PATENTOLOGICAL PROSPECTS OF RESEARCH IN THE FIELD OF GASTROINTESTINAL ENDOSCOPY

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Early diagnosis of precancerous conditions, changes and early cancer of the stomach, as well as the colon, is of great importance. In this case, intraepithelial neoplasia (dysplasia) of the epithelium is determined.

Among the methods of early diagnosis of these lesions, the most reliable is endoscopy. Modern endoscopic techniques allow a precise diagnosis of superfi cial epithelial lesions of the stomach and colon and predict their histological structure [1].

High-resolution digital video endoscopy provides high quality visualization and detailing of the images obtained. In addition, methods are used to improve endoscopic images, allowing to emphasize the relief of the surface of the mucous membrane (by spraying dyes, or 1.5% solution acetic acid). Specifyi endoscopic methods include: fluorescent endoscopy, chromoscopy, NBI, endoscopy with increasing) [2]. The use of such methods as confocal laser endomicroscopy and endocytoscopy allows us to examine the mucosa at a magnification of 1000 or more times.

Currently, there are two complementary methods of enteroscopy – videocapsular and balloon. Videocapsular endoscopy is used mainly to diagnose pathological changes in the small intestine, in patients with inflammatory bowel diseases, polyposis syndromes, with hidden intestinal bleeding. Devices and methods of image compression without loss of quality for wireless capsule endoscopy have been developed, as well as methods of controlled capsular endoscopy with computer recognition of images characteristic of diseases of the gastrointestinal tract [4]. In 2007, a video camera of the second generation was created with improved characteristics (improved visualization quality, capsule capability to produce up to 35 images per second with its movement [5].

For endoscopic diagnosis of diseases of the small intestine, balloon intestinoscopy is used. The method is based on fixing the endoscope in the small intestine using a system of air cylinders and a silicone tube, which allows for the safe and successful introduction of an intestinoscope throughout the small intestine. NBI technology is widely used. The use of updated filters and the creation of a prototype incorporating a special scheme for the NBI color display have optimized the diagnostic capabilities of the NBI mode [6]. NBI-endoscopy technology is based on changing the standard light spectrum by optical filters, which narrow the endoscope's throughput for the transmitted light beam.

Thus, at present, there are many ways of endoscopic technology. The development of the

methodology of endoscopic technologies is possible in various aspects. We believe that in order to optimize the choice of the technological path of this task, it is possible to conduct patentologic studies [7] in this direction. From the literature it is known about the possibility of patentological approaches to the study of patent-technical objects in the field of production technologies [8] and engineering [9]. This approach includes the following stages of a patent study on a specific topic under study: a) preprocessing patent arrays on a given topic and forming a thematically restricted locus of patent data; b) a patentological analysis of the results obtained; c) analysis of technologies from the point of view of their classification.

The main information base for the formation of a patent locus is the initial search patent cluster, which includes a thematically limited search area of the patent space. At the same time, loci are used, which are the required part of the patent cluster - a thematic set of patents interconnected by functional links.

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