Journal scientific and applied research, vol. 16, 2019
International Journal

Original Contribution ISSN 1314-6289

BLOOD TYPES AND CARCINOMA CUTIS

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***ABSTRACT**: The present study included 101 patients with Ca cutis (76 men and 25 women). The patients' blood group affiliation to the AB0 and Rhesus factor systems was monitored. There was a statistically significant increase in the disease in patients with 0 blood group (p <0.05) and a slight increase in the patients with AB blood group, when compared with the control group of healthy people. The incidence of the condition is reported in the other groups with varying degrees of decrease, which was significant in group A (p <0.05). It has been found that the disease is much more common in our country compared to its levels in Europe (65,1 / 100000 in men and 52,4 / 100000 in women compared to 18,2 / 100000 in men and 8,3 / 100000 in women respectively). No significant differences were observed in the Rhesus factor system compared to the control group.*

***KEY WORDS**: Ca cutis, blood groups ABO and Rhesus factor*

Introduction: The possibility of a relationship between blood group affiliation and the onset and development of diseases has been the subject of a number of our studies, which covered a number of benign and malignant diseases. The causes of an illness are not only in the environmental and lifestyle factors, but also in the hereditary characteristics of the individual. We believe that certain biological factors, including blood groups, may be a risk factor or a predisposition for certain diseases. To date, we have paid particular attention to cancer as a socially significant disease. The Melanoma maligna, the development of which we traced [1], showed a statistically significant increase in patients with 0 group compared to the control group of healthy individuals from the Bulgarian population.

Aim of the study: To check whether there is a relationship between group affiliation and the appearance and development of Ca cutis.

Material and methods: The study included 101 patients with Ca cutis (76 men and 25 women). Their blood group affiliation to the AB0 and Rhesus factor systems was monitored. Patients were diagnosed and treated at the oncology ward of the 5th City Hospital in Sofia and the National Oncology Hospital in Sofia for the period from 2000 to 2015. A comparison was made with the control group of healthy individuals from the Bulgarian population [2]. The comparison was made using the $\chi 2$ criterion.

Results and discussion:

The data of the study are presented in table 1 and figure 1 and 2.

Table 1. Frequency of the blood types from systems AB0 and Rhesus factor in patients with Ca cutis and the control group (%)

Blood types		O	A	B	AB	Rh+	Rh-
Patients with Ca cutis n 101	n	64	13	13	11	84	17
	%	63,56	12,87	12,87	10,70	83,17	16,83
Control group n 1080	n	342	472	184	82	916	164
	%	31,67	43,70	17,04	7,59	84,81	15,19

AB0 system

The study of the patients revealed the following values for the respective blood groups: group 0 – 63,56%, group A – 12,87%, group B – 12,87% and group AB – 10,70%. Comparisons were made with the control group of healthy individuals, in which the figures were: 0 group – 31,67%, group A - 43,70%, group B – 17,04% and group AB - 7,59% respectively. The comparison shows a marked increase in the prevalence of the disease in patients with 0 group (by 31,89% to 63,56%), which is significant - $p < 0,05$, and a slight increase in the patients with AB group (by 4,17% to 12,87%). In the other groups there was a varying decrease in the values. In group A, by 29,83% to 12,87% ($p < 0.05$) and even less pronounced in group B – by 4,17% to 12,87%. The results are presented in Table 1 and Figure 1.

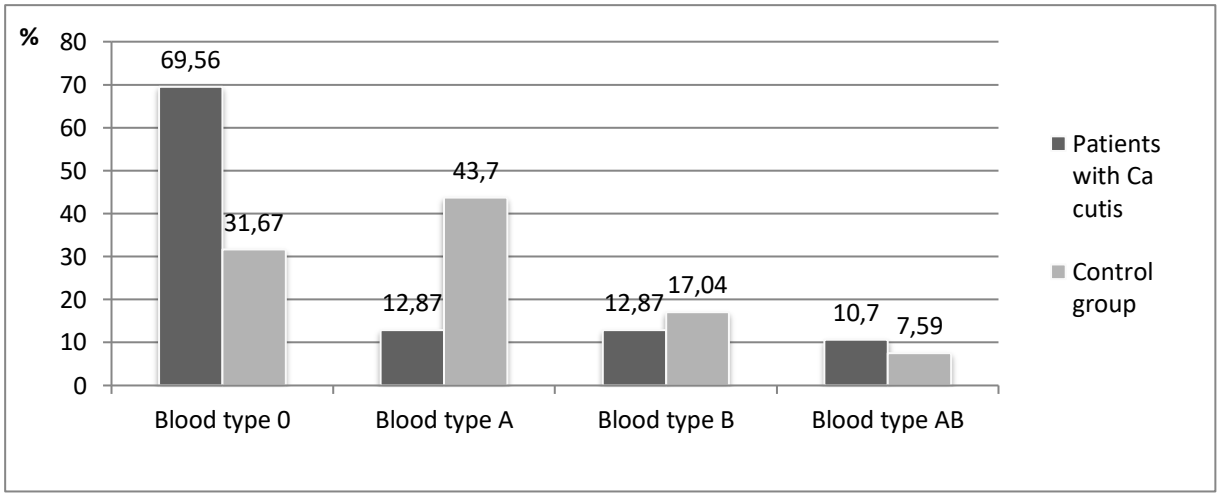

Figure1. Frequency of the blood types from system AB0 in patients with Ca cutis and the control group (%)

Rhesus factor system

In patients with Ca cutis, the following distribution was found for the different types of Rhesus factor - Rh+ - 83,17% and Rh– - 16,83%. In the control group of healthy individuals from the Bulgarian population the values are 84,81% and 15,19% respectively. The comparison showed that the difference between the two groups covered was only 1,61%. Therefore, the positive Rhesus factor in patients was found less frequently, but without significant differences - p> 0.1 (Table 1 and Figure 2).

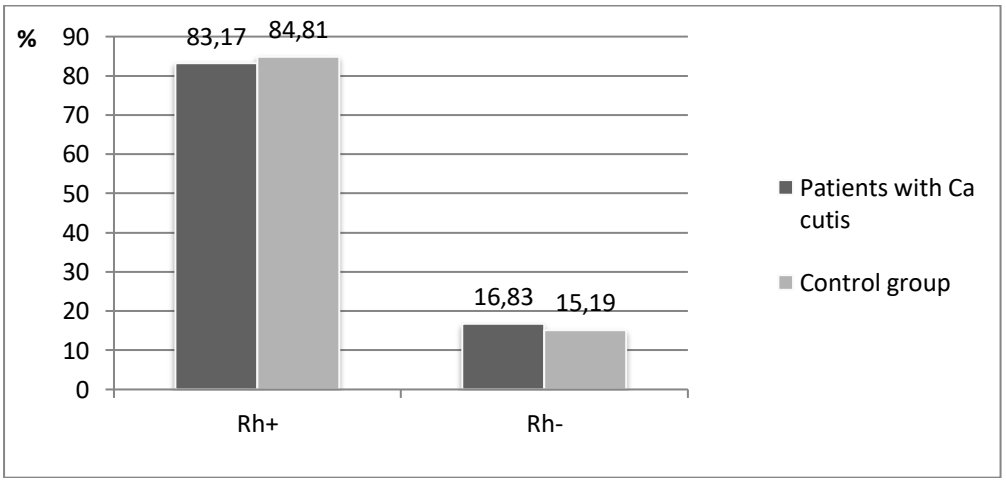

Figure 2. Frequency of the blood types from system Rhesus factor in patients with Ca cutis and the control group (%)

Malignant skin diseases rank first in skin diseases in general [3]. Ca cutis is characterized by a low rate of metastases and low mortality [4]. This cancer is divided into epithelial, mesodermal and melanoma. We have studied the latter

form in our earlier work [1]. Our study covers the basal cell forms and Skin cancer. In terms of distribution, 80% are basocellular and 20% squamous nodular [5].

This cancer is the most common in people worldwide with a tendency to increase after 1960. This increase in total carcinoma is 3-8% and in the basocellular alone - 10% [4].

It is most commonly observed in persons of 60 years of age and over, and has recently appeared in patients who are 45-50 years old [3, 4].

Persons with light skin, blond hair and blue eyes are more predisposed to it [4]. It also occurs in persons working long hours exposed in hot climate areas, such as sailors and farm workers. The occurrence of cancer is mainly in places on the body which are directly exposed to sun radiation, such as the face and the neck.

Ca cutis in patients is much more common in men than in women. Its average distribution in Europe is 18,2 / 100000 for men and 8,3 / 100000 for women [4]. According to Dimitrova et al [6], its frequency in our country is much higher – 65,1 / 100000 in men and 52,4 / 100000 in women. In our study, men accounted for 76,23% of the total sample, and women 23,77%, or 3,7 times more than men.

The risk factors for the onset and development of the disease are the following [3, 4]:

1. Actinic - ultraviolet solar radiation - in 90% of cases [7], X-rays, radio cobalt radiation;
2. Genetic factors - fair skin (white race), hereditary factors, predisposition to skin cancer;
3. Carcinogenic substances in the working environment - arsenic, tar, oil, asphalt, soot, coal;
4. GMO products;
5. Human papillomavirus;
6. Chronic skin lesions, chronic radiodermatitis, atrophic skin, atrophic cicatrix;
7. Benign diseases - xeroderma pigmentozum, albinism, actinic keratosis, solar hyperpigmentosis (freckles);
8. Organ transplantation - especially in Europe, where squamous nodular cancer is 65-200 times more frequent, and basocellular - 10-16 times.

The emergence and development of the disease under the influence of ultraviolet radiation from the sun is due to direct damage to nucleic acids, leading to covalent bonds and, from there, to mutations [4].

Non-myeloid patients are 10% more likely to have other cancers or cancers elsewhere on their bodies.

Macroscopic characteristics [4]:

1. Classical ulcer (ulcus rodeos);
2. Nodular;
3. Sclerodermoform;
4. Suprafacial basal cell carcinoma.

In 10-40% of cases a mixed type of the disease is observed.

Carcinoma basocelularis epithelial (basal cell carcinoma) is characterized by an increase in infiltration and skin destructuring. Most often, in about 80% of cases, it is characterized by a thickening of the skin as large as a lentils grain. It is characterized by telangiectasia and a slightly raised edge in the periphery. There is a slight erosion in the middle. It sometimes develops in depth [3].

The diagnosis is performed by dermatoscopy, cytometrics, biopsy, coherent tomography [3, 8].

The treatment is mainly surgical - in small carcinomas the penetration is 4-5 mm into the healthy tissue, and in large ones - 10-15 mm. Mohs micrographic surgery is most effective, ensuring 99% of cases without recurrence, but it is expensive, and there aren't enough trained surgeons. Radiotherapy is especially effective for diseases of the lips, ear, and nasal vestibulum [3]. Radiation therapy is used as a palliative method.

If necessary and at the discretion of the attending physician, drug therapy can be carried out with appropriate medication.

Relapses in the disease may occur with poorly removed carcinoma.

Prevention consists in hygienic requirements during sun exposure, UV prevention and photographic protection.

It is noteworthy that the carcinomas observed so far with a significant increase in patients with 0 blood group are of ectodermal origin - Melanoma maligna [1], Ca vulvae - $p < 0.05$ [9], and probably Ca renis - $p < 0.001$ [10]. As stated in the present study, the incidence of Ca cutis in Bulgaria, according to Dimitrova et al. [6] is much higher than in Europe [5].

Based on the data from our study of the blood group of patients with Ca cutis, it can be assumed that a statistically significant increase in the incidence of disease in patients with group 0 makes it one of the genetic factors for the onset and development of the disease.

Conclusions:

1. A statistically significant increase in the prevalence of the disease in patients with group 0 ($p < 0.05$) was observed compared to the control group of healthy individuls.

2. It may be assumed that, similar to other carcinoma of epithelial origin, having this blood group is one of the risk factors in the onset and development of the disease.

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The present study is conducted with the financial help of Project № РД-08-104/01.02.2019, fund "Scientific studies" of Konstantin Preslavsky University of Shumen.