Magnetically guided capsule endoscope system from Siemens and Olympus for comfortable examination of the stomach - More than 50 participants in the first successful study

Siemens Healthcare and Olympus Medical Systems Corporation developed a new technology for stomach examinations that allows comfortable patient procedures. The patient swallows a capsule that is navigated via a joystick and a magnetic field through the stomach. The capsule wirelessly transmits images from inside the stomach to an image processing system where the doctor can view the images. The results of the first feasibility study published in the journal “Endoscopy” show that this innovative new method functions feasible and sufficiently accurate. A conceptual model of the technology is introduced to the public for the first time at the Olympus booth at the United European Gastroenterology Week (UEGW) in Barcelona (October 23 – 27).

The prototype of the magnetically guided capsule endoscope (MGCE) system was jointly developed by Siemens and Olympus and consists of an innovative guidance magnet, an image processing and guidance information system as well as the capsule endoscope. The patient swallows the capsule together with water. The patient is positioned in the system so that his stomach including the capsule is located in the center of an artificially generated magnetic field. The magnet generates varying magnetic fields in real time to navigate the capsule. The magnetic field enables the physician to control the capsule with a joystick. The cameras at both ends of the capsule transmit images from inside the stomach to the image processing system where the doctor can view the images. The capsule endoscope is approximately 31 mm long and measuring 11 mm in diameter.

A feasibility study of the magnetically guided capsule system (MGCE) has been performed at the renowned Institute Arnault Tzanck in Saint Laurent du Var (France) by Dr. Jean-Francois Rey and
his colleagues H. Ogata, N. Hosoe, K. Ohtsuka, N. Ogata, K. Ikeda, H. Aihara, I. Pangtay, T. Hibi, S. Kudo and H. Tajiri. The study was published by the journal “Endoscopy”\textsuperscript{1} and showed that the new technology appears to be feasible and sufficiently accurate for gastric examination and may permit endoscopic examinations that are more patient-friendly and without sedation. In a study with more than 50 people, 30 findings were detected in the stomach. Fourteen of the 30 findings were detected with both the capsule and the conventional endoscope. Ten out of 30 were located with the capsule examination only and six with the conventional endoscope only.

“The magnetically guided capsule system provides reliable results for gastrointestinal endoscopic examinations compared to conventional endoscopy. The capsule enables less invasive stomach examinations. It means an enormous boost in acceptability for the patient “, concluded Dr. Jean-Francois Rey with respect to the feasibility study. The study participants were equally enthusiastic: 93% thought the examination comfortable, 89% found it easy to swallow the capsule, and regarding future examinations, all patients questioned preferred the magnetically guided capsule endoscope over conventional gastrointestinal endoscopy.

At UEGW, Dr. Rey presented the results of the first study. In a study entitled “First Feasibility Study of Stomach Exploration with a Guided Capsule Endoscopy”, Dr. Keiichi Ikeda, the Jikei University, Tokyo, Japan, will also report his research results in Barcelona.

Press photos and video material are available here: www.siemens.com/press/healthcare

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The product mentioned here is not commercially available. Due to regulatory reasons the future availability in any country cannot be guaranteed. Further details are available from the local Siemens organizations.

The outcomes achieved by the Siemens customers described herein were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption) there can be no guarantee that others will achieve the same results.

\textsuperscript{1} Dr. Jean-Francois Rey, H. Ogata, N. Hosoe, K. Ohtsuka, N. Ogata, K. Ikeda, H. Aihara, I. Pangtay, T. Hibi, S. Kudo, H. Tajiri
"Feasibility of stomach exploration with a guided capsule endoscope", Endoscopy 2010