направленного на уточнение характера заболевания и обоснование тактики лечения. Данные МРТ головного мозга в представленном клиническом случае позволили исключить у пациентки опухолевый и сосудистый процесс, а также травму орбиты. Обнаруженные при МРТ увеличение размеров правого кавернозного синуса, воспалительные изменения в сосудистой стенке правой ВСА позволили диагностировать СТХ. Улучшение в виде регресса симптоматики в короткие сроки при лечении кортикостероидами явилось еще одним подтверждающим признаком диагноза.

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ОНКОЛОГИЯ

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СРАВНЕНИЕ НЕЙРОЭНДОКРИННЫХ ОПУХОЛЕЙ ЖЕЛУДОЧНО-КИШЕЧНОГО ТРАКТА У ПАЦИЕНТОВ ГОМЕЛЬСКОЙ ОБЛАСТИ В 2023 И 2024 ГОДАХ

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Аннотация

Введение. Нейроэндокринные новообразования (НЭН) возникают из диффузной эндокринной системы, чаще всего в желудочно-кишечном тракте (ЖКТ). Большинство НЭН ЖКТ встречаются в аппендиксе (50%) и подвздошной кишке (30%). НЭН желудка встречаются редко (0,3% опухолей желудка, но 11%–41% НЭН ЖКТ). Карциноиды средней кишки являются наиболее распространенными злокачественными опухолями тонкой кишки, в то время как карциноиды прямой кишки составляют 27% карциноидов ЖКТ. Панкреатические НЭН встречаются редко (~10 на миллион человек), с ежегодной заболеваемостью 4 на миллион. **Цель исследования** — проанализировать нейроэндокринные опухоли желудочно-кишечного тракта (НЭО ЖКТ) путем сравнения их заболеваемости, характеристик и результатов в разных возрастных группах. **Материалы и методы**. Анализ гистопатологических записей из областных больниц Гомеля (2023–2024 гг.) выявил 32 пациента с нейроэндокринными опухолями желудочно-кишечного тракта (НЭТ-ЖКТ). **Результаты**. Нейроэндокринные опухоли (НЭТ) классифицируются по дифференциации и агрессивности, начиная от хорошо дифференцированных G1 (медленнорастущие, благоприятный прогноз) до плохо дифференцированных

нейроэндокринных карцином (НЭК; агрессивные, плохой прогноз). В этой когорте НЭК были наиболее распространены (21 пациент), за ними следовали НЭТ G1 (6) и G2 (4), причем G3 была редкой (1 пациент). Заболевание преимущественно поражало пожилых людей, с пиком заболеваемости в возрасте 71–80 лет (19 пациентов) и 61–70 лет (6 пациентов), в то время как в более молодых возрастных группах наблюдалось минимальное количество случаев. Эти результаты подчеркивают преобладание агрессивных НЭК и возрастную картину заболевания. **Выводы.** желудочно-кишечные нейроэндокринные опухоли (GI-NET), хотя и редки, показывают рост заболеваемости, особенно у взрослых старше 70 лет. Это исследование показало, что агрессивные нейроэндокринные карциномы (NEC) были наиболее распространенным подтипом.
Ключевые слова. нейроэндокринный, новообразования, возраст, ЖКТ

COMPARISON OF NEUROENDOCRINE TUMORS OF THE GASTROINTESTINAL TRACT OF PATIENTS OF GOMEL REGION DURING THE YEARS 2023 AND 2024

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Abstract

Introduction. Neuroendocrine neoplasms (NENs) arise from the diffuse endocrine system, most commonly in the gastrointestinal tract (GIT). Most GI-NENs occur in the appendix (50%) and ileum (30%). Gastric NENs are rare (0.3% of gastric tumors but 11%–41% of GI-NENs). Midgut carcinoids are the most common malignant small bowel tumors, while hindgut carcinoids account for 27% of GI carcinoids. Pancreatic NENs are rare (~10 per million people), with an annual incidence of 4 per million. **The aim of the study** is to analyze gastrointestinal neuroendocrine tumors (GIT-NETs) by comparing their incidence, characteristics, and outcomes across different age groups. **Material and methods.** An analysis of histopathological records from Gomel regional hospitals (2023–2024) identified 32 patients with gastrointestinal neuroendocrine tumors (GIT-NETs). **Results:** Neuroendocrine tumors (NETs) are classified by differentiation and aggressiveness, ranging from well-differentiated G1 (slow-growing, favorable prognosis) to poorly differentiated neuroendocrine carcinomas (NECs; aggressive, poor prognosis). In this cohort, NECs were most common (21 patients), followed by G1 (6) and G2 (4) NETs, with G3 being rare (1 patient). The disease predominantly affected older adults, with peak incidence in ages 71–80 (19 patients) and 61–70 (6 patients), while younger age groups showed minimal cases. These findings highlight the predominance of aggressive NECs and an age-related disease pattern. **Conclusions.** Gastrointestinal neuroendocrine tumors (GI-NETs), though rare, show increasing incidence, particularly in adults over 70. This study found that aggressive neuroendocrine carcinomas (NECs) were the most common subtype.
Keywords. Neuroendocrine, neoplasms, Age, GIT

INTRODUCTION

Neuroendocrine neoplasms (NENs) are a group of neoplasms arising from the diffuse endocrine system (DES). The gastrointestinal tract (GIT) is the most common site of NEN. The WHO classification divides NEN into three broad categories as well-differentiated NENs, poorly differentiated NENs, and mixed neuroendocrine-non-neuroendocrine neoplasms [1].

Neuroendocrine tumors arising in the stomach are rare, accounting for 0.3% of gastric neoplasms but 11%–41% of gastrointestinal neuroendocrine tumors [2]. Midgut carcinoids are defined as neuroendocrine tumors arising beyond the ligament of Treitz to the level of the mid-transverse colon and are the commonest primary malignant tumor of the small intestine. Forty-two percent of all gastrointestinal carcinoids arise in the small bowel. Hindgut carcinoids include those arising in the colon (distal to the mid-transverse colon) and rectum. Rectal carcinoids are the most common hindgut carcinoid and in a large series, these accounted for 27% of all gastrointestinal carcinoid tumors [3] Pancreatic endocrine tumors are rare, with a reported prevalence of 10 per million of population. The incidence of clinically significant pancreatic endocrine tumors is 4 per million population per year [4]. Most GI NE tumors are found in the appendix (50%) and the ileum (30%). Practically all (98%) of the appendiceal NE tumors are benign [5].

The aim of the study is to comprehensively analyze neuroendocrine tumors (NETs) of the gastrointestinal tract (GIT) by comparing their incidence, characteristics, and outcomes across different age groups. By examining the varying types of GIT-NETs, such as well-differentiated and poorly differentiated tumors, this study aims to identify age-specific trends in tumor behavior, prognosis, and response to treatment. Additionally, this study seeks to highlight gaps in current diagnostic and therapeutic approaches, particularly in relation to age-related disparities. Ultimately,

the findings will contribute to the development of future recommendations for personalized management strategies, early detection protocols, and targeted therapies, ensuring improved outcomes for patients across all age groups.

MATERIAL AND METHODS

A retrospective archive of all histological, microscopical and medical records of tumors found in patients in the region of Gomel during the years 2024 and 2023 revealed a total of 32 patients who were diagnosed with neuroendocrine tumors of the Gastrointestinal tract. The patients were from the following hospitals: Bragin Central District Hospital (1 record), GGKBSMP (14 records), GOKB (10 records), Medical Center "Polymed"(2 records), GKKC (5 records). Data processing and statistical analysis were performed using Microsoft office Excel 2013. Furthermore, factual information from the websites of WHO, PubMed and Google Scholar articles were used.

THE RESULTS OF THE RESEARCH

Neuroendocrine tumors (NETs) are categorized based on their differentiation and aggressiveness, which directly impacts their behavior and treatment approaches. G1 NETs are well-differentiated, meaning their cells closely resemble normal neuroendocrine cells, and they tend to grow slowly and have a favorable prognosis. G2 NETs are also well-differentiated but show slightly more aggressive features, implying a potentially faster growth rate and a more intermediate prognosis compared to G1 tumors. G3 NETs demonstrate a higher degree of aggressiveness, indicating faster growth and a higher likelihood of metastasis compared to G1 and G2 tumors, although some classifications still consider them well-differentiated. In contrast, neuroendocrine carcinomas (NECs) are poorly differentiated, exhibiting significant deviations from normal neuroendocrine cells, resulting in rapid growth, a high propensity for metastasis, and a generally poorer prognosis compared to NETs G1-G3. In essence, the primary difference lies in the degree to which the tumor cells resemble normal cells and the overall aggressiveness of the tumor's behavior, with NECs representing the most aggressive type. The key distinguishing factors are the degree of differentiation and the proliferation rate as measured by the Ki-67 index and mitotic count as shown in Table 1, with NECs representing the most aggressive end of the spectrum.

Table 1.

World Health Organization classification of gastrointestinal neuroendocrine tumors

Well-differentiated neuroendocrine neoplasms (NENs)		
	Ki-67 index (%)	Mitotic index/10 HPF
NET grade 1 (G1)	< 3	< 2
NET grade 2 (G2)	3-20	2-20
NET grade 3 (G3)	> 20	> 20

The bar graph in Figure 1 presents a distribution of neuroendocrine neoplasms based on their grade and classification within a patient cohort. The data reveals that neuroendocrine carcinomas are the most prevalent type, accounting for 21 patients, followed by G1 neuroendocrine tumors with 6 patients, and G2 tumors with 4 patients. Notably, G3 neuroendocrine tumors were the least common, observed in only 1 patient, suggesting a relatively low occurrence of poorly differentiated tumors in this particular dataset.

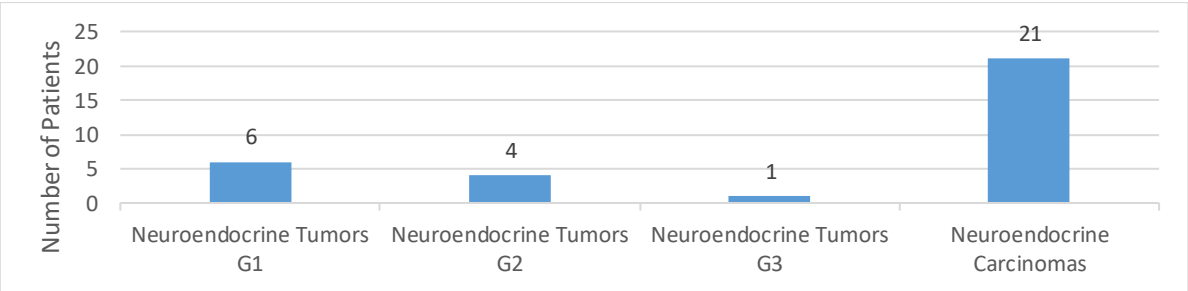

Figure 1 - The number of patients as per the type of neuroendocrine tumor

The bar graph in figure 2 illustrates the age distribution of patients diagnosed with the neuroendocrine tumors. It shows that the highest incidence occurs within the 71-80 age range, accounting for 19 patients, while the 61-70 age range is the second most affected with 6 patients. The age ranges 31-40, 51-60 and >81 have relatively few patients with only 2 in each. The youngest age bracket (<30) had no cases in this study group. This suggests that the condition is primarily diagnosed in older adults, with a peak incidence in the 71-80 age group.

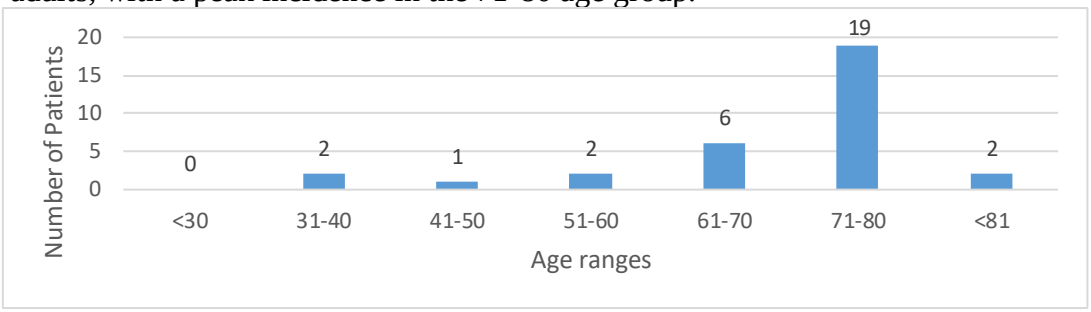

Figure 2- The age distribution of patients diagnosed with the neuroendocrine tumors

DISCUSSION

A gastrointestinal neuroendocrine tumor is cancer that forms in the lining of the gastrointestinal tract. Health history can affect the risk of GI neuroendocrine tumors. Some GI neuroendocrine tumors have no signs or symptoms in the early stages. Carcinoid syndrome may occur if the tumor spreads to the liver or other parts of the body. Imaging studies and tests that examine the blood and urine are used to diagnose GI neuroendocrine tumors [1,2]. Certain factors affect prognosis (chance of recovery) and treatment options. The discussion comes into agreement with the theoretical results since its agreed that increasing age factor and health depletion affect largely in these tumors.

CONCLUSIONS

The GI-NETs are rare but their incidence and prevalence have been increasing. This study suggests that neuroendocrine tumors (NETs) of the gastrointestinal tract (GIT) are more frequently diagnosed in older adults, particularly those over the age of 70. While NETs can occur at any age, this age group appears to be more susceptible, potentially due to age-related changes in the gut environment or accumulated genetic mutations. Furthermore, the available data, indicates that neuroendocrine carcinomas (NECs), the most aggressive form of GIT NETs, are the most commonly observed type in this patient population. This combination of advanced age and a predominance of high-grade NECs presents unique challenges in management, often necessitating careful consideration of treatment options in light of potential comorbidities and functional status common in older individuals.

Treatment and prognosis depend on the grade and stage of the tumor. Current treatment modalities include endoscopic resection, surgery, somatostatin analog therapy, Peptide receptor radioligand therapy, chemotherapy, liver targeted therapy (radiofrequency ablation, bland embolization and chemoembolization) and symptomatic treatment. Immunotherapy will serve as a future treatment modality. Patients should be kept under surveillance program following treatment of GI-NETs.

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ВЫЯВЛЕНИЕ ЗАКОНОМЕРНОСТЕЙ МЕЖДУ ДОБРОКАЧЕСТВЕННЫМИ НОВООБРАЗОВАНИЯМИ МОЛОЧНОЙ ЖЕЛЕЗЫ И ИХ ФАКТОРАМИ РИСКА

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Аннотация
Введение. Доброкачественные и злокачественные образования молочных желез остаются одной из ключевых проблем ввиду их значительной распространенности и возможности малигнизации. Наиболее частыми нозологическими единицами среди данной группы патологии. являются фиброаденомы, мастопатии и кисты молочных желез. **Цель исследования –** выявить закономерности среди факторов риска, приводящих к образованиям молочных желез. **Материал и методы.** Были проанализированы 200 амбулаторных карт в возрастной группе от 20 до 85 лет с оценкой нескольких показателей. **Результаты**. Определены закономерности между количеством ЭКО и отягощенным семейным онкологическим анамнезом, взаимосвязи отягощенного онкоанамнеза по раку ЖКТ и образованиям молочных желез, определена связь с наследственностью, ИМТ, а также выявлена зависимость плотности ткани по Bi-RADS от роста и возраста. **Выводы**. Необходимо улучшать программу самодиагностики, анализа онкофертильности перед ЭКО, а также чаще проходить специализированные исследования, например, маммографию или генетический анализ.
Ключевые слова: доброкачественные новообразования молочной железы, молочная железа, рак, факторы риска, диагностика.

IDENTIFICATION OF PATTERNS BETWEEN BENIGN BREAST TUMORS AND THEIR RISK FACTORS

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Abstract
Introduction. Benign and malignant breast growths remain one of the key problems due to their significant prevalence and the possibility of malignancy. The most common nosological units among this group of pathologies. Fibroadenomas, mastopathies, and breast cysts are common. **The aim of the study** is to identify patterns among the risk factors leading to breast cancer. **Material and methods.** 200 outpatient records in the age group from 20 to 85 years were analyzed with an assessment of several indicators. **Results.** The patterns between the number of IVF and a burdened family history of cancer, the relationship between a burdened history of cancer of the gastrointestinal tract and breast formations, the relationship with heredity, BMI, and the dependence of Bi-RADS tissue density on height and age were determined. **Conclusions.** It is necessary to improve the program of self-diagnosis and oncofertility analysis before IVF, as well as undergo specialized studies more often, for example, mammography or genetic analysis.
Keywords: benign neoplasms of the breast, breast, cancer, risk factors, diagnosis.

ВВЕДЕНИЕ

Доброкачественные и злокачественные образования молочных желез остаются одной из ключевых проблем ввиду их значительной распространенности и возможности малигнизации, к которым приводят различные факторы риска [1, 2]. Наиболее частыми нозологическими единицами среди данной группы патологий, согласно литературным данным, являются фиброаденомы, мастопатии и кисты молочных желез [3, 4]. В настоящий период имеется тенденция к росту доброкачественных заболеваний молочных желез во всех возрастных группах: например, у женщин в возрасте до 30 лет они встречаются у каждой