Functional digestive disorders – pathophysiological approach

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Summary

In contrast to the Rome criteria, the Czech system classifies functional digestive disorders on the basis of pathophysiology, distinguishing conditions with disturbance of a digestive function (secretion in the mouth, motility in the digestive tube) and those without it. The distinction between the two types of disorders is important both theoretically and practically. The conditions with consistent disorder of a function are disease entities deserving a therapeutical approach similar to other diseases of the digestive tract. Conditions without it are due to abnormal sensations, false beliefs and ideas and do not require such treatments. The Czech system distinguishing the two types of non-organic digestive disorders is presented in Table 1 with a comment explaining and substantiating some differences in terminology and classification in comparison to the Rome criteria.

Key words: *functional digestive disorders, Rome criteria, pathophysiology of digestive disorders, gastrointestinal motility disorders*

Souhrn

Funkční trávicí poruchy – patofyziologický přístup

Na rozdíl od Římských kritérií český systém klasifikuje funkční trávicí poruchy na základě patofyziologie a rozlišuje ty, jež se projevují poruchou některé trávicí funkce (sekrece v ústní dutině, motility v trávicí trubici), a ty, u nichž tomu tak není. Rozlišení obou typů je významné teoreticky i prakticky. Poruchy s konsistentní funkční poruchou jsou chorobné jednotky vyžadující podobnou terapii jako jiné choroby trávicího ústrojí. Poruchy bez zjistitelné funkční poruchy jsou způsobeny abnormálními pocity, mylnými představami a bludy a nemají potřebu takové léčby, nýbrž vyžadují přístup psychologický a psychiatrický. Český systém rozlišující tyto dvě skupiny je podán v tab. 1 s komentářem, v němž jsou vysvětleny a odůvodněny některé rozdíly v terminologii a klasifikaci ve srovnání s Římskými kritériemi.

Klíčová slova: *funkční trávicí poruchy, Římská kritéria, patofyziologie trávicích poruch, poruchy motility trávicího ústrojí*

In contrast to organic diseases due to structural lesions or humoral aberrations, functional disorders have been ascribed to abnormal functions. But which functions?

The term *Functional Digestive (or Gastrointestinal) Disorders* was introduced after discovery of tests of gastric secretion at the end of the 19th century when digestive symptoms were ascribed to abnormal gastric acidity. The diagnoses *hyperacid* or *anacid dyspepsia* became popular and correction of acidity by antacids or hydrochloric acid was a seemingly logical therapy. However, further studies showed that gastric acidity plays little if any role in producing digestive symptoms and the above-mentioned terms turned out to be obsolete. At present the pathogenic potential of gastric acid is limited to *"acid related diseases"* – *peptic ulcer* and *gastro-oesophageal reflux disease*, the pathophysiology of symptoms of "functional disorders" has switched to disturbances of motility.

The credit for stressing the importance of *motility* for producing digestive symptoms goes to W.C. Alvarez, author of the terms *intestinal polarity* and *motor* and *metabolic gradient* [2]. Disturbance of these functions which this author called *reversed peristalsis* was considered to be an explanation of symptoms such as *belching, regurgitation, halitosis, anorexia, nausea, vomiting, bloating and constipation* [1].

In the 20th century disturbances of gastrointestinal motility attracted major attention in gastroenterological research and were supported by radiologic, manometric, sonographic, isotopic and other tests which yielded a wealth of objective data and findings. Disturbances of motility – tonus, peristalsis, propulsion, transit, evacuation – have been identified as pathophysiological explanation of some symptoms, however, these were inconsistent or absent in others. A comprehensive classification based on motility disorders was found to be impossible.

In 1980 an international consensus was initiated in this topic and later on the *ROME Criteria I, II, and III* were published [5–7] in which functional disorders were classified according to the clinical symptomatology. A Czech system of functional digestive disorders was published in 1964 [12] and

repeatedly updated up to 1999 [15]. Unlike the Rome criteria, this system distinguishes conditions due to established pathophysiology from those without such evidence (Table 1). The conditions characterised by typical abnormalities in measurable functions such as secretion of saliva in the oral cavity or gastrointestinal motility in the digestive tube – functional dysphagia, oesophageal spasm, irritable bowel, functional constipation, dyschezia – are truly functional disorders (previously spoken of as "organ neuroses"). Conditions without distinct pathophysiology in reality are not "functional" since no abnormal functions are present. They are due to disorders with a more neurotic than digestive character including *abnormal sensations* (stomatodynia, glossodynia, globus hystericus, visceralgias), *false beliefs and ideas* (fictitious constipation, hypochondria, phobias, psychiatric aberrations) and *false interpretations* (e.g. pseudoappendicitis). No abnormalities in motor functions are present in these conditions.

Of course, conditions in both groups are non-organic, with major participation of psychic and nervous dysregulation and sensory perception – but the practical difference is in the therapeutical approach. Conditions due to functional abnormality merit gastroenterological therapy including diet and pertinent drugs. In contrast, conditions without truly functional pathology do not need diet or gastroenterological drugs. They merit psychological or psychiatric therapy. This point may be exemplified by the difference in the therapeutical approach between oesophageal spasm resulting in dysphagia and globus characterised by the sensation of a lump in the throat due to anxiety without any abnormality of oesophageal motility.

COMMENT ON TABLE 1

This comment explains and substantiates some differences in terminology and classification in comparison to the Rome criteria [16,17].

Conditions due to abnormal function (secretion or motility)

Functional disorders of the oral cavity (*xerostomia, water-brash*) are disorders of secretion whereas functional disorders of the digestive tube are disorders of motility.

Chalazia is a constitutional weakness and incompetence of the lower oesophageal sphincter persisting since childhood leading to reflux but not necessarily to gastro-oesophageal reflux disease.

Aërophagia (in the Rome criteria, inadequately ascribed to "swallowing" of air and listed under gastro-duodenal disorders) is mostly involuntary aspiration of air into the oesophagus and "supragastric belching" [4]. A similar voluntary mechanism exists in ventriloquism and oesophageal speech after laryngectomy.

Irritable stomach (in the Rome criteria I and II *ulcer-like dyspepsia*, in Rome III *epigastric pain syndrome*) is a hypersthenic variant of functional dyspepsia manifested often by painful spasm, radiologically by hypertonic steer-horn or bilocular stomach, endoscopically by hyperemic or congested mucosa.

Flabby stomach (in the Rome criteria I and II *hypomotility-like dyspepsia*, in Rome III *postprandial distress syndrome*), previously termed *hypotonic elongation of the stomach*, *gastroptosis* or *dolichogastria*) manifests itself by postprandial pressure and "slow digestion".

Irritable colon is characterised by abdominal pain and urgent defecations, *spastic constipation* by abdominal pain and constipation. *Functional diarrhoea* (a "painless form of irritable bowel") is often due to *fermentative enteropathy ("carbohydrate dyspepsia")* due to hyper- and dysmotility of the small bowel and dysbacteria. In the Rome criteria, all functional intestinal disorders are gathered under the term *irritable bowel syndrome* which hampers distinction of differences in symptomatology and therapy. A practically unfortunate matter, is omission of *fermentative enteropathy* and its special therapy.

Table 1. Non-organic gastrointestinal disorder.

	With abnormal digestive function	Without abnormal digestive function
Mouth	xerostomia water-brash	glossodynia stomatodynia
Oesophagus	diffuse spasm hypertensive sphincters reflux, chalazia aërophagia	globus
Stomach	irritable stomach flabby stomach functional vomiting	psychogenic anorexia nausea and indigestion
Intestine	irritable colon spastic constipation functional diarrhoea inertia constipation fermentative enteropathy	fictitious constipation bloating non-gazeous abdominal bloating
Rectum	dyschezia irritable rectum	proctalgia fugax
Systemic	neurodigestive asthenia	visceralgia pseudoappendicitis solar syndrome carcinophobia hypochondria

Dyschezia is constipation due to loss of perception of intra-rectal pressure.

Conversely *irritable rectum* is an increase in such perception leading to frequent false urgency. It must be distinguished from urgency due to organic disease.

Neurodigestive asthenia is a systemic disorder affecting various parts of the digestive tract simultaneously or alternatively due to constitutional inadequacy of the digestive system [8].

Conditions without disorders of digestive functions

Glossodynia and *stomatodynia* are painful sensations without apparent reason.

Globus is the sensation of a foreign body (lump) in the throat due to anxiety, unrelated to the oesophagus, without disturbance of swallowing.

Psychogenic anorexia, nausea and indigestion are symptoms of mental depression often in "functional dyspepsia" especially in flabby stomach, sometimes with vague and inconsistent motor abnormalities.

Fictitious constipation is due to false ideas about intestinal function and defecation usually leading to abuse of laxatives [11].

Bloating is a sensation of fullness and pressure of the abdomen often falsely ascribed to "gas" by laymen and physicians even if the amount of gas in the intestines is not increased.

Non-gaseous abdominal bloating (hysterical proptosis, pseudo-gravidity) is due to substantial increase of abdominal circumference due to lumbar hyperlordosis, depression of the diaphragm and relaxation of the abdominal wall [3,10].

Proctalgia fugax is pain due to spasm of a pelvic muscle.

Visceralgia (in the Rome criteria "functional abdominal pain") is abdominal pain without apparent cause often unstable and migrating, possibly originating in the central nervous system (psychogenic).

Pseudo-appendicitis is visceralgia in the right iliac fossa misinterpreted as being due to the appendix.

Solar syndrome is tenderness and pain in the epi- and mesogastrium due to increased sensitivity of the coeliac (solar) plexus. It is an abdominal form of neurosis diagnosed by palpation revealing pressure pain limited around the aorta between the xiphoid and umbilicus and following its bifurcation in the form of Greek lambda [9,13,14].

Carcinophobia and hypochondria are due to false ideas and psychopathy.

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