

## Uses of probe-based confocal laser endomicroscopy: Responses to a question to practitioners

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**Author contributions:** Paul N and Ghassemi KA designed, performed and analyzed data from the research; Paul N wrote the article and Ghassemi KA reviewed the final article.

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Received: April 25, 2011 Revised: July 8, 2011

Accepted: July 15, 2011

Published online: November 14, 2011

<http://dx.doi.org/10.3748/wjg.v17.i42.4739>

### TO THE EDITOR

Confocal laser endomicroscopy (CLE) is a novel tool which allows real-time *in vivo* visualization of histological details in the setting of endoscopy<sup>[1]</sup>. Since the first description of use of an endoscope-based system in humans in 2004, the technology has been studied for several indications. These include use to identify Barrett esophagus, *in vivo* gastric cancer, gastric intestinal metaplasia, celiac disease, colorectal polyps, ulcerative colitis surveillance, graft-*vs*-host disease, biliary tract strictures, pancreatic cysts, and use in association with endoscopic mucosal resection<sup>[2]</sup>. In a recent issue of this journal, Gheonea *et al*<sup>[3]</sup> reviewed data regarding its use in studying vascularization patterns of gastrointestinal malignancies. Despite this expanding list of potential applications, no data are available regarding the indications for which the technology is currently used in real-world settings.

While preparing a departmental presentation on CLE, we contacted gastroenterologists who were listed as using probe-based CLE (pCLE) in North America in an effort to identify expert opinion regarding current and potential clinical applications. Users were identified from the website of Mauna Kea Technologies<sup>[4]</sup>. All users were contacted on September 4, 2010 by email and were posed a single open-ended question requesting their personal views on current applications and real-world utility of pCLE. No questionnaire was used. Data were abstracted from responses and were analyzed.

Fifty-one gastroenterologists across 31 institutions were listed as using pCLE. Email addresses were gleaned for 43 physicians from 23 institutions by searching hospital or university websites or accessing publications where the practitioner was the corresponding author. Of 43 emails sent, 4 were returned as undeliverable, leaving 39/51 (76.5%) who were assumed to be contacted suc-

### Abstract

Confocal laser endomicroscopy is a novel imaging technology, which allows real-time visualization and interpretation of microscopic details in live tissues. Although several potential uses have been identified for this technology, no data are available regarding its real-world uses. We report the results of an email-based survey of experts in North America regarding their use of the technology.

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**Key words:** Confocal laser endomicroscopy; Expert opinion

**Peer reviewers:** Giovanni D De Palma, Professor, Department of Surgery and Advanced Technologies, University of Naples Federico II, School of Medicine, Naples 80131, Italy; Jonas Mudter, MD, Medical Department I, University of Erlangen, Ulmenweg 18, Erlangen 91054, Germany

Paul N, Ghassemi KA. Uses of probe-based confocal laser endomicroscopy: Responses to a question to practitioners. *World J Gastroenterol* 2011; 17(42): 4739-4740 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v17/i42/4739.htm> DOI:

cessfully. Among 39, responses were obtained from 30 (76.9%). An analysis of the email response times of contacted experts has been published separately<sup>[5]</sup>.

The most frequently cited uses for pCLE among current practitioners of the technology were as follows: Barrett esophagus (21/30; 70%); indeterminate biliary strictures (14; 46.7%); use in conjunction with endoscopic mucosal resection (13; 43.3%); colon polyps (12; 40%); ulcerative colitis surveillance (9; 30%); gastric intestinal metaplasia (4; 13.3%); molecular imaging (2; 6.7%); and neuroendocrine hyperplasia (1; 3.3%). Needle-based CLE was cited as a potential application by four (13.3%). Six responses (20%) listed no potential applications. Twelve respondents (40%) described the technology as “experimental” or as a “research tool”, and an additional seven (23.3%) described its use as currently “not ready for practice” or “undetermined”.

Our study sheds light on physician practices and opinions regarding the current clinical utility of pCLE. Our data show that while many of the respondents believed pCLE had several potential applications, a majority (63%) felt that the technology was not yet ready for primetime. Cost of the equipment, need to learn a new technology, a learning curve associated with the technology, uncertain

reimbursement, and potentially increased time spent for certain applications are some reasons which may slow the adoption of this new technology in community gastroenterology practices. In the face of an increasing array of uses, we believe there is a need for an analysis of the cost-effectiveness of the technology, and for an expert consensus on indications for which its use would be best-suited.

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