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COULD ERYTHEMA NODOSUM BE A SIGN OF SYSTEMIC DISEASE - RETROSPECTIVE ANALYSIS

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Resume. *This article presents the research results of analysis 74 patients with erythema nodosum. It is a common form of panniculitis which has a lot of different and unknown causes.*
Keywords: *erythema nodosum (EN), epidemiology, clinical course.*

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Relevance. Erythema nodosum (EN) is clinically the most frequent type of panniculitis that affects the septa in the subcutaneous fat tissue [1]. It usually appears on the anterior surfaces of the lower extremities. EN typically manifests by the sudden onset of symmetrical, tender, erythematous, warm nodules and raised plaques. They are often self-limiting and regress without ulceration, scarring, or atrophy. It is considered a reactive process that may be triggered by a wide variety of stimuli. The most common causes include infections, drugs, sarcoidosis, inflammatory bowel diseases, pregnancy, and malignancy, however in about up to 55% of EN is considered idiopathic [1,2].

Objective: The purpose of our investigation is a retrospective analysis of medical records of patients with EN.

Tasks:

1. To assess epidemiological features of erythema nodosum.
2. To study the clinical course of the disease.

Material and methods. Records of the patients hospitalized in the Department of Dermatology in Bialystok in the years 2010-2015 were analyzed. Age, sex, comorbidities, epidemiological aspects, clinical course of the disease, additional tests and treatment used were considered. Selected features were analyzed using Chi-squared test ($p<0,05$ was considered significant in the analysis).

Results. In the analyzed period 74 patients were hospitalized with EN, 63 females (85%) and 11 males (15%). The female to man ratio is 6:1. The age of patients ranged from 9 to 84 years, mean 42. Almost 50% of the patients were between 25-49 years old (figure 1). These epidemiological aspects were also observed by other researchers [1,2,3,4]

BMI ranged from 16,6 to 45,2, mean is 27. 40 patients (55%) had increased BMI: 26% are overweight and 29% obese (figure 2).

The abnormal lesions were observed by the patients from 1 day to 2 years, mean 8 weeks. First episode of EN occur in 49% of cases, second in 35%, third and next in 9%. Majority of patients were affected by EN during winter (30%) and autumn (27%). Less occurrence was observed during summer (23%) and spring (20%). However the literature reports increased incidence in the first six months of the year [2].

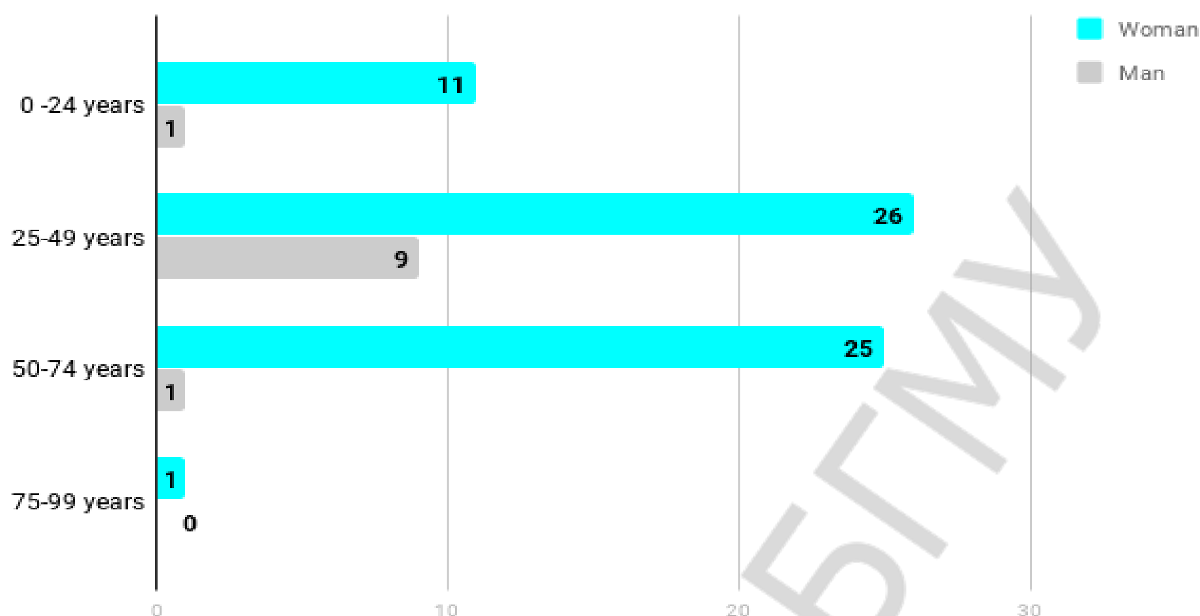

Figure 1- Patients and the age groups

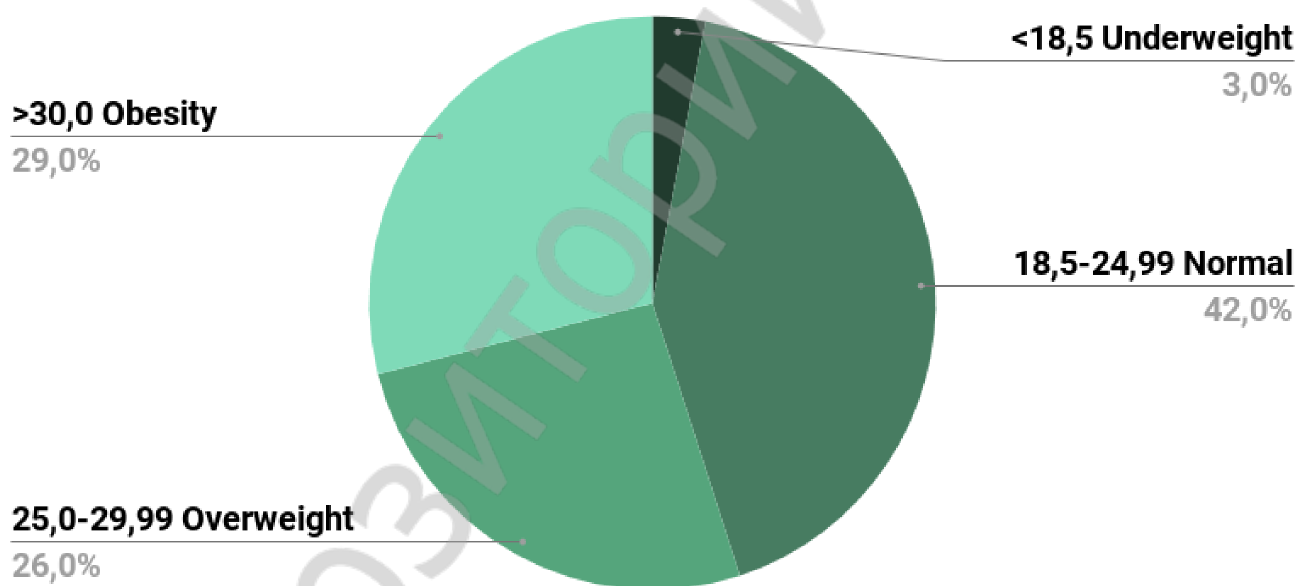

Figure 2 – BMI of the patients

Before hospitalization patients were treated with antibiotics (66%), NSAIDs (25%) and hormonal contraception (15%). The prodrome occurred in 55% cases, the most often was the joints pain (36%), then infections of the respiratory tract (31%), fever (26%), weakness (12%). During the physical examination nodules were observed in some localizations. The most commonly were noticed on the extensor surfaces of the lower legs (73%). Other localizations were lower legs and forearms (20%) and nextly lower legs forearms and thighs (7%). Researchers say that localization on the shins could be related to local anatomical circumstances which are lack of muscle pump under the skin, poor arterial blood supply, rich lymphatic system and difficult venous return caused by gravitational effects [2].

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Most common comorbidities were cardiovascular system diseases (21,6%), thyroid gland diseases (16%), chronic tonsillitis (11%), diabetes mellitus, sarcoidosis (equally 6,7%) and inflammatory bowel diseases (4%) (Figure 3). The analysis made by Chi-squared test demonstrate significantly higher incidence of thyroid gland diseases, chronic tonsillitis and sarcoidosis in the research group (Table 1).

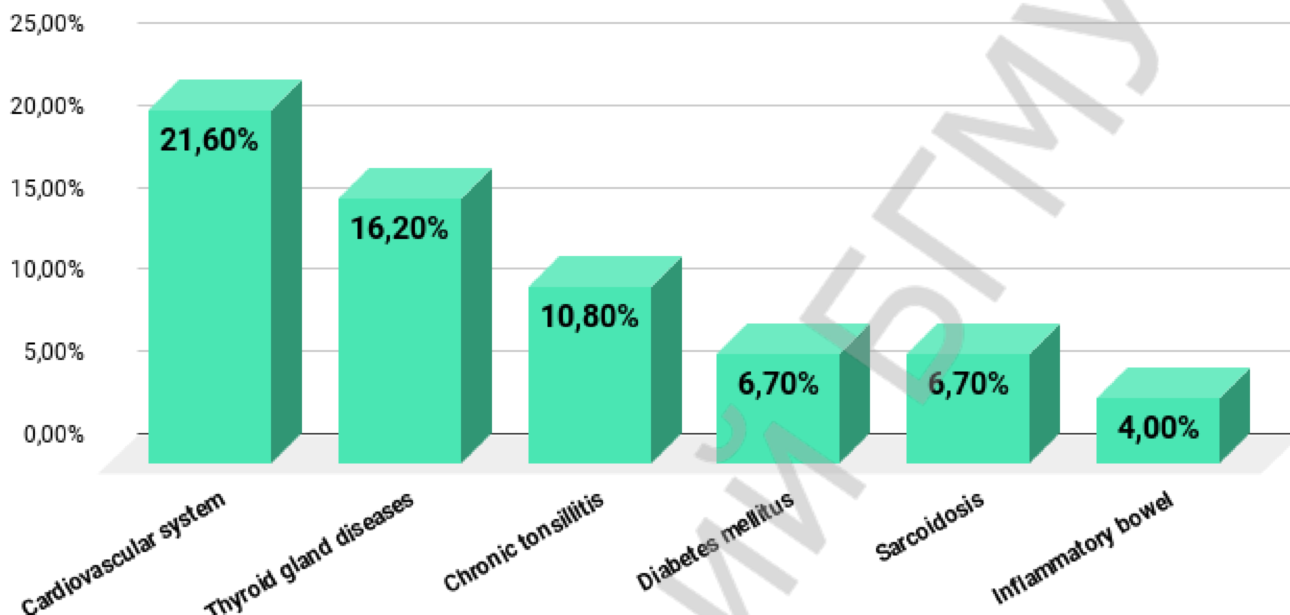

Figure 3 – Comorbidities of the patients

Table 1. Chi-squared test

	p value (Chi-squared test)
Obesity	0,7693
Cardiovascular system diseases	0,1839
Thyroid gland diseases	**0,0142**
Chronic tonsillitis	**0,0036**
Diabetes mellitus	0,1732
Sarcoidosis	**0,0229**
Inflammatory bowel diseases	0,0801

Over 30% of patients had accompanying dermatosis, most often erysipelas and onychomycosis (equally 5,4%), psoriasis and acne (equally 2,7%). Laboratory tests

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demonstrated elevated inflammatory markers (71%), positive tests for M. pneumoniae (33%), B. burgdorferi (36%), Ch. pneumoniae (22%), raised value of ASO (29%). Chest X-ray in 41% of cases showed abnormalities, mostly in pulmonary hills. Most patients were treated systemically with antibiotics (74%), NSAIDs (48,6%), glucocorticoids (15%) and topically with ichtyol agents (95%), glucocorticoids (58%) and NSAIDs (38%).

Conclusion:

1 Our research confirmed that EN affects more young adults in their second to fourth decades and almost 6 times more often women than men.

2 Most common causes were drugs and upper respiratory tract infections.

3 Presence of diseases like thyroid gland diseases, chronic tonsillitis and sarcoidosis is significantly higher among patients with EN.

4 In all cases of EN thorough medical history, physical examination and additional tests should be performed in order not to overlook the systemic disease.

5 Erythema nodosum is an interdisciplinary condition. Because of the multiple causes it should be consulted particularly by dermatologists, rheumatologists, infectious diseases doctors.

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