

## PANCREATIC CANCER

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### The influence of polymorbidity on the results of treatment of patients with gastric cancer and pancreatic cancer

We made retrospective analysis of records of patients with gastric cancer (19 patients) and pancreatic cancer (36 patients) treated in the National Center of Oncology in 2012. The identified polymorbidity has influenced the malignant process and the treatment outcomes.

**Keywords:** polymorbidity, gastric cancer, pancreatic cancer.

**Relevance.** Polymorbidity (the presence of multiple clinical nosologies in one patient) is a serious problem in the clinical practice of today not only due to the growing number of such patients and the challenges in their diagnostics and treatment, but also due to the severe condition of such patients, the «masking» effect of different nosologies, the similarity of syndromes, and the worsening of treatment prognosis. Polymorbidity means the involvement of various physiological systems in the pathological process. Modern medicine reasonably considers a certain non-specific generality in the mechanisms of pathogenesis of the most common pathological processes [1].

The clinical picture of the underlying cancer disease might be distorted by the presence of a number of comorbidities like hypertension, diabetes, coronary heart disease, renal pathology, and bronchopulmonary pathology [2].

**Polymorbidity** is not just a statement of the fact that the patient has several diseases; it is an additional death risk factor. Formed polymorbidity in patients has its own independent nature and is a new pathophysiological condition [3, 4].

Currently, endothelial dysfunction and the associated deficit of nitric oxide, high activity of free radicals lead to a massive production of cytokines (the so-called «cytokine storm») which damage the mitochondrial membranes and then – the cell membranes being the key factor in the development and increase of the disease severity in polymorbid patients [3, 4].

**Purpose of the research** – to study co-morbidities in cancer patients and their effect on the treatment course and outcome.

**Material and methods.** We conducted a retrospective analysis of case histories of patients with gastric cancer (19 patients) and pancreatic cancer (36 patients) treated at the National Cancer Center in 2012.

Due to the difficulty of biopsy even during surgery, the histological verification was available only for two patients. In other cases, the pancreatic cancer was diagnosed based on the clinical data, the results of ultrasound and computer tomography examinations.

The polymorbidity in patients definitely affects the course of the malignant process and the treatment outcome.

The statistical processing of data was made by the method of assessing the significance of the differences between two data sets by applying the t-Student criterion. Ranking of statistical phenomena was made using factor analysis and F (Fisher) criterion. «STATGRAPHICS plus for Windows» [5] software was used for mathematical and statistical processing of data.

**The diagnosis** was morphologically verified in all the patients. The majority of the patients had low-differentiated adenocarcinoma (47.3%). All the patients had advanced cancer.

**Group I** included the patients with pancreatic cancer (36 people), of them, men – 24 (66.7%), women – 12 (33.3%), aged 43 to 84 (average age –  $56.7 \pm 1.2$ ) years old.

As the age of patients influences their comorbidities, the patients were conditionally divided into 2 subgroups: 34 to 60 years (24 patients, 66.6%) and over 60 years (12 patients, 33.3%).

**Group II** included the patients with gastric cancer (19 people), of them, men – 14 (73.7%), women – 5 (26.3%) (average age –  $61.0 \pm 2.2$  years old).

For the study of comorbidities, Group II was also conditionally divided into two subgroups: 34 to 60 years – 10 patients (52.6%), and over 60 years – 9 patients (47.4%).

**Results and discussion.** Studying the aspects of comorbidities in patients of different ages with gastric and pancreatic cancer, we found a certain pattern of polymorbidity related to a certain localization of the malignant process. Thus, the patients with pancreatic cancer stages III and IV had hypertension, pyelonephritis, coronary disease, diabetes mellitus; while the gastric cancer was mostly associated with the coronary disease, the liver pathology (in the form of cholelithiasis), and hypertension.

Tables 1 and 2 provide data on age-related comorbidities in patients with pancreatic and gastric cancer.

**Table 1** – Associated comorbidities in patients with pancreatic cancer

Comorbidities	Middle age patients (40-60 years), n = 24			Aged patients (over 60 years), n = 12			P
	No. of patients, n	%	factor weight	No. of patients, n	%	factor weight	
Concomitant hypertension	13	54,2	0,92	6	50	0,84	> 0,05
Coronary disease	20	83,3	0,95	10	83,3	0,96	> 0,05
Obesity	9	37,5	0,66	4	33,3	0,58	> 0,05
Liver pathology	15	62,5	0,82	11	91,7	1,6	< 0,001
Diabetes mellitus	9	37,5	0,72	5	41,6	0,79	> 0,05
Pyelonephritis	15	62,5	0,83	10	83,3	1,5	< 0,001
Prostatic hyperplasia	6	25	0,56	10	83,3	1,46	< 0,001

**Table 2** - Factors associated with polymorbidity in patients with gastric cancer

Comorbidities	Middle age patients (40-60 years), n = 24			Aged patients (over 60 years), n = 12			P
	No. of patients, n	%	factor weight	No. of patients, n	%	factor weight	
Concomitant hypertension	13	54,2	0,92	6	50	0,84	> 0,05
Coronary disease	20	83,3	0,95	10	83,3	0,96	> 0,05
Obesity	9	37,5	0,66	4	33,3	0,58	> 0,05
Liver pathology	15	62,5	0,82	11	91,7	1,6	< 0,001
Diabetes mellitus	9	37,5	0,72	5	41,6	0,79	> 0,05
Pyelonephritis	15	62,5	0,83	10	83,3	1,5	< 0,001
Prostatic hyperplasia	6	25	0,56	10	83,3	1,46	< 0,001

As obvious from Table 1, middle age patients had significantly less liver changes in the form of increased bilirubin and transaminase vs. the aged group. This is associated with obturation of bile passages by the tumour and is much more manifested in aged patients what evidences the more advanced process in this category of patients. The patients above 60 years had more frequent cases of pyelonephritis and prostatic hyperplasia.

No patients underwent radical treatment, still 16 (66.6%) of the middle age patients underwent surgical enterocholecystostomy, and 8 (33.3%) received symptomatic treatment. In the elder group, only 4 patients got anastomosis (33.3%), the remaining 8 patients did not receive surgical treatment because of their severe condition (66.7%).

In the group of patients aged 40 to 60 years, 8 patients (80%) underwent surgical treatment and chemotherapy, and only 2 patients received symptomatic treatment. In the group of patients above 60 years, 4 (44.4%) patients underwent surgical treatment, and the rest 63.6% received only symptomatic treatment.

As can be seen from Table 2, aged patients had more cases of past AMI, bronchopulmonary pathology, coronary disease, and cholelithiasis. This pathology affects the course of the disease, shades the clinical picture of the cancer process and influences the choice of radical treatment of cancer patients.

**Conclusions.** We came to the conclusion that polymorbidity was manifested by various co-morbidities at different cancer localizations. Pancreatic cancer was mostly associated with pyelonephritis, diabetes mellitus, arterial hypertension, and coronary disease while the majority of patients with gastric cancer had cholelithiasis, AMI, coronary disease, or bronchopulmo-

nary pathology. All that served as an unfavorable factor in the choice of treatment of cancer patients.

Modern medical practice dictates the need for an integrated approach to the study of the clinical picture of the onset and development of comorbidities necessitating a new look at the problem of polymorbidity.

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