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ELECTROGASTROENTEROGRAPHY IN PATIENTS WITH COMPLICATED PEPTIC ULCER DISEASE

Monograph

Science Book Publishing House
Yelm, WA, USA
2013
The monograph is dedicated to one of most actual issues of functional surgery of ulcer disease – pre- and post-operative diagnostics and prevention of motor-evacuator disorders of stomach and intestine. The monograph contains electrophysiological characteristics of motor-evacuator gastrointestinal disorders in patients with complicated ulcer disease.

For the first time for analysis of peripheral electrogastroeneterography data we used the multivariate statistical analysis, which allowed us to determine age and gender specifics of gastrointestinal motorics and create electrophysiological models of motor-evacuator gastrointestinal disorders.

Separately we reviewed the issue of choice of surgical methods of treatment of complicated ulcer disease, specifics of gastric motorics in patients with ulcerative pyloroduodenal stenosis after different surgical interventions and correction of post-operative motor-evacuator disorders.

The monograph is for surgeons and gastroenterologists.
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ABBREVIATIONS LIST

BEM - basal electrical rhythm
GEA - gastroenteroanastomosis
GER - gastroesophageal reflux
GERD - gastroesophageal reflux disease
GIT - gastro-intestinal tract
SW - slow waves
MMK - migrating motor complex
MVSA - multivariate statistical analysis
MEF - motor-evacuation function
AIO - acute intestinal obstruction
PDS - pyloroduodenal stenosis
PEGEG - peripheral electrogastroenterography
PU - perforated ulcer
RDP - radical duodenoplasty
TV - truncal vagotomy
SGV - selective gastric vagotomy
SPV - selective proximal vagotomy
CDDP - chronic disorder of duodenal patency
EA - electrical activity
EMG – electromyography
EGG – electrogastrography
EGEG – electrogastroenterography
IC - image converter
UD – ulcer disease
FGDS – fibro gastroduodenoscopy
INTRODUCTION

Gastric and duodenal ulcer remains the widespread disease that is present in up to 10-15% of working population of developed countries and takes one of the first places in the structure of gastrointestinal diseases, and the number of its complicated forms shows no tendency for decrease [69, 103, 121, 132, 146]. Disorders of gastric and duodenal MEF are present in 10.0-56.3% of patients with ulcer [2, 35, 38, 93, 121] and in up to 65% cases after its surgical treatment [14, 34, 41, 89,160], which makes the issue of timely diagnostics and prevention of post-operative MEF disorders no less actual.

The issue of adequate determination of gastric motor function in all the patients’ treatment stage remains the “milestone” of functional ulcer surgery, on solution of which depends the choice of optimal method of surgical treatment, prevention of post-operational gastrostasis and thus the improved quality of surgical treatment in this group of patients [69, 95, 144].

The traditional radiological and endoscopic methods used for diagnostics of ulcer and its complication do not allow for adequate evaluation of gastric MEF, degree of PDS compensation, effective post-operation monitoring of gastric motor function and objective comparative evaluation of the results of different types of surgical treatment [18, 121, 162].

Until now there is a discussion on the issue of choice of optimal type of organ preserving surgery on duodenum and vagotomy in the patients with complicated ulcer disease, as well as terms of restoration of gastric MEF depending on pre-surgical state of gastric motor function [48, 93, 132, 228]. V.G. Rebrov [114], V.A. Stupin et al. [100], N.S. Tropskaya et al. [134], F.Y. Chang [174] justly state that the most informative modern method of study of gastrointestinal functional state is EEGEG reflecting direct connection between changes in motor and electric activity of different sections of gastrointestinal tract, however, the method of direct EGED is very limited in clinical practice due to its invasiveness and impossibility to use it for pre-operational diagnostics of motor disorders [42, 87].

Presently more frequently used method is based on the measurement of electric potential from the skin surface of patient’s extremities, which is PEGEG method proposed by V.G. Rebrov [114], but this method of electrophysiological gastrointestinal study is also not widespread until now.

Information on evaluation of disorders of gastric and duodenal MEF in ulcer disease via PEGEG is scarce and reflect only the most basic principles of diagnostics of PDS and post-operational gastrostases [4, 12]. Ambiguous is the evaluation of diagnostic significance of several PEGEG parameters [63], which decreases its diagnostic capabilities. Presence of large amount of inter-related PEGEG parameters requires the use of multivariate statistics methods for its analysis, however we failed to find such works in available literature.
There are no PEGEG-based comparative data on gastric MEF after different organ preserving operations on duodenum during ulcerative disease and vagotomies, differential diagnostics of pre- and post-surgical disorders of gastric MEF [4, 37, 130].

PEGEG is still not used for determination of indications for vagotomy, as well.

Further study of gastric and duodenal MEF in patients with complicated gastric and duodenal ulcer and the effect of different surgical treatment methods on it will allow for significant improvement in the quality of surgical treatment in this group of patients.

Those actual issues of surgical treatment of complicated ulcer disease lie in the basis of the monograph presented.

We will gladly accept critical notes, proposals and wishes of our readers.

The author would like to thank Nazarov A.B. for his help for their help in the publication of this monograph.

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Scientific publication

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Issue is published in author’s edition

Translation company - www.medperevod.com

Cover designed by Sofia A. Kravets

Assigned to print 26.06.2013. Format 60x84 1/16.

Science Book Publishing House
17200 153rd Ave SE, Yelm, Washington, 98597 USA
http://www.sbook.us/