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The influence of nutrition on patients with digestive diseases

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Abstract. Maintaining health, improving the quality of life is largely related to the way of eating and the quality of food consumption. The way of eating is a central life issue, because apart from the very important social activities and other recreational activities, man still has three meals daily. Diet and nutrition are of paramount importance in disease prevention and health promotion. In fact, a slight imbalance in the quantitative and/or qualitative consumption of food can and does have long-term effects on health. In order to determine how nutrition influences the lifestyle of people suffering from digestive diseases, a retrospective study was conducted at the Municipal Hospital, St. Ierah Dr. Luca,, Onești during the period 1.01.2015-31.03.2020. In this study, 1019 patients with digestive pathology (gastric ulcer, duodenal ulcer, acute haemorrhagic gastritis, gastritis, gastroduodenitis) were included. As indicated by the research, it was found that the 1019 tested patients were diagnosed with ulcers, gastritis and gastro-duodenitis. According to the research, we can conclude that improper eating habits are risk factors in triggering, maintaining, or aggravating digestive pathology.

Keywords: nutrition, gastroduodenal ulcer, imbalance, adult

1. Introduction

Among the health problems caused by food to the greatest extent are gastrointestinal ailments. The diet in digestive diseases helps to improve the symptoms caused by inflammation of the stomach or to manage more persistent or longer gastritis crises. In the case of gastritis, it is important to avoid acidic and spicy foods. Instead, it is recommended to eat foods that have low acid content and low sugar content [1].

The gastric diet mainly involves avoiding foods that irritate the stomach (spices, coffee, alcohol, acidic fruits). It should not be forgotten that people react differently to food. If a food does not cause problems, it can continue to be consumed. Also, if a food worsens the symptoms, it should no longer be consumed. The specialist doctor can help the patient develop an adequate diet plan [2].

The duration of the diet in the case of gastritis depends on the severity of the symptoms, but also on the patient's medical history. It may be necessary for the patient to follow a diet for several weeks or the diet may be necessary for a longer period [3].

Symptoms caused by gastrointestinal disorders directly modulate the diet of patients. Guiding the patient towards appropriate food choices can significantly improve symptoms and reduce the risk of complications.

The pathogenesis of gastroduodenal ulcer is only partly known. Gastroduodenal ulcer is a disease with a multifactorial production mechanism, in which a complex of genetic and environmental factors participates, characterized by an imbalance between the factors that affect the mucosa and those for its protection, resulting in damaging the mucosa of the upper digestive tube [4, 5]. Ulcer diseases are diseases with a high frequency worldwide, statistical data showing that 6-14% of the population is

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affected [6]. According to statistics, due to digestive diseases, the economic status of individuals, health behaviors and living standards such as lifestyle, living conditions, behaviors and habits are altered.
The objectives of this study were: 1) to determine the incidence, structure, and evolution of the state of health through diseases of the digestive system in the population of Bacau County; 2) determining the behavioral risk factors and the influence of food on the occurrence of digestive diseases.

2. Materials and methods

2.1. The period and place of the research

This retrospective study was carried out in the Municipal Hospital, St. Ierah Dr. Luca, Onești, between January 1, 2015, and March 2020, all endoscopy, radiology, and observation sheets being examined. Inclusion criteria used were age over 1 year, confirmed diagnosis of gastric and duodenal ulcer, gastritis, duodenitis, unspecified gastroduodenitis.
The diagnosis of gastric and duodenal ulcer was established based on clinical manifestations, biological, radiological, endoscopic changes.

2.2. Research protocol

The research protocol was approved by the Ethics Council of the Municipal Hospital, St. Ierah Dr. Luca, Onești.

3. Results

The study carried out tried to identify the causes of gastric and duodenal ulcers and how food can influence the occurrence of digestive diseases. In the current context, when the individualization of a certain food-dependent factor directly interferes with other environmental factors, especially those related to daily stress, food composition, studying the food factors involved in digestive pathology is difficult to achieve.
Regarding the admissions where the cause was ulcer disease, from the total number of registered cases (1019) in the period 01.01.2015-31.03.2020 or registered ulcers: 312 (31%), gastritis 389 (38%) and gastro-duodenitis 318 (31 %).
The number of cases varies between 154 (year 2018) and 219 (year 2016), the average of cases over 5 years of study (2015-2020) being 194 ± 24.4. The weight is represented by men, with an average of 54% ± 2.9, and cases from rural areas, with an average of 64% ± 2.5 [Fig. 1].

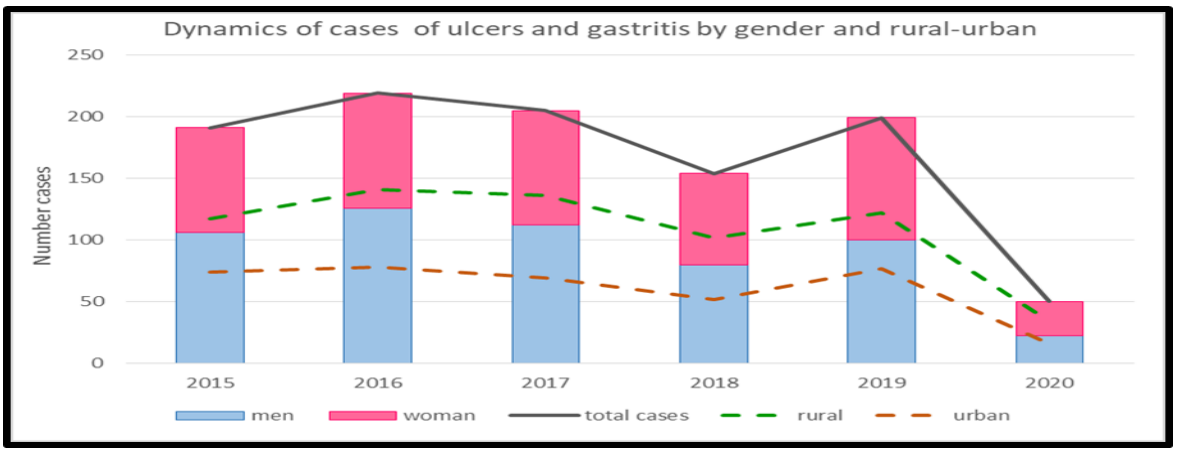

Figure 1.Dynamics of cases of ulcers and gastritis by gender and rural-urban areas, period 2015-2020

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The incidence of patients according to sex, showed a clear differentiation in terms of increased frequency of gastric and duodenal ulcer in men (71%), compared to its presence in women (29%).
After analysing the patients' cases according to gastritis, a clear differentiation was found regarding the increased frequency of acute gastritis 58%, followed by unspecified gastritis 38%, and chronic gastritis 4%, men representing approx. 55% of all cases, and women approx. 45% Unlike ulcer cases, where the male: female ratio was 2:1, the incidence of gastritis cases has a male: female ratio of approximately 1:1.
In the category of children 1-4 years, in the period 01.01.2015-03.03.2020, 4 cases of acute haemorrhagic gastritis and 28 cases of unspecified gastroduodenitis were hospitalized and treated, gastroduodenitis being caused by infectious factors, physical factors chemicals (medicines, acids, dyes). The proportion of ulcers and gastritis is around 20% in young people aged between 25-44 and adults aged 45-64 and the elderly > 64 have approximately the same incidence (approx. 40%). In gastro-duodenitis, unfortunately, the highest share of 53% was observed in children aged 5-14 years and in the adolescent and young age group (28%), while adult patients 25 - 44 years and 45 - 64 years as well as the elderly (> 64 years) add up together to 11%. The cases of gastro-duodenitis in children aged 1-4 are around 9%.
Figure 2 features the clustering dendrogram of the incidence of ulcers (U), gastritis (G) and gastro-duodenitis (GD), according to the proportion of cases to the total number of cases registered each year, the study period being 2015-2020. The Ward method was used as a ranking method and the Euclidean distance as a measure of dissimilarity. In both dendrograms, three clusters are distinguished. Dendrogram a) groups, in cluster 1, the age categories with the lowest incidence, with a frequency of cases between 0-2% of the total annual cases; cluster 3 age categories with average incidence, with a frequency of cases between 5-8% of the total annual cases; in cluster 2 the age categories withthe highest incidence, with a frequency of cases between 12-18% of the total annual cases. It is worrying that in the 5-14 age group the incidence of gastro-duodenitis is the highest (18%) during the analysed period. High weights regarding the incidence of analysed cases are also observed in the categories of the elderly, 45 - 64 years and > 64 years for ulcers and gastritis.
Dendrogram b) groups the years according to the dynamics of cases of ulcers, gastritis and gastroduodenitis, as well as by age. It is noted, from this point of view, that the years 2015 and 2019 (cluster 1), 2016 and 2018 (cluster 2) and 2017 and 2020 (cluster 3) are similar.

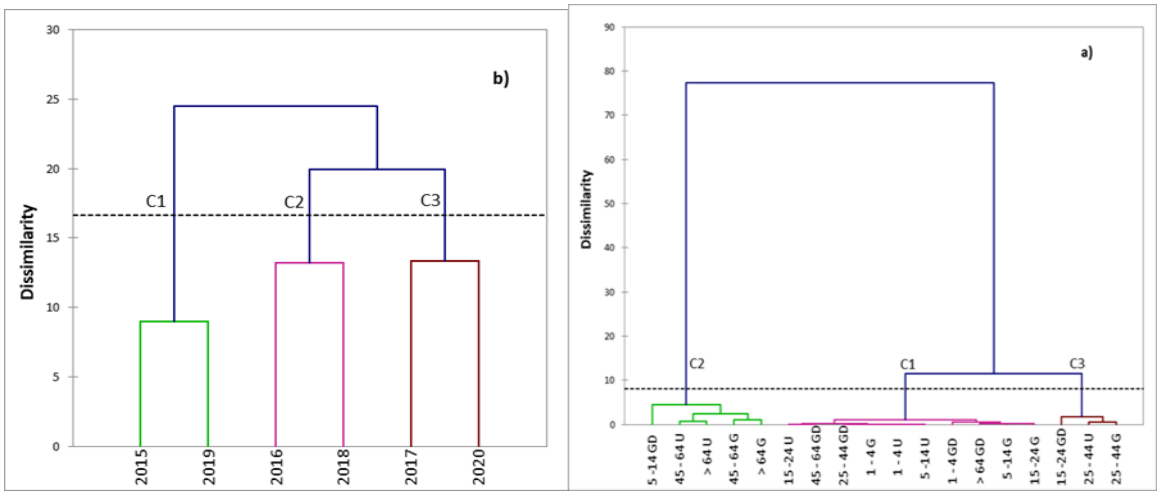

Figure 2.Clustering dendogram of the incidence of ulcers (U), gastritis (G) and gastroduodenitis (GD), period 2015-2020; a) by ages, b) by years

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As shown in figure 3, the principal component analysis (PCA) of cases of ulcers (U), gastritis (G) and gastroduodenitis (GD) by age categories: 1-4 years, 5-14 years, 15-24 years, 25- 44 years, 45-64 years and > 64 years), registered at the Municipal Hospital, St. Hierarch Dr. Luca" Onești, in the years 2015-2020. It was highlighted that two main components (PC1 and PC2) are needed to explain 94.75% of the total variation in the data, of which 91.71% is given by the PC1 component and 3.04% by the PC2 component. In the PC1 component, all variables contribute approximately equally, with an average of 16.7%, and the second component, PC2, is strongly associated with the case dynamics in the years 2020, 2017 and 2015.

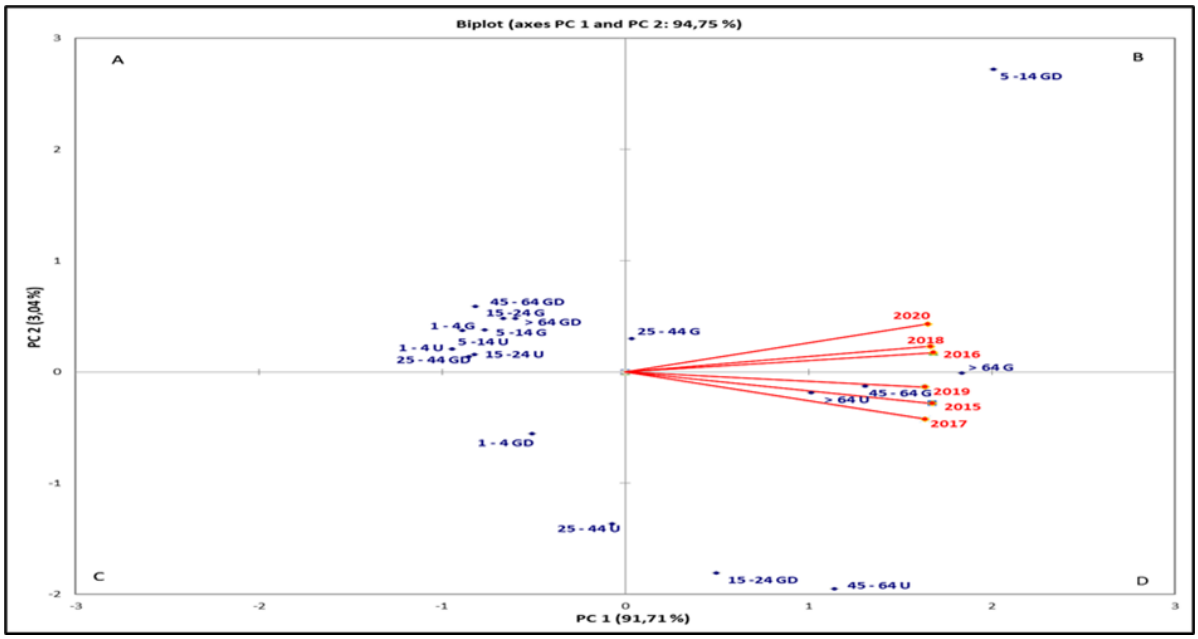

Figure 3. The dynamics of cases of ulcers (U), gastritis (G) and gastroduodenitis (GD) by age group, 2015-2020

Positioning the cases in different quadrants according to the PC2 component (A-C vs. B-D), shows a negative correlation between them. Quadrants A-C contain the variables whose dynamics of cases registered in the period 2015-2020 have a low weight (< 5%), and quadrants B-D contain the variables whose dynamics of cases registered during the period 2015-2020 have a high weight (> 6%).

Positioning in different quadrants with respect to the PC1 component highlights the similarities regarding the number of cases in certain years. It is observed, in quadrant B, that the variables 5 - 14 years GD, > 64 years GD, respectively 25 - 44 years G, register in the years 2016, 2018 and 2020 a greater weight compared to the other years of study, but the proximity of variable 25 - 44 years G from the center of the graph (pc. 0), shows that between this variable and the other two, compared to component PC1, there are significant differences regarding the number of cases (25 - 44 years G has an average of 6% of the total cases, compared to 16% and 19% for the categories > 64 years GD, respectively 5 - 14 years GD).

Many ulcer patients were reported in the studied group, having a diet low in fiber and antioxidants.

It was found that only 29% of patients have a healthy lifestyle, consuming 3 meals and two snacks/day. This proves that failure in following a healthy lifestyle leads to aggravation of digestive ailments.

The evaluation of the frequency of consumption of processed foods highlighted the fact that 51% of patients frequently consume processed foods. The consumption of processed foods is a determining, triggering or aggravating factor in the occurrence of digestive disorders.

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The evaluation of the frequency of cigarette consumption highlighted the fact that 62% of the patients are smokers and 38% of them do not smoke. As can be seen, smoking is a risk factor in the occurrence of digestive disorders and has harmful effects on the body.
The evaluation of coffee consumption highlighted the fact that 66% of patients are coffee consumers. As can be seen, coffee consumption is a risk factor in the occurrence of digestive disorders and has harmful effects on the body.

4. Discussions

Among the patients in the studied group, it was noticed that from the total number of cases registered regarding admissions and having ulcer diseases as the cause, 312 cases of ulcers, 389 cases of gastritis and 318 cases of gastro-duodenitis were recorded. This percentage is higher than the one described in literature (6-14%) due to the factors incriminated, but without convincing statistical evidence: stress, dietary regimes, eating on the run, not respecting mealtimes, eating fast food, being sedentary.
In the conducted study, an increase over time in the age of ulcer patients was found, over 60 years, the ratio of men: women were approximately 2:1, compared to that in the literature [7,8].
Despite the diversity of digestive ailments discovered in the studied group, significant differences were found between the patients who came from the rural background 64% and those from the urban background 36%, the family of origin having significant etiopathogenic significance if it is correlated with eating habits, alcohol consumption, and profession. These differences reveal a tendency towards the uniformity of digestive ailments in terms of their distribution, which is explained by the fact that the food from the city began to spread to the countryside as well.
The peak incidence of gastroduodenal ulcer in the studied group was represented by the decade 55-64 years, acute gastric ulcer 24%, chronic gastric ulcer 24%, acute duodenal ulcer 24% and chronic duodenal ulcer 35%. Acute and chronic gastritis with higher incidence was found in the age range of 75-84 years.
Failing to follow a healthy lifestyle leads to aggravation of digestive disorders, as shown in this study; only 29% of patients have a healthy lifestyle with respect to meals. The increase in the number of visits to the doctor and admissions for peptic ulcer in the fall could also be explained by the changes in diet and lifestyle specific to this period, i.e., failure to observe mealtimes and a balanced diet. These nutritional and lifestyle imbalances appear in the context of agricultural activities specific to the period, as well as the beginning of the school/university year, which require much more of the already tired body, as shown by the medical literature, which specifies that there is an increased frequency of peptic ulcer disease during autumn and spring [4].
Following the study, we found that tobacco and coffee are risk factors in the occurrence of ulcer disease, coffee increases the production of gastric acid and smoking decreases the secretion of mucus and bicarbonate, increasing duodenal and gastric flow [5]. The data obtained in this study agree with the data from the specialized literature.

5. Conclusions

In the study carried out, digestive pathology was widely represented at all levels of the digestive tract, regardless of location, each pathology had at least one food risk factor or improper eating habit involved in triggering, maintaining, or aggravating that pathology.
As in many other chronic diseases and in the case of ulcers, it is desirable to prevent rather than to treat. A healthy lifestyle can protect the population from the appearance of this disease. When we already suffer from this condition, it is good, before resorting to anti-ulcer medication, to make the necessary changes in our diet and in our lifestyle, in general.

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