CLINICAL, EPIDEMIOLOGICAL AND PROPHYLACTIC ASPECTS OF DYSPESIA

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CLINICAL, EPIDEMIOLOGICAL AND PROPHYLACTIC ASPECTS OF DYSPESIA (Abstract): Dyspepsia or indigestion is a term that refers to a multitude of symptoms and disorders of the digestive system which cause suffering in many patients. Dyspepsia means pain or discomfort that is centrally localized in the upper abdomen. The following categories of symptoms may also be present: pain localized in the right or left hypochondrium, dysphagia, upper gastrointestinal bleeding, acute abdomen, symptoms of reflux, transit disorders. On the other hand, the term "discomfort" was defined in order to designate a condition characterized by or associated with early satiety, upper abdominal bloating, nausea, epigastric fullness. As dyspeptic syndrome is often caused by excessive food intake or by consumption of certain nutrients, the disease may have a severe prognosis. Hearty meals, the nature of foods, the preparation of meals, possible special conditions of eating may often contribute to dyspepsia.

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Dyspepsia is a condition without systemic involvement, characterized by symptoms localized in the upper abdomen and manifesting itself in epigastric pain, fullness, bloating or discomfort. Dyspepsia is characterized mostly by pain that varies from day to day, without any obvious relationship to meals or certain foods. Dyspepsia occurs as burning and cramp after an emotion or a certain mental state (1).

Dyspepsia, often called indigestion, is a common disease, often associated with the ingestion of certain foods. The dyspeptic syndrome is most commonly caused by excessive food intake or by consumption of certain foods and has a possible severe prognosis. Dyspepsia was widely considered a psychosomatic disorder, as it is due to a functional disturbance in the nervous system or in the muscular activity of the stomach or of the small intestine.

Dyspepsia has an important epidemiological significance, representing about 2-5% of all clinical examinations of the family doctor and 20-45% of the gastroenterologist consultations. 70-80% of patients seeking medical care for upper abdominal symptoms have no organ injuries, but functional dyspepsia, and the remaining 20-30% show systemic manifestations related to gastro duodenal ulcer, gastric neoplasm and chronic pancreatitis. Dyspepsia is thought to affect up to 46% of the population (2).
Dyspepsia can be designated as an "iceberg symptom" with a major impact on health systems, requiring special attention from both family physician and gastroenterologist, but also from decision makers of the community health system (3).

The human body is anatomically built not to consciously perceive the function of its organs. Metabolic and digestive processes are genetically programmed to develop within certain limits and to show self-regulating variations that do not reflect themselves in the consciousness. They become conscious when disturbances occur in the normal evolution of phenomena and when functional imbalances or abnormal states are present (3).

On an organic and functional level, dyspepsia is expressed by how the individual and his digestive organs react to food. Their susceptibility to food and the complex process of digestion are influenced by many factors.

Although dyspepsia affects women and men of all ages, it is more common in women aged 16 to 60 years. Women have often dyspepsia during menstruation or pregnancy. Smoking is another risk factor for dyspepsia (4).

Gastrointestinal diseases inducing dyspeptic phenomena are as follows: air intake (aerophagia); gastric juice or regurgitated gas caused by gastro esophageal reflux disease or by hiatal hernia; peptic gastric or duodenal ulcer; gastric cancer; the inability to digest milk and milk products (lactose intolerance); irritable bowel syndrome, a disorder that affects the transit of food through the intestines. The significant overlap of irritable bowel syndrome and dyspepsia may be explained by their common visceral hypersensitivity. Dyspepsia and gastro esophageal reflux overlap is caused by high somatisation, especially insomnia and medication use (e.g. proton pump inhibitors) (5).

Many non-gastrointestinal diseases are also associated with dyspepsia: diabetes, thyroid disease, hyperparathyroidism, severe renal disease, cholecystitis, anxiety or depression, side effects of caffeine, alcohol or medication.

The symptoms of dyspepsia originate in the upper gastrointestinal tract, particularly in the stomach and in the first section of the small intestine. In most cases, symptoms occur after the ingestion of food in the form of abdominal pain, allergic manifestations, eructation, bloating, burning sensation after eating, chronic irritable bowel, chronic fatigue, diarrhea, bloating, insomnia, joint and muscle pain, nausea, intestinal gurgling, vomiting.

Dyspeptic symptoms may also accompany gastritis, gastroenteritis, gastric ulcer, vesicular lithiasis, pancreatic disease. Pregnancy and advanced diabetes may also be associated with dyspepsia that however may occur without accompanying other digestive diseases.

Many studies suggest that the overlap of dyspepsia and other conditions, such as gastro esophageal reflux or Helicobacter pylori infection, may represent a distinct syndrome that needs different management strategies (5, 6).

Factors that may affect digestive process

Individual characters governed by heredity (presence or absence of certain enzymes, abnormal conformation of some digestive organs or segments) and the presence of a certain neuro vegetative tone, a certain combination of neuro humoral and endocrine factors are clearly involved in the process of digestion. A medical history with acute digestive diseases during child-
hood, chronic digestive diseases or digestive diseases that have required surgery, infectious diseases with digestive involvement etc., chronic abusive use of certain medications (aspirin, phenylbutazone) or coffee and alcohol abuse can lead to dyspeptic disorders (7).

There has been shown that nonsteroidal anti-inflammatory drugs, antibiotics and estrogens are commonly associated with dyspepsia.

The digestive process, especially in the modern times, when food is excessively consumed or when nervous tension is frequent, digestive disturbances occur immediately and last for days.

Abusive consumption of certain foods (meat, pasta, sweets, vegetables with high cellulose content) and other factors involved in digestion may lead to functional disorders localized in different segments of the digestive tract and manifesting as various signs and symptoms that define dyspepsia (8, 9).

Other factors that may cause or contribute to dyspepsia are intestinal obstruction, malabsorption or liver and pancreatic diseases, allergies and food intolerances.

Food that is difficult to digest and gut bacteria can produce toxins that affect the mucosal tissue and may lead to leaky gut syndrome. This condition occurs when undigested food particles which are normally eliminated in the feces pass through the structures of the intestinal lining and are absorbed by the system, causing digestive disturbances.

The factors contributing to this phenomenon are abnormal intestinal flora, food allergies, alcohol consumption, parasites, chemicals or drugs that irritate the small bowel.

Psychological factors, such as anxiety, stress or anger, may contribute to disturbance of the nervous mechanism controlling bowel and stomach muscles.

If the reason that caused indigestion remains unclear, there may be functional dyspepsia. This is a type of indigestion caused by the alteration of the capacity of the stomach to digest food, before it passes into the small bowel.

Theories on the causes of dyspepsia suggest abnormal perception at the level of the intestinal sensory nerves, followed by impaired information processing and disturbed bowel stimulation by motor neurons.

**Clinical aspects**

Dyspepsia may persist for years, if not the whole life time, and it manifests itself periodically and the symptoms may be more common over some days, weeks or months. The Rome II definition of functional dyspepsia describes it as the presence of abdominal pain or discomfort in the epigastria for at least 12 weeks over the last 12 months that cannot be explained by upper gastrointestinal investigation. The more recent Rome III definition requires symptoms to be present for the last 3 months, with symptoms onset at least 6 months before diagnosis (10).

When digestion is complete, the stomach empties into the upper part of the small bowel through mechanisms regulated by the brain and by a nerve network located in the muscles of the digestive tract wall. The coordination between these nerve endings that secrete neurotransmitters ensures that hormones and muscle fibers in the wall of the digestive tract regulate the movement of the digestive tract and consequently favor digestion, absorption and elimination of the ingested food.

There are three clinical forms of dyspeptic syndrome, depending on the prevalence of some of the symptoms: reflux type (regurgitation, eructation and retrosternal
burning are common), \textit{ulcerative type} (characterized by epigastric pain and feeling of hunger in the stomach), \textit{dysmotility type} (mostly colicky pains, bloating).

However, the most important symptom is the pain. It is generally perceived as abdominal discomfort or real pain in the whole abdomen or on the flank, under the right or left costal margin or in the epigastrium. Sometimes the pain is even perceived as cramps. The pain may have an esophageal, gastric, pancreatic, biliary or intestinal origin. The pain may be continuous, intermittent, at a certain time after meals or at night. Another group of dyspeptic symptoms is caused by excessive production of gas in the digestive tract and is manifested by eructation, flatulence, gurgling, and abdominal bloating. Patients experience sometimes loss of appetite, may lose weight and have discomfort, especially after meals. Although these problems occur, the general state of the patient is good most of the times. Of course, not all of these symptoms are found together in the same dyspeptic patient (11).

Sometimes dyspeptic phenomena are better grouped and systematized. In the intestine, carbohydrates undergo a fermentation process and proteins undergo a putrefaction process under the influence of the microbial population at this level. When meals with a lot of vegetables high in cellulose or with a lot of milk or meat are preferred and when gastric, pancreatic or biliary secretion disorders are present, associated with an increased sensitivity of the intestinal mucosa, there is a risk of \textit{fermentation} or \textit{putrefaction} dyspepsia with excitation of intestinal peristalsis and diarrhea. Therefore, one-sided food patterns may change the balance of intestinal bacterial flora, leading to disturbances in the activity of the small bowel and especially of the large intestine (12).

Due to the disturbance of carbohydrate digestion, \textit{fermentation} dyspepsia is accompanied by excessive production of intestinal gases and is manifested by bloating, gurgling and flatulence. These gases are eliminated with the feces and have a pungent sour smell. Stools are light colored and with acidic reaction.

\textit{Putrefaction} dyspepsia is caused by excessive growth of putrefaction proteolytic flora, due to the disturbance of protein digestion. It is manifested by pasty smelly stools with alkaline reaction. The disease is more common in persons with excessive consumption of meat and meat products, in which case the digestion and absorption of proteins is not carried out completely. They are poorly digested in the small bowel. Afterwards, they reach the colon, where they will be subjected to the action of the flora of putrefaction, irritating the wall of the colon and accelerating the transit.

In disorders of fat digestion caused by biliary pancreatic or intestinal deficiency, soap dyspepsia may occur. The patients complain of loss of appetite, abdominal fullness, eructation, bloating, abdominal cramps at about an hour after the meal. The stools contain large amounts of crystallized soap, fatty acids and fat bubbles. Malaise, various intestinal absorption disorders and intolerance or allergy to certain foods may also occur, with consequences on the general health status (13).

Aerophagia and excessive intestinal fermentation cause pain in the anterior and left thoracic region, resembling sometimes pain of heart and vessel diseases, due to the distention of the upper portion of the stomach and of the large intestine.

\textbf{Clinical diagnosis of dyspepsia}

Dyspepsia is diagnosed based on typical
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symptoms and in the absence of other gastrointestinal diseases, in particular those related to hyperacidity and non-gastrointestinal diseases.

The dyspeptic syndrome may occur as the result of a temporary eating disorder, but when symptoms occur in a young person or they persist, worsen and disturb the daily activities of the individual, an investigation of the upper digestive tract should be made.

Indigestion is a discomfort rather than a serious problem. However, it may be a sign of a major underlying disease and it is important to be carefully investigated, especially when the onset is recent.

Laboratory investigations are needed in order to rule out other diseases, rather than to diagnose dyspepsia. They are mainly used in order to exclude the presence of other gastrointestinal and non-gastrointestinal diseases.

Additional tests include stool tests that determine whether the stomach inflammation had Helicobacter pylori. Upper digestive endoscopy, radiography of the esophagus, stomach and small intestine, abdominal ultrasound may also be performed. Some studies warn that inadequate work up in primary care leads to unnecessary endoscopic investigation, when the guidelines are not considered and the age of the patients might hardly be associated with the risk of malignancy (2).

For the diagnosis of functional dyspepsia, tests are necessary in order to rule out severe gastrointestinal diseases, but they are rather ineffective in identifying the cause of dyspepsia, which is caused by a malfunction of the nervous system or of the muscular activity of the digestive tract.

Initial diagnosis can be made by the family doctor through physical examination and medical history review.

Differential diagnosis is made in case of systemic disorders, irritable bowel syndrome, and lower abdomen distress, designated as a single entity called "irritable digestive tract disorder". Evolution and prognosis are favorable.

Treatment of dyspepsia

The treatment includes dietary and hygienic measures. If the symptoms persist, a pharmacological treatment to control symptoms is required (14). Therapies for dyspepsia can be subdivided depending on the underlying disease that is being treated: gastro esophageal reflux disease, peptic ulcer disease, functional dyspepsia (15).

The treatment of dyspepsia is mainly educational and prokinetic drugs and muscle relaxants are used. Antidepressants and the change of the hygienic and dietary regimen may also have a beneficial role.

If the indigestion has a specific cause (ulcer or gastritis, etc.), treating these disorders relieves the symptoms. When the cause is not identified, diet changes and administration of drugs is the most effective treatment.

The treatment of dyspepsia begins with a proper diet, adapted to gastric chemistry, intestinal motility and subjective symptoms, and with the treatment of the systemic disease that has caused dyspepsia (parasitosis, gallstones or gallbladder dyskinesia, colopathy, appendicitis, adnexitis).

Drug therapy includes antisecretory medication such as proton pump inhibitors (omeprazole, esomeprazole, lansoprazole, pantoprazole), H2 blockers (cimetidine, ranitidine, famotidine), prokinetics (metoclopramide) and antibiotics. Acotiamide is a novel prokinetic that has been shown to be effective in functional dyspepsia in a phase III randomized trial (15).

When peptic ulcer caused by Helicobac-
ter pylori is diagnosed, an antibiotic is also prescribed. When even a thorough investigation did not reveal a cause of the symptoms, antidepressant medication may be used, in order to alleviate the discomfort of indigestion by reducing the sensation of pain and eliminating symptoms such as headache, nausea, night sweats, restlessness and constipation.

CONCLUSIONS

Any disturbance of the normal function of the nervous system or of the muscular activity of the digestive tract can cause dyspepsia. Dyspepsia is diagnosed based on evaluation of typical symptoms and on the elimination of non-functional gastrointestinal diseases, non-gastrointestinal disorders and mental illness.

Excessive food intake that stresses and disturbs digestion, the disproportion between food intake and digestion capacity, hereditary or acquired individual characteristics of the digestive structures, special psychological conditions of eating may cause dyspepsia, which may be seen as an epiphenomenon of esophageal, gastric, biliary, pancreatic and intestinal diseases.

REFERENCES