Chirurgia (Bucur). 2021;116(5):515-523
http://dx.doi.org/10.21614/chirurgia.116.5.515

Current Insights in the Pathophysiology of Gastroesophageal Reflux Disease

Karl-Hermann Fuchs[1*], Alexander Meining[1,2]
[1]Laboratory for Interventional and Experimental Endoscopy, University of Würzburg, 97080 Würzburg, Germany
[2]University of Würzburg, Zentrum Innere Medizin, Head of Gastroenterology, 97080 Würzburg, Germany

Abstract
The pathophysiology of Gastroesophageal reflux disease (GERD) is multifactorial determined and remains a matter of discussions between the involved medical subspecialties, mainly gastro-enterologists and gastrointestinal surgeons, but also ear-nose-and-throat colleagues and pulmonologists. The purpose of this manuscript is an overview on the different pathophysiologic components of GERD, their influence as well as a certain weighing of their involvement in the disease. The lower esophageal sphincter (LES) represents together with the muscles and ligamentous structures of the diaphragm at the esophageal hiatus the antireflux barrier between esophagus and stomach. The crucial factor in GERD is an increased amount of gastric contents refluxing into the esophagus above the physiologic level. This creates pathologic esophageal acid exposure (EAE) to the mucosa, which may lead to symptoms and damage. The underlying pathophysiologic mechanisms are anatomical components such as LES and diaphragm, and functional components such as LES-incompetence, transient LES relaxations, impaired esophageal motility, gastroduodenal dysfunctions and alterations of the refluxate such as duodeno-gastro-esophageal reflux. The quantitative assessment of these components has been reported in a number of studies demonstrating the importance of LES-incompetence (incidence > 80 %) and the role of hiatal hernia (incidence > 80 %) in the severity of GERD indicated by excessive esophageal acid exposure and visible damage of the esophageal mucosa. All known pathophysiologic components of GERD can be investigated currently by diagnostic assessment, detecting a LES-incompetence or an increase in transient relaxations, detecting a hiatal hernia with increasing size, detecting increasing exposure to gastric contents in addition to other possible functional associated disorders such as an insufficient esophageal motility and or a delayed gastric emptying, which all can aggravate the disease and the patient's status.

Key words: GERD, GERD-pathophysiology, lower esophageal sphincter, hiatal hernia