

# Functional Dyspepsia: Review of Pathophysiology and Treatment

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**Abstract:** Functional dyspepsia is a very common gastrointestinal disorder observed in the general population, in general outpatient clinic and clinical specialty. It is associated with several treatments, hospitalization, prescription and use of several drugs. Moreover, it is related to self medication, absenteeism and also loss of productivity. The objective of this review is to summarize the pathophysiological mechanisms and the treatment of functional dyspepsia.

**Keywords:** Functional dyspepsia, epigastric pain, early satiation, postprandial fullness, epigastric burning, *Helicobacter pylori*.

## INTRODUCTION

Dyspepsia is defined as chronic or recurrent pain or discomfort centered in the upper abdomen. Discomfort is defined as a subjective negative feeling that is non-painful, and is considered to incorporate a variety of symptoms, including early satiety, bloating, upper abdominal fullness, or nausea. Dyspepsia can be associated with several conditions such as functional dyspepsia, gastroesophageal reflux disease, gastroduodenal ulcerous disease and cancer [1-3].

Functional dyspepsia is a heterogeneous disorder characterized by relapsing and remitting symptoms, in the absence of any organic, systemic, or metabolic disease that is likely to explain the symptoms [1-3]. The diagnosis of functional dyspepsia or non-ulcerative dyspeptic syndrome is generally used when a full assessment in a patient with dyspepsia fails to identify the cause for their symptoms [1-3].

Although several definitions are used to describe the symptoms, according to the Rome III consensus, functional dyspepsia was redefined as the presence of epigastric pain or burning, postprandial fullness or early satiation – in the absence of underlying organic disease – whose mechanism is still unknown and treatment is not fully established [1, 4].

Functional dyspepsia is a very common gastrointestinal disorder observed in the general population, in the general outpatient clinics and also in the clinical specialty [1-4]. Functional dyspepsia is associated with several treatments, hospitalization, prescription and use of several drugs [1-3]. And it is related to self medication, absenteeism and also loss of productivity [1-3]. Since functional dyspepsia is a

very common gastrointestinal disorder observed in the general population, the purpose of this review is to summarize the pathophysiology and the treatment of functional dyspepsia.

## DISCUSSION

Pathophysiological mechanisms currently deemed to be involved in functional dyspepsia include delayed gastric emptying, impaired gastric accommodation to a meal, hypersensitivity to gastric distention, altered duodenal sensitivity to lipids or acid, abnormal duodenojejunal motility, genetic susceptibility, *Helicobacter pylori* (*H. pylori*) infections, acute gastrointestinal infections, neurohormonal dysfunction, autonomic dysfunction, psychosocial factors and stress (Table 1) [1-9].

**Table 1. Pathophysiological Mechanisms Related to Functional Dyspepsia**

Delayed gastric emptying
Impaired gastric accommodation to a meal
Hypersensitivity to gastric distention
Altered duodenal sensitivity to lipids or acid
Abnormal duodenojejunal motility
Genetic susceptibility
<i>Helicobacter pylori</i> infection
Acute gastrointestinal infection
Neurohormonal dysfunction
Autonomic dysfunction
Psychosocial factor
Stress

Functional dyspepsia is a highly prevalent and heterogeneous disorder characterized by relapsing and

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remitting symptoms; though the pathophysiological mechanism is not completely clear, gender-related differences were observed in several studies [1-5, 9, 10]. Some investigations have shown that gender-related differences have been observed in some studies of both the prevalence of individual dyspepsia symptoms, and in gastric emptying and proximal gastric motor function [5, 7, 10, 11].

Gender differences also appear to be present in the psychosocial domain, with dyspeptic women experiencing a lesser sense of well-being, as well as an association of an abuse history with functional dyspepsia [5-7]. Though the pathophysiological mechanisms are not clear, some specific features related to gender in functional dyspepsia and the effect of gender in the mechanism of functional dyspepsia are an area of growing interest and several studies [1-5, 10].

Idiopathic gastroparesis or primary delayed gastric emptying is a condition in which a delay occurs in the gastric emptying without any mechanical obstruction [4, 12, 13]. This condition can be found in up to 30% of patients with diagnosis of functional dyspepsia and can contribute to the symptoms [12, 13]. Although the pro-kinetic drugs are effective in improving the motor function, there is an inconsistent relationship between changes in the motor functions and improvement of the symptoms in functional dyspepsia [2, 3, 9, 12, 13].

The role of infection by *H. pylori* in the pathophysiology of symptoms in functional dyspepsia is not very clear yet; however, despite some controversial studies, some authors have recommended prescribing drugs for *H. pylori* eradication in patients with dyspepsia even in the absence of symptoms of alarms [6, 8, 14].

Though several epidemiological studies suggest an increased incidence of infection by *H. pylori* in developing countries, there appears to be no statistical difference regarding improvements of symptoms of dyspepsia after eradication of *H. pylori* [15].

Therefore no specific treatment has been established for functional dyspepsia and several drugs aimed to alleviate the symptoms have been employed, such as removal of acid secretion, pro-kinetic drugs, eradication of *H. pylori*, and antidepressants (Table 2) [2, 3, 6, 8, 9, 14].

**Table 2. Drug Treatment of Functional Dyspepsia**

Removal of acid secretion
Pro-kinetic drugs
Eradication of <i>Helicobacter pylori</i>
Antidepressants

## CONCLUSION

Functional dyspepsia is a common gastrointestinal disorder observed in the general population, in general outpatient clinic

and clinical specialty. Although the pathophysiological mechanisms and causes are not fully established, there seems to be some specific features related to gender in functional dyspepsia. Despite of idiopathic gastroparesis or primary delayed gastric emptying can be found in functional dyspepsia pro-kinetic drugs seem to improve the motor disorders but not the symptoms. Even though some epidemiological studies suggest an increased incidence of infection by *H. pylori* in developing countries, there appears to be no statistical difference regarding improvements of symptoms of dyspepsia after eradication of *H. pylori*.

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