Editorial

Resect and discard: Is it ready or time to shift gear?

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Numerous colonoscopies are performed in Europe, either within organized colorectal cancer screening programs based on fecal immunochemical testing (FIT) or as primary screening procedures. In this process, accidental diminutive polyps are found that do not explain the positive FIT test and that may not significantly affect the cancer risk for that individual [1].

The resect and discard strategy constitutes an alternative to classical histopathology for small polyps that are the most common type found during colonoscopy. Microscopic analysis of these polyps, which have an intrinsic low risk of harboring advanced pathology, is very costly. As a consequence, real-time optical diagnosis with virtual chromoendoscopy entails a significant cost-saving potential for daily colorectal cancer screening and surveillance. Obviously, correctly differentiating between an adenoma and a hyperplastic polyp is crucial to implementing this strategy and to assessing the appropriate surveillance interval [2]. More than 10 years have passed since the feasibility and possible cost effectiveness of a resect and discard strategy was first demonstrated and suggested to be ready for prime time [3].

Recent European Society of Gastrointestinal Endoscopy (ESGE) guidelines for advanced imaging techniques incorporated this strategy as a valid option to replace histology under strict conditions of using validated scales, training and auditing of the practice [4]. Advanced imaging techniques like narrow band imaging (NBI) and classical chromoendoscopy have been around for more than 15 years now. We have validated scales like the Workgroup serrated polypS and Polyposis (WASP) classification, NBI International Colorectal Endoscopic (NICE) classification and more recently the BLI Adenoma Serrated International (BASIC) classification and simplified endoscopic classification to predict polyp histology (SIMPLE) classification for blue light imaging and I-scan that show high diagnostic accuracy [5–9].

So what takes us so long to go ahead, shift gear, and start applying all this knowledge and evidence in practice? Why are we still wasting millions of euros on the microscopic analysis of clinically insignificant polyps?

There are three reasons for this hesitance and cold water fear. First, there is the evidence sprouting from more real-life settings in daily endoscopy practices. Indeed the DISCARD II trial conducted in 1688 patients in routine clinical practice showed an insufficient test sensitivity of NBI optical diagnosis for diagnosing adenomas and predicting the correct surveillance interval [10]. Recently, a Dutch multicenter study looked at the performance of optical diagnosis in the Dutch colorectal screening program and found a too-low specificity of approximately 50 % for adenomas and accuracy between 70 % and 79 % [11]. The concerns and uncertainties resulting from these studies lead us to the second barrier for implementation. The endoscopist is not convinced that he or she can do this. This is nicely demonstrated by the findings of a large international survey published in this issue of EIO [12]. Willems et al conducted a survey with 808 endoscopists, mainly practicing in northern America, who answered questions addressing their current use of the resect and discard strategy. Eight-four percent of the endoscopists are not using this strategy and more importantly, 60 % believe that it is not feasible to implement in its current form. The authors showed clear geographical differences with application of a resect and discard strategy: in Europe by 39 % of replicants, in Asia by 45 %, but in Canada and the United States only 13 % and 5 %. In this survey, barriers for implementation were also noticeable: fear of making the wrong diagnosis (45 %), assigning the wrong interval (58 %) and also importantly, fear of medicolegal issues (54 %). A third potential barrier for implementation lies in the patient. Rex et al conducted a survey among American patients (corresponding to most of the respondents from the Willems survey) and found that the rate of

acceptance by patients was only 66 %. In particular, y 50 % of patients unwilling to accept a resect and discard strategy wanted an absolute zero chance of cancer in diminutive polyps and were willing to pay out of their own pocket for histological assessment of these small polyps [13].

So indeed, if we put these three barriers together, it is too early to shift into a higher gear and have widespread implementation of resect and discard. Interestingly, the survey by Willems et al [12] also showed that although the majority of endoscopists do not believe that optical diagnosis can replace histology, 63 % agreed that diminutive polyps can be left unresected until the next screening colonoscopy because of the low risk of cancer, but without a consensus on the correct follow-up after leaving those in place. Moreover, although the majority of endoscopists in North America were uncertain about making an optical diagnosis and implementing a resect and discard strategy, 55 % of them admitted to leaving diminutive polyps when they appeared to be non-adenomatous. This apparent contradiction, however, entails a certain risk, because many of these endoscopists were never trained in optical diagnosis but nonetheless apparently use it. This indicates that although there is a certain hesitance, there is also a need for proper and correct implementation of optical diagnosis.

There are two possible ways to overcome this contradiction and the barriers.

The first one is a dedicated training program to implement optical diagnosis in a structured way. ESGE is currently finalizing a postgraduate curriculum for optical diagnosis throughout the gastrointestinal tract. The emphasis will be on the use of standardized training modules, feedback, and audit of practices both during and after training [14]. The fact that endoscopists will be able to follow a standardized training track and can show their diagnostic accuracy for optical diagnosis should facilitate implementation. Endoscopists will feel more assured and their patient can be convinced by the record of an endoscopist's training and performance. The latter should also help to deal with potential medico-legal issues; medicine is not an absolute science and we accept a 5 % error margin in everyday diagnostic testing, such as with standard blood tests.

The second possible solution and probably the one that holds the biggest promise is automated diagnosis through artificial intelligence. In recent years, deep learning has revolutionized the field of computer-aided analysis and has also entered the medical world, with results matching or even surpassing human-expert-level performance [15]. For colorectal polyp detection, several pilot studies introducing automated systems for polyp segmentation and characterization have recently been published, but clinical validation in a real-life setting remains to be established [16–19]. There is a definite need to develop a system applicable to different endoscopy systems and that can be validated in a real-life clinical setting. Recently a system with that potential has been commercialized but has up to now not incorporated a module for optical diagnosis of polyps [20]. Systems that have the possibility for characterization have promising diagnostic performance and seem to outperform endoscopists, but the results still need to be confirmed in real-life clinical trials [21, 22].

So, in conclusion, it is time to switch to second gear for optical diagnosis, that being proper training and subsequent implementation. Meanwhile, we await further validation of new AI-based techniques that will pave the path for shifting to a sport modus with easier implementation. Results with performance of systems that are largely operator-independent and assessed in well-designed prospective trials will most likely be attractive to both endoscopists and patients. Optical diagnosis will eventually be like the lab tests that are performed daily, which once validated are also acceptable from a medico-legal point of view, which is one of the largest barriers identified in the survey by Willems et al.

Competing interests

The authors declare that they have no conflict of interest.

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