements without conducting it into the stomach. It can be inserted directly under the patient's tongue.

Keywords

Gastrotonometry, tonometry, medical instruments, non-invasive examination/diagnostic techniques, tonometric probe, straight probe, sublingual probe

Benefits

Unlike the widespread balloon gastric tonometric instruments, currently in use, examinations with this technology can also be conducted on conscious patients without any difficulty. The balloonfree probe, consisting of an all-silicone tube system, does not place a burden on the patient, and the examination can be performed continuously over several days, with samples taken every 10 minutes. The probe can be administered to patients of every age group; thus, it can also be used on infants and newborns. It will also be possible to apply the new device on patients suffering from chronic obstructive pulmonary disease (COPD) and on morbidly obese patients.

Development status

The basic development of the product line based on the technology has commenced. Zero-series production is under way, and the basic products (straight adult and child probes) boast the CE symbol and Conformity of Production (COP), certificates required for distribution in Europe. The next steps in distributing the products will be to prepare for mass production and to develop domestic and international sales channels.

IP status

The Hungarian Patent was granted in 2010 (Patent No.: 227201).

the US (Patent No.: 7 981 033), the Russian (Patent No. 2363371), the Chinese (CN1004482152C), and Indian (Patent No. 230472) patents have been granted.

What we are looking for

The University of Szeged is looking for partners, whose objectives are developing the technology into a product, manufacturing the product, organizing sales and entering the market.

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