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PRESS RELEASE

Revolution in endoscopy

Great opportunities in early identification of cancer by new techniques in gastroscopy and colonoscopy

(Vienna, 21st October 2008) Early diagnosis is the decisive weapon in combating cancer of the stomach and the bowel. New endoscopy techniques open up amazing new possibilities – such as Narrow Band Imaging, which works with blue light to make suspect tissue changes visible right at the initial phase. And endomicroscopy is a truly revolutionary technique, enabling the physician to identify tumour cells while performing endoscopy. The removal of tissue, which is a burden on patients, can thus be reduced to the really suspicious cases. These innovative procedures will be discussed by eminent experts at the 16th United European Gastroenterology Week (UEGW) in Vienna, which is the largest European conference of its kind.

Narrow band imaging (NBI) works with short-wave blue light, which gives a strong contrast between the mucosa and the blood vessels. These contrasts permit much simpler identification of suspicious changes in the bowel, the stomach or the oesophagus than is possible with normal white light. That applies particularly to flat tumours embedded in the mucosa, which could previously be made visible only by means of certain dyeing techniques. NBI eliminates these time-consuming and expensive procedures. The optical system is built into the endoscope and available at the push of a button – the examining physician can switch over from white light to blue light at any time. NBI gives very good diagnostic quality in combination with transmission by HDTV (high definition television). It generates high-resolution images on the screen, with a sharpness of focus and accuracy in detail that was previously not possible in endoscopy. “NBI improves the chances of discovering cancer at very early stages. The time benefit may be as much as several months,” explained Doctor Brian P. Saunders of St. Mark’s Hospital in London/Great Britain. He explained that the technique also makes it possible to reduce the number of biopsies needed. The taking of such tissue samples for examination is not only time-consuming and expensive, but is also stressful for the patient. NBI enables the physician to distinguish harmless polyps from possibly malignant ones straight away during endoscopy, so that a biopsy is needed only in real cases of suspicion. “That can be achieved by a reliable

classification system," explained Doctor Saunders, "enabling the gastroenterologist to make a clear-cut decision. Research on that is currently in progress."

Endomicroscopy can replace biopsies

While NBI mainly helps to detect tumours, endomicroscopy serves to determine how dangerous they are. "This technique is a step into a new world, enabling us to see tumour cells for the first time without conducting biopsies, and now we can look under the surface of the mucosa by purely optical means," said Professor Markus F. Neurath of the University Clinic of Mainz in Germany, where this examination method was used for the first time. Endomicroscopy, also called confocal laser endoscopy, uses a microscope in the tip of the endoscope to provide images with a thousand times magnification of the mucosa of the bowel and its vessels at the cellular level. A laser beam scans the region to be examined point by point, giving a high-contrast, high-resolution image. The laser beam can penetrate a quarter of a millimetre below the surface of the mucosa. That makes it possible to identify, for example, how a tumour is growing and the depth of its location. For the first time, it also enables "live" observation of Helicobacter pylori bacteria, which may cause cancer of the stomach. In the past that could only be identified by enzyme tests or by painstaking pathological analyses.

In future, endomicroscopy will in many cases eliminate the need to take tissue samples. An extensive study by the gastroenterologists in Mainz shows that it could make ninety per cent of biopsies superfluous in the chronic inflammatory bowel disease Colitis ulcerosa. And it is very similar with other conditions. "That does not mean that there is no more need for pathological tissue examinations," said Professor Neurath. "But it does mean we can perform biopsies in a much more targeted way and that we can concentrate on those cases where we need detailed information on cell development, which we cannot get from endomicroscopy." That not only makes things easier for the patients, but also gives considerable cost savings.

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