Management of Dyspepsia: A Brief Overview

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Abstract

Dyspepsia is a group of symptoms that induces an uncomfortable feeling or pain in the upper abdomen. Mostly found in primary care, dyspepsia is suspected to be caused by multiple factors. Therefore, the management of dyspepsia is essential because these cases are often faced in daily life. This paper aims to elaborate on the management of dyspepsia.

Keywords: dyspepsia; functional dyspepsia; organic dyspepsia

1. Introduction

Dyspepsia is a group of symptoms most complained about by patients worldwide [1]. These symptoms may induce uncomfortable feelings in the upper abdominal region, leading to pain in that area [2]. The clinical manifestation may vary in individuals, such as nausea, vomiting, bloating, and even abnormal fulness and early satiation [3].

2. Classification

Based on the patient's willingness to undergo further examination, dyspepsia can be classified into uninvestigated dyspepsia (UD) and investigated dyspepsia (ID). Patients are classified as UD when they don't undergo further examination, such as a urea breath test and endoscopy. In other words, a patient is classified as ID when they undergo further examination [2].

Dyspepsia can also be classified based on the causes, which are organic dyspepsia (OD) and functional dyspepsia (FD). OD is caused by an underlying condition and organic lesions, such as gastroesophageal reflux disease (GERD), gastritis, and peptic ulcer, which can manifest as dyspeptic symptoms. Nonetheless, the cause of FD remains uncertain, but it is thought to involve the brain-gut axis [3,4]

3. Epidemiology

Dyspepsia is considered a common complaint worldwide, with one global-scale study reporting that its prevalence ranges between 4.8% to 7.2% [5]. One study in Asia reported that its prevalence ranges

between 5.3% and 20.4% [6]. Dyspepsia is ranked fifth and sixth in Indonesia as the most common complaint in inpatient and outpatient patients [7]. Multiple studies reported that risk factors for dyspepsia are widely used dyspepsia diagnoses, female, over 60 years old, educational status below college and its equivalent, non-steroidal anti-inflammatory drug (NSAID) users, *Helicobacter pylori*-positive infection, smoking behavior, drinking habit, and irritable bowel syndrome (IBS) co-existing syndrome [8–10].

4. Pathophysiology

4.1. Impaired gastroduodenal motility

Impaired gastroduodenal motility consists of abnormalities which are occurred in the gastroduodenal system. Gastric accommodation disorder, uncoordinated movement in the gastroduodenal system, and the slowing down of gastric emptying are thought to be a suspect in affecting this mechanism. The root of the problem causing these mechanisms are vagal nerve impairment, which is responsible for the nervous system in the upper abdomen [11].

4.2. Visceral hypersensitivity

The hypersensitivity of the visceral is caused by the disruption between the central nervous system (CNS) and peripheral nervous system (PNS). The imbalance causes this mechanism in signaling between afferent nerve impairment, the spinal cord, and the brain stem. This condition is caused by centralized sensitization in nerve fiber junctions from the upper abdomen, which continues posteriorly to the spinal cord and brain stem [12].

4.3. Abnormal gastric acid secretion

Excessive secretion of gastric acid may corrode the lining of the stomach's mucosa wall, disrupting gastroduodenal motility. The damaged stomach wall may interfere with its permeability which is easily exposed to foreign agents, such as *Helicobacter pylori.* The extent of the damaged stomach wall degree caused by excessive gastric acid may affect the severity of the symptoms that occur in the patient [13].

4.4. *Helicobacter pylori* infection

Helicobacter pylori infection usually begins with the damaged wall of the stomach, which is then used by these bacteria to infect the host. The infection may initially appear with the more damaged wall of the stomach, leading to the disruption of hormone regulation, such as ghrelin. This mechanism affects gastroduodenal motility, which then plays a role in the severity of dyspepsia symptoms [4,14].

4.5. Brain gut axis

The increasing interest in how this mechanism is suspected as a leading cause of dyspepsia has been growing. Several studies describe the brain-gut axis as a two-way interaction between the brain, represented mainly by the central nervous system (CNS), and the gut, represented by the peripheral nervous system (PNS) and the presence of the gut microbiome. Those studies also implied that if one party is disturbed, it will eventually disrupt the whole interaction, which may cause

dyspepsia symptoms to manifest in the patients [15–18].

5. Diagnosis

Dyspepsia can be diagnosed as early as possible by highlighting the patient's main complaint. It should be worth remembering that dyspepsia mainly manifests as an uncomfortable feeling in the upper abdomen that begins as an abnormal fulness post-eating and early satiation [1,4]. We may find other accompanying problems through history taking, such as nausea, vomiting, belching, pain, and heartburn [19].

Classifying organic dyspepsia and functional dyspepsia can be done by asking the patient with the functional dyspepsia criteria developed by the Rome Foundation. The newest criteria for functional dyspepsia were developed in 2016, Rome IV criteria [20]. Rome IV criteria include irritating fulness after eating, early satiation, stomach pain, and burning sensation [21].

Multiple guidelines elaborated alarm signs for dyspepsia, which are signs to directly refer the patient to undergo endoscopies, such as unintended lost weight, progressive swallowing difficulties, recurrent/persistent vomiting, digestive tract bleeding, anemia, fever, upper abdominal mass, history of malignancy (especially stomach malignancy), and age over 60 years old. These studies also suggested that endoscopy is unnecessary if the patient is below 60 years old [2,4]. We may refer these patients to undergo a urea breath test to check for *Helicobacter pylori* infection, although it doesn't correlate with how severe the symptoms are [22]. The gold standard to differentiate between OD and FD is still endoscopy. OD shows an abnormal endoscopy which may be caused by organic lesions, while FD shows normal endoscopy, although it can be accompanied by inflammation signs [23,24].

6. Management of Therapy

6.1. Pharmacological Therapy

As suggested by multiple guidelines, the most common drugs to treat dyspepsia are proton-pump inhibitors (PPI). PPI can be administered to all types of dyspepsia. The next drug which can be administered to treat dyspepsia is prokinetic agents. If the patient indicates *Helicobacter pylori*-positive infection, PPI can be combined with antibiotics such as amoxicillin and clarithromycin. The last line of drugs that can be administered to treat dyspepsia is a tricyclic antidepressant (TCA). It should be worth remembering that this drug can be given if all other etiologies are ruled out [2,4,25].

6.2. Non-Pharmacological Therapy

Since the theory of dyspepsia can also be caused by psychosocial factors, several non-pharmacological therapies have been considered as dyspepsia treatment, such as dietary management, psychotherapy, and acupuncture [26]. Dietary management is also seen as the first line of therapy for dyspepsia before administering drugs [25]. Psychotherapy and acupuncture are reported to improve the symptoms, although more clinical trials are needed to ensure the result [2,27].

7. Conclusion

Endoscopy remains a gold standard for dyspepsia management. The role of pharmacological therapy using a combination of a proton-pump inhibitor (PPI) and other drugs such as prokinetics and antibiotics can be administered as a drug of choice for dyspepsia. The increasing popularity of acupuncture and psychotherapy as dyspepsia therapy can be considered, although more clinical trials are needed.

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