

An Epidemiological Study of Gastric Cancer in the Adult Population Referred to Gastroenterology Medical Services in Romania – a Multicentric Study

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Abstract

Aim. The Romanian Society of Digestive Endoscopy proposed a multicentric study to evaluate the prevalence of gastric cancer in the adult population referred to gastroenterology medical services, and also the demographic features of this pathology.

Methods. The study was carried out over the period 1 January 2003 – 31 December 2003 in 11 academic centers in Romania, specialized in gastroenterology, with a uniform national distribution (all areas in the country were represented) and with adequate diagnostic and therapeutic facilities. All centers used identical definition criteria and reported the data using the same protocol and a Microsoft Excel database.

Results. During the study period, 640 cases of gastric cancer were reported. In the first stage, the prevalence in each geographical region was calculated. The national prevalence of gastric cancer in the population referred to gastro-intestinal endoscopy services was 2.9 per 100,000 inhabitants over 18 years of age. The demographic data of the studied group were the following: 66.4% men, 33.6% women, 51.7% urban population, 48.3% rural population, mean age 63.07±12.10 years. The most frequent indications for upper digestive endoscopy were: dyspepsia, weight loss and appetite. 88% of patients had no history of disease with a high risk of gastric cancer. The majority of patients (95.5 %) had advanced gastric cancer at the time of diagnosis, located in the gastric body (40.1 %) and in the antrum (33.8 %). According to Borrmann's classification, 31.4% had type I fungating gastric cancer and 32.1% had type III ulcero-

infiltrative gastric cancer. According to the Lauren classification, the most frequent histological type was intestinal adenocarcinoma (63.8 %). Early gastric cancer was found in 4.4% of patients.

Conclusions. The prevalence of gastric cancer in the population referred to digestive endoscopy services in Romania is 2.9%, with relatively wide variations at the national level. The study confirms the fact that Romania is a country with a low prevalence of gastric cancer, in accordance with the literature data published for the south of Europe.

Key words

Gastric cancer - prevalence – pathology – Lauren's classification – Borrmann's classification - incipient gastric cancer

Rezumat

Scop. Societatea Română de Endoscopie Digestivă și-a propus să realizeze un studiu multicentric care să evalueze prevalența cancerului gastric în rândul populației adulte ce apelează la serviciile medicale de specialitate, precum și particularitățile demografice ale acestei patologii.

Material și metodă. Studiul s-a desfășurat pe perioada 1.01.2003 – 31.12.2003, în 11 centre Universitare, uniform repartizate la nivel național, care furnizează servicii medicale în domeniul gastroenterologiei și beneficiază de capacități de diagnostic adecvate. Toate centrele au folosit aceleași criterii de definire a afecțiunii și au raportat datele folosind același protocol și utilizând o bază de date în format Microsoft Excel.

Rezultate. Pe perioada studiului au fost raportate 640 cazuri noi de cancer gastric. Într-o primă fază a fost calculată prevalența cancerului gastric la nivelul fiecărei regiuni geografice. Calculul la nivel național arată o prevalență a cancerului gastric, în rândul populației ce s-a adresat serviciilor de endoscopie digestivă, de 2.9 la 100.000 de locuitori, populație peste 18 ani.

Datele demografice ale lotului studiat au fost următoarele: 66.4 % bărbați, 33.6 % femei, 51.7 % provin din mediul urban, 48.3 % din mediul rural, vârsta medie: 63.07 ± 12.10 ani. Cele mai frecvente acuze clinice au fost sindromul dispeptic, scăderea ponderală și inapetența. Majoritatea cazurilor (88 %) nu aveau afecțiuni cu risc crescut pentru cancerul gastric. 95.5 % din cazuri au prezentat la momentul diagnosticului cancer gastric avansat localizat mai frecvent în corpul gastric (40.1 %) și în antru (33.8 %). Conform clasificării Borrmann, 31.4 % au prezentat tipul I vegetant și 32.1 % tipul III ulcero-infiltrativ. Din punct de vedere histologic, conform clasificării Lauren, cel mai frecvent tip histologic a fost tipul intestinal (63.8 %). Cancerul gastric incipient a fost diagnosticat la 4.4% din pacienți.

Concluzii. Prevalența cancerului gastric în rândul populației ce s-a adresat serviciilor de endoscopie digestivă din România este 2.9 la 100000 de locuitori, cu variații relativ mari la nivel național. Studiul confirmă faptul că România este o țară cu prevalență mică a cancerului gastric, fapt ce concordă cu datele citate în literatura pentru sudul Europei.

Introduction

Gastric cancer is a disease with prevalence and demographic characteristics yet not known in Romania. This study is part of the national multicentric studies initiated by the Romanian Society of Digestive Endoscopy, being the first study on the prevalence of gastric cancer among the adult population over 18 years of age referred to gastroenterology services.

Material, methods and study design

The study was carried out over the period 01.01.2003-31.12.2003, in 11 university centers: Arad, Bucharest, Brașov, Craiova, Constanța, Cluj, Iași, Oradea, Sibiu, Timișoara, Tg. Mureș, with a uniform national distribution and adequate diagnostic methods.

The study included all patients aged over 18 years who were referred to the digestive endoscopy units in the above mentioned centers.

The indication of upper digestive endoscopy was: dyspeptic symptoms, iron deficiency anaemia, vomiting, anorexia, significant weight loss (more than 5 kilograms in the previous six months), signs of upper digestive hemorrhage (melena, hematemesis), dysphagia, paraneoplastic syndrome, metastases in other organs (diagnosis based on US and X-rays) or evaluation for medico-surgical interventions for other disease.

The macroscopic endoscopic aspect and the tumor location and extension were recorded. The Borrmann's classification was used, which describes type I – fungating, type II – ulcerated, type III – ulcero-infiltrative, type IV – diffuse infiltrative. In the case of incipient gastric cancer, the classification of early gastric cancer was used, which was recommended by the Japanese Society of Digestive

Endoscopy: type I – protruded, type II – superficial (IIa – elevated, IIb – flat, IIc – depressed), type III – excavated (1-5).

Biopsies were analyzed histologically, using Lauren's classification which differentiates between intestinal and diffuse type of gastric cancer. Lauren's classification criterion is the histological architectural aspect of the tumor.

The presence of *Helicobacter pylori* infection diagnosed by rapid urease test was also mentioned in some centers.

All centers used the same protocol and the same database which included the following parameters: demographic data (sex, age, environment), clinical manifestations, history of diseases with a high risk of gastric cancer (gastric adenoma, atrophic gastritis, resected stomach, gastric ulcer), complete endoscopic diagnosis, histological diagnosis, *Helicobacter pylori* infection.

For the collection of data, a unique database in Microsoft Excel format was used, and the prevalence among patients referred to endoscopic services was assessed per 100,000 inhabitants, adult population over 18 years of age. The data of the last census of 2002, recorded in the Romanian Statistical Yearbook, were used. Data were processed using Epi Info software, version 3.2.2. 2004.

Results

Over the study period, 640 new cases of gastric cancer were reported. The data at national level were grouped in four representative geographical areas. In a first stage, the prevalence of gastric cancer was calculated for each geographical area: the south of the country with three medical centers: Bucharest, Craiova, Constanța showed the lowest prevalence of gastric cancer, 1.9/100,000 inhabitants. In Moldavia, the study was carried out in one centre, Iasi, and the prevalence of gastric cancer was 2.8/100,000 inhabitants; in Banat and Crișana, the study was carried out in Timișoara and in Arad and prevalence was 3.45/100,000 inhabitants. Transylvania, which included the largest number of centers (Cluj, Brașov, Sibiu, Tg. Mureș), had the highest prevalence, 6.6/100,000 inhabitants (Fig.1).

Calculations at national level show a prevalence of gastric cancer among the population referring to digestive endoscopy services of 2.9/100,000 adult inhabitants.

The characteristics of the studied group were the following: mean age = 63.07 ± 12.10 years (Fig.2), with the predominance of the male sex (66.4%) compared to the female sex (33.6%), M:F ratio = 2:1, and similar values between the urban and rural environment (R: 48.3%, U: 51.7%).

From the point of view of symptomatology, dyspeptic symptoms, significant weight loss and loss of appetite were the most frequent complaints (Fig.3).

The majority of patients of the studied group (88.0%) had no history of disease with a high risk of gastric cancer (Table I).

A high percentage of patients (95.5%) presented with advanced gastric cancer at the time of diagnosis, most

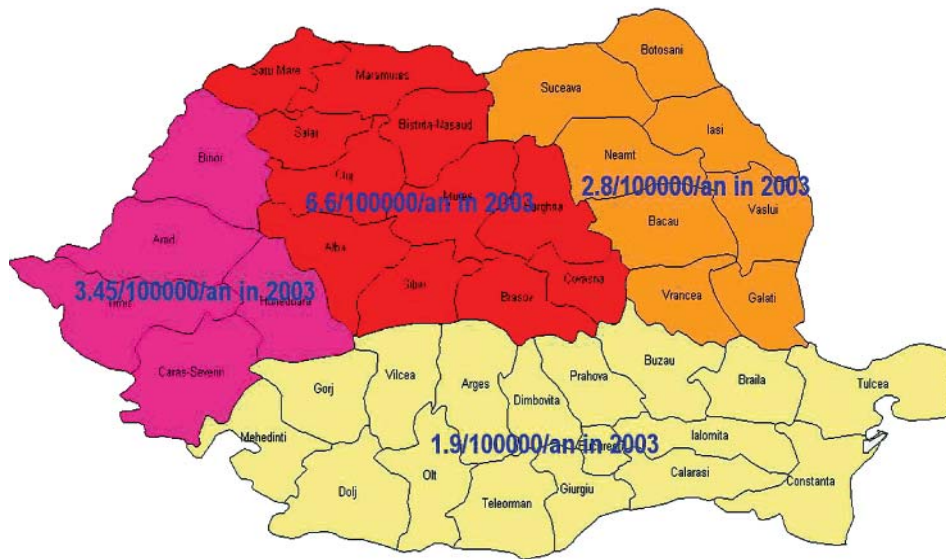


Fig.1 The prevalence of gastric cancer in Romania in patients referred to endoscopy departments.

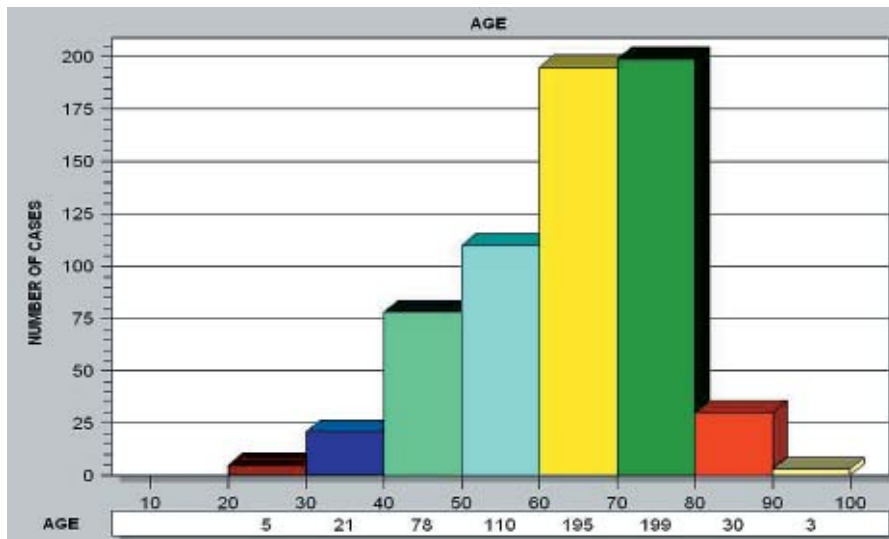


Fig.2 Gastric cancer patients according to age.

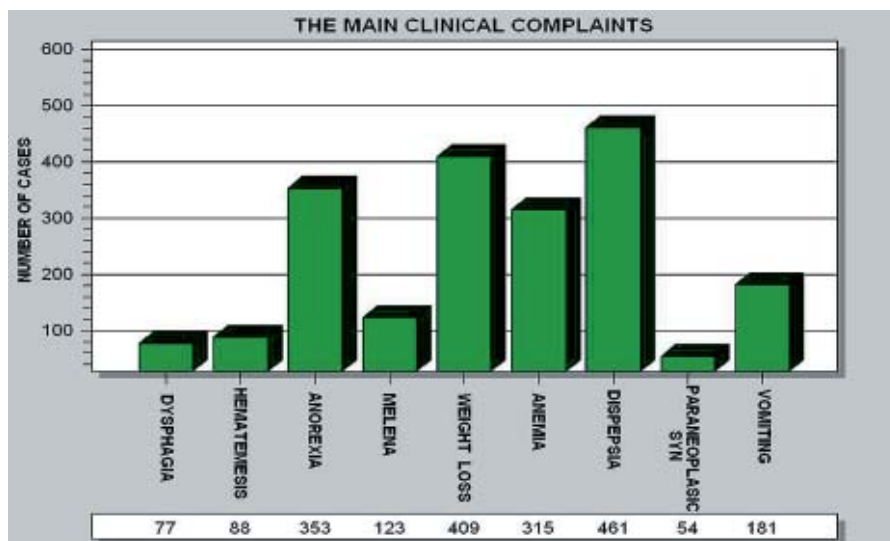


Fig.3 The main clinical complaints of patients with gastric cancer.

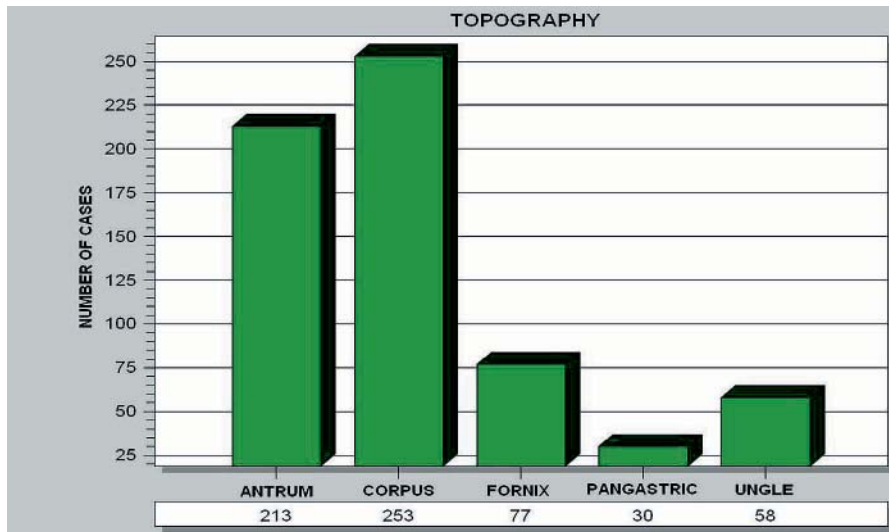


Fig.4 The most frequent localization of gastric cancer in the studied patients.

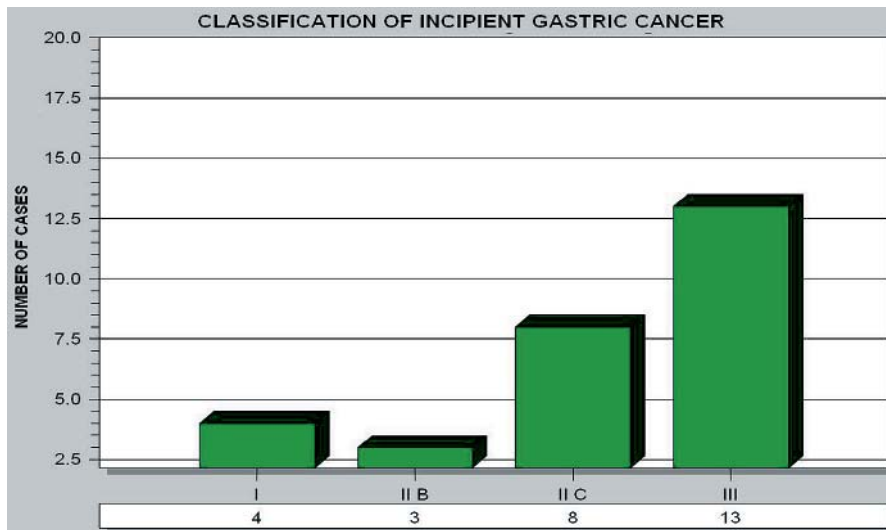


Fig.5 Proportion of types of incipient gastric cancer in the studied patients.

Table I Gastric cancer according to medical history

Medical history	Frequency	Percent	Cum percent
No	565	88.0 %	88.0 %
Polip	8	1.2 %	89.3 %
Gastric resection	48	7.5 %	96.7 %
Gastric ulcer	21	3.3 %	100 %
Total	642	100 %	100 %

frequently located in the gastric body (40.1%) and the antrum (33.8%) (Fig.4).

According to Borrmann’s classification, the distribution of patients is the following: type I fungating = 31.4%, type II Being a study on the prevalence of gastric cancer among the population referred to digestive endoscopy services, and not a screening study in the general population, the

ulcerated = 25.1%, type III ulcero-infiltrative = 32.1%, type IV diffuse infiltrative = 11.4%.

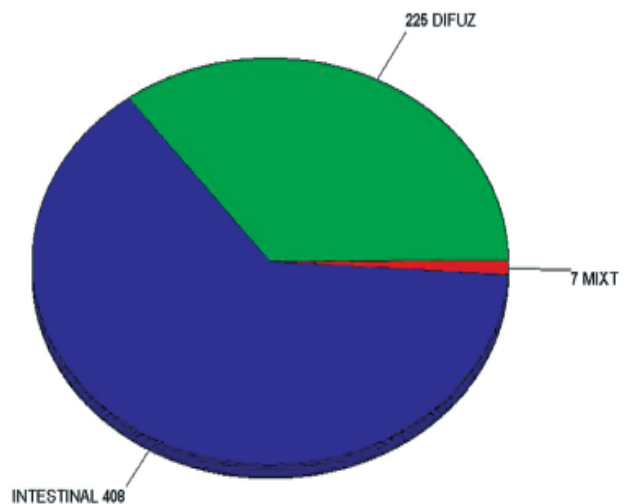


Fig.6 Gastric cancer according to Lauren Classification.

prevalence of incipient gastric cancer was low, 4.5. Of the 28 cases diagnosed with incipient gastric cancer, type III excavated gastric cancer was the most frequent (Fig.5).

From a histological point of view, according to Lauren's classification, the distribution in the studied group is the following: diffuse = 35.2%, intestinal = 63.8%, non-classifiable = 1.1% (Fig.6).

In the majority of the cases diagnosed (62.8%), the testing for the H. pylori infection was not performed (rapid urease tests were missing at that time), so that there are no relevant data available.

Discussion

The prevalence of gastric cancer varies internationally. In Eastern Europe as well as in Romania little is known about the epidemiology of gastric cancer. As far as we know, this represents the first study on the prevalence of gastric cancer in Romania. For this reason, the Romanian Society of Digestive Endoscopy proposed a multicentre study to evaluate the prevalence of gastric cancer in the adult population referred to gastroenterology medical services, including the demographic features of this pathology.

In order to be statistically relevant the study was carried out in 11 academic centers covering the national territory.

According to this study, the prevalence of gastric cancer in patients referred for endoscopy in Romania is 2.9 per 100,000 adults inhabitants. Most cases were histologically of intestinal type, and in an advanced stage (6).

It is interesting to mention the wide variations at a national level; the highest prevalence was found in Transylvania, the south of the country being at the opposite end of the scale. The influence of migration on gastric cancer prevalence suggests that exposure to an etiologic or environmental agent early in life is responsible for this disease. There appears to be an increased association of gastric cancer with eating habits. Maybe an increase in salted and smoked meat and food consumption, as well as consumption of strong alcohol can explain the high prevalence of gastric cancer in Transylvania. An epidemiologic study in this field might give further answers.

The association of gastric cancer with H.pylori infection could not be analyzed in this study, although it is well demonstrated (2,7-9). Demographic data related to the mean age, age group and sex distribution are in accordance with the data cited by the literature for Europe (2-4).

The gastric cancer occurred significantly more frequently in males (male/female ratio 2/1), but the urban/rural distribution was similar to that of the general population in Romania (53.3% urban, 46.7% rural) (10).

According to our study, the majority of the patients diagnosed with gastric cancer had no history of diseases with a high risk of gastric cancer. The numerous case reports and studies supporting a predilection for gastric cancer in

persons who have had gastric surgery, atrophic gastritis, gastric ulcer and gastric adenomas, cannot be ignored. All these are considered precancerous conditions for gastric cancer. The explanation that our results are not in accordance with these data is uncertain but probably the low medical standard and referral system of the population could be a reason.

The study and the mentioned data confirm the fact that Romania is a country with a low prevalence of gastric cancer, less than 10 cases per 100,000 inhabitants, compared to the countries of Western Europe, North America and South-Eastern Asia (7,8).

Conclusions

The prevalence of gastric cancer among the population referred to gastroenterology services in the 11 Romanian medical centers is 2.9 per 100,000 inhabitants, adult population over 18 years of age. Romania is a country with a low prevalence of gastric cancer, but with relatively wide variations between the different geographical areas.

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