ADVANCES IN GERD

Current Developments in the Management of Acid-Related GI Disorders

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Hybrid Argon Plasma Coagulation in Patients With Barrett Esophagus

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G&H What are the most common risk factors for Barrett esophagus?

OP The most common risk factors for Barrett esophagus are chronic heartburn and gastroesophageal reflux disease. Other factors that increase the risk of developing Barrett esophagus include being male, white, and/or obese.

G&H What treatment options are currently available for Barrett esophagus?

OP In Europe, nondysplastic Barrett esophagus is usually treated with proton pump inhibitors and surveillance; ablative therapy of nondysplastic Barrett esophagus is not recommended. US guidelines recommend surveillance with periodic endoscopies and biopsies. For patients who have Barrett esophagus with low- or high-grade dysplasia or early cancer, endoscopic mucosal resection is performed first in instances where a lesion is visible. The remaining nondysplastic tissue is then removed using an ablative therapy, such as radiofrequency ablation, cryoablation, or argon plasma coagulation (APC).

G&H What is hybrid APC, and why was it developed?

OP APC was one of the first techniques used for the ablation of Barrett esophagus. However, the procedure is associated with risks for perforation, stricture formation, and buried glands, in which neosquamous epithelium grows over any remaining Barrett esophagus. Hybrid APC, which combines APC with submucosal saline injection, was developed to address these complications. The Barrett epithelium is lifted with a saline injection using a high-pressure water jet, creating a safety cushion under the mucosa (Figure 1). The Barrett esophagus can then be ablated more thoroughly and with a higher energy setting, without an increase in side effects or complications (Figure 2).

G&H What are the efficacy and safety profiles of hybrid APC for the ablation of Barrett esophagus?

OP Data regarding the efficacy and safety of this technique are limited. My colleagues and I conducted a prospective, European, multicenter study on this topic, the interim results of which were presented at this year's Digestive Disease Week. At the time of analysis, 80 of the total 164 patients had completed therapy; among them, 92.50% (74/80) demonstrated complete histopathologic remission of Barrett esophagus. Complications included postprocedure fever (9/80; 11.25%), bleeding (2/80; 2.50%), and perforation (1/80; 1.25%). Hybrid APC also has a risk for stricture formation, but it appears to be lower than with conventional APC. Although these data are preliminary, they suggest that hybrid APC has efficacy and safety profiles similar to radiofrequency ablation.

G&H What are the advantages and disadvantages of hybrid APC compared with conventional APC and radiofrequency ablation?

Figure 1. A submucosal injection of the Barrett esophagus is performed with a hybrid argon plasma coagulation probe.

Figure 2. A hybrid argon plasma coagulation probe is used to ablate the Barrett epithelium.

OP Initial data demonstrate that hybrid APC is safer compared with conventional APC due to the cushion created by the injected saline as well as the ability to use a higher energy setting. In addition, hybrid APC is more effective than conventional APC, as a larger area of Barrett esophagus can be ablated more thoroughly and in 1 session. Compared with radiofrequency ablation, hybrid APC is more complicated to perform and requires more skill. In addition, hybrid APC takes longer to perform than radiofrequency ablation; however, it costs less.

G&H Who is the ideal candidate for this therapy? In whom is it contraindicated?

OP The ideal candidate for hybrid APC has a Barrett esophagus up to 3 to 5 cm in length. For Barrett esophagus longer than 5 cm, radiofrequency ablation is easier both for the patient and the endoscopist. There are no contraindications related specifically to hybrid APC; any patient who can undergo ablative therapy can also be treated with this procedure. General contraindications to ablative therapy include patients receiving anticoagulants, patients with bleeding disorders, and patients who present with strictures.

G&H What follow-up is necessary?

OP Follow-up for hybrid APC is similar to that of radiofrequency ablation. Patients with Barrett esophagus who underwent endoscopic mucosal resection of high-grade dysplasia or early cancer are assessed for residual Barrett esophagus after 3 months. If Barrett esophagus is found, patients undergo ablative therapy again and are assessed in 3-month intervals until the Barrett esophagus is completely removed. Patients are then followed up every 6 months for 2 years, and yearly thereafter.

G&H How significant is the learning curve for hybrid APC?

OP Hybrid APC has a slight learning curve. The procedure is a little more difficult than radiofrequency ablation, but not too challenging for endoscopists who have previously treated patients with Barrett esophagus with endoscopic mucosal resection. Typically, endoscopists will need to perform a few procedures before they are proficient.

G&H How widespread is the use of hybrid APC thus far?

OP The use of hybrid APC is not very common currently because the data on it are limited. Perhaps in another year or 2, after the results of the European multicenter study are published, more centers will implement this procedure.

G&H How does hybrid APC compare with other treatments for Barrett esophagus in terms of cost-effectiveness?

OP Compared with conventional APC, hybrid APC is slightly more costly due to the probe being more expensive; hybrid APC uses a probe that can inject saline through a high-pressure water channel and perform APC without changing the instrument. However, compared with radiofrequency ablation, hybrid APC is much cheaper, with the procedures respectively costing 2000 euros vs 300 to 400 euros.

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G&H What are the priorities of research in this field?

OP The first step is to finalize the European studies and publish the results. The next step is to confirm the results with studies from other centers, including in the United States. It is always beneficial to conduct prospective, randomized trials comparing hybrid APC with other ablation therapies, such as radiofrequency ablation. As far as I know, there is 1 ongoing study in the United Kingdom that has compared the 2 therapies in a prospective, randomized trial, but more are needed.

Dr Pech has received speaker honorarium from Boston Scientific, Olympus, Fujifilm, Medtronic, Norgine, and AbbVie.

Suggested Reading

Kashin SV, Kuvaev R, Nadezhin AS, Kraynova EA, Nekhaykova N. The new hybrid argon plasma coagulation (hybrid APC) for endoscopic ablation of Barrett's esophagus (BE): the results of the pilot trial. *Gastrointest Endosc*. 2016;83(5)(suppl):AB495.

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