



CARCINOMA GLANDULAE PAROTIS AND BLOOD GROUP AFFILIATION

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ABSTRACT: *The current study included 83 patients with Ca glandulae parotis (72 men and 11 women) whose blood group affiliation to the ABO and Rhesus factor systems was monitored. A comparison was made with a control group of healthy individuals from the modern Bulgarian population. The distribution of the blood groups in the sample was different from that of the control group ($p < 0.001$). There was a significant increase in the prevalence of persons with blood group B ($p < 0.001$), and a significant decrease in groups O ($p < 0.001$) and A ($p < 0.05$). In group AB, a slight increase in frequency was detected. With respect to the Rhesus factor, there was an increase in the patients with positive Rhesus factor - by 9.23% to 93.94% ($p < 0.05$). It can be assumed that, among other risk factors, belonging to group B and having a positive Rhesus factor are one of the reasons for the appearance and development of the disease.*

KEY WORDS: *ABO and Rhesus factor systems, Ca glandulae parotis*

Introduction: The probable link between blood type and disease has been the subject of a number of our studies. We believe that some biological factors, often indirectly, might provide conditions for the onset and development of a disease. In some of our studies we traced the blood group affiliation and its link to a number of the digestive system carcinomas: Ca ventriculi, Ca coloni, Ca recti, Ca hepatis and Ca oesophagi. In all of them there is an increase in the patients with blood group A, in some of which the increase is insignificant, while in others it is significant.

Aim of the study: To investigate whether there is a connection between the patients' blood group affiliation to the ABO and Rhesus factor systems, and the appearance and development of Ca glandulae parotis, and whether blood group A is also dominant.

Material and methods: The study included 83 patients with Caglandulaeparotitis (72 men and 11 women). The patients were diagnosed and treated in the oncology department of the 5th City Hospital in Sofia and the National Oncology Center, for the period 1998-2015. The patients' blood group affiliation to the AB0 and Rhesus factor systems was monitored. A comparison was made with the control group of healthy individuals from the modern Bulgarian population [1]. The comparison was made using the χ^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 of AB0 and Rhesus factor systems in patients with Ca glandulae parotis and the control group (%)

Blood types		O	A	B	AB	Rh+	Rh-
Patients with Ca glandulae parotis n 83	n	6	23	44	10	78	5
	%	6,63	27,65	54,21	11,51	93,94	6,06
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 following results were obtained from the study: in group 0 - 6.63%, in group A – 27.65%, group B – 54.21%, and AB group – 11.51%. The distribution of blood groups in patients was significantly different from that of the control group – $p < 0.001$. The comparison of results showed a clear and significant increase in the prevalence of group B (by 37.17% to 54.21%) – $p < 0.001$. In group AB there was a slight increase in the frequency in the patients (by 3.97% to 11.51%). In the other groups there was a significant decrease – in group 0 by 25.04% to 6.63% - $p < 0.001$ and in group A – by 16.05% to 27.65% - $p < 0.05$. The results are presented in Table 1 and Figure 1.

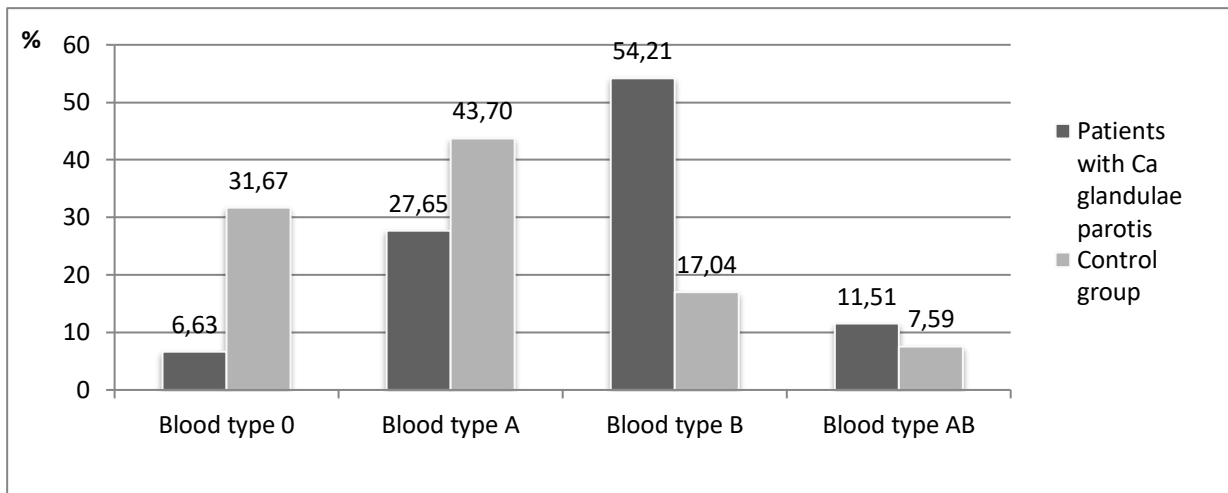


Figure 1. Frequency of the blood types of ABO system in patients with Ca glandulae parotis and the control group (%)

Rhesus factor system

The conducted research showed the following results: for Rh+ - 93.94%, and for Rh- - 6.06%. Compared to the control group, in which Rh + is 84.81% and Rh- - 15.19%, there was an increase in the prevalence of Rh + in the experimental group by 8.71%. The obtained difference is significant - $p < 0.05$. The results are presented in Table 1 and Figure 2.

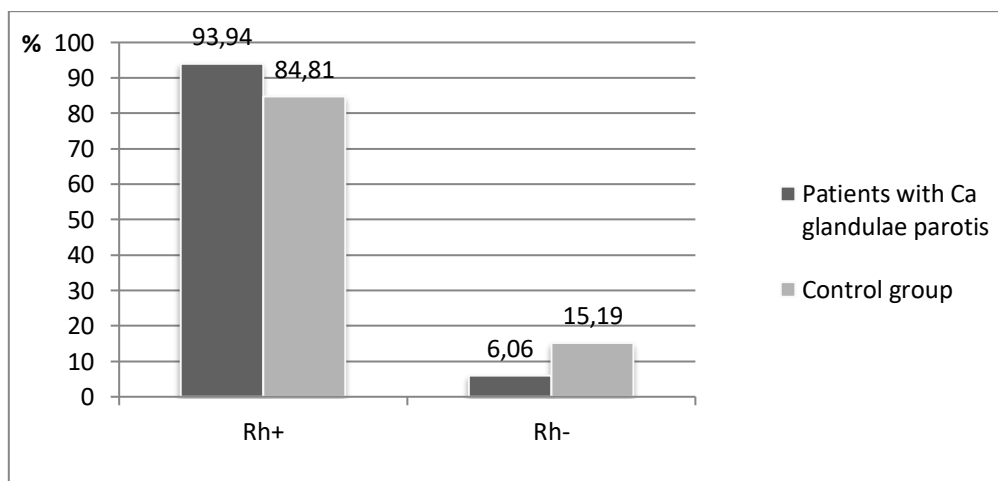


Figure 2. Frequency of the blood types of the Rhesus factor system in patients with Ca glandulae parotis and the control group (%)

Most salivary gland tumors are benign. The cancer we research is one of the rare oncological diseases [2]. In our country its incidence in men is 1.2/100000 and 0.3% of all cancers, while in women it is 0.9/100000 and 0.2% respectively [3]. In our study of Ca glandulae parotis, we found that 86.75% of

the patients were men and 13.25% were women. The disease can occur at any age, but in old age it is most common.

The disease can also affect other salivary glands, but it most often occurs in the parotid gland [2].

Initially, the cancer develops asymptotically, but subsequently the following symptoms might appear:

1. Lack of sensitivity;
2. Swelling (lump or swelling);
3. Muscle weakness;
4. Pain in the gland;
5. Numbness of some parts of the face;
6. Problems with chewing food;
7. Difficulty opening the mouth wider.

Other risk factors for this cancer include the treatment of other cancers, as well as the effects of certain substances in ore processing and car tire production among others.

Diagnosis is made visually, by ultrasound, radiography and biopsy. The treatment is mostly surgical. Careful removal of the neoplasm is required.

There are three stages in the development of this cancer:

I-st stage – also called low level of differentiation. It is slow and has a good prognosis;

II-nd stage – medium level of differentiation –the tumor is visible externally;

III-rd stage – also called high level of differentiation. There is a strong differentiation from normal cells and there is a rapid growth followed by spread of tumors. The outlook for this cancer is not good compared to the previous stages.

So far in our studies we have traced the relationship between blood group affiliation to the ABO and Rh systems and the occurrence and development of the following carcinomas of the digestive system: Ca ventriculi, Ca coloni and Ca recti [4,5], Ca hepatis [4,5], Ca oesophagii [7]. In all of the listed carcinomas there was a certain increase in their prevalence in patients with blood group A. A significant difference was found in Ca hepatis ($p < 0.01$) and Ca oesophagii ($p < 0.05$). A significant increase in the prevalence of Ca glandulae parotis in patients with blood group B was found for the first time in our studies, not only in carcinomas of the digestive system, but also in all malignancies covered so far.

Conclusions:

1. For the first time in the distribution of blood groups of the ABO system there was a significant increase in the prevalence of blood group B ($p < 0.001$) in patients compared to the control group.

2. We assume that belonging to blood group B is one of the genetic factors for the appearance and development of Ca glandulae parotis.

3. Due to the significant increase of the disease in patients with positive Rhesus factor ($p < 0.05$), we assume it is linked with the onset and development of the disease.

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In memory of Dr. Velislav Nikolov Todorov who retired a long time ago but continued to work in the field of anthropology until his last days!

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