

CORRELATIONS BETWEEN BLOOD GROUPS AND INCIDENCE OF CERVICAL CANCER

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Abstract: Current knowledge about cervical cancer and its etiology showed a remarkable development. For many years, the idea that blood groups may have other medical meanings besides the role they play in making transfusion was discredited by scientists.(1) However, the link between the blood groups and the risk of certain diseases has been proven by researchers and epidemiologists.

INTRODUCTION

Oncobiology recent discoveries have shown that there is a correlation between blood type and susceptibility to the occurrence of certain cancers.(2,3) In reality, cancer is a generic name of some diseases based on the deregulation of the process of exaggerated multiplication of “defect” cells. British oncobiologists examined the relationship between blood groups and the statistical probability of the occurrence of various forms of cancer. Oncobiologists practically proved that cancer incidence did not differ according to blood group.(4,5) This was known to anthropology healthcare and medicine, fairly empirically, until there was discovered (yet, partially) the secret of the human genome (genetic map of man), showing the “real truth about the destiny of human health evolution”.(2)

Blood type O_I was found by a recent study that in Iceland, with blood type O_I is predominant, the risk of cancer of the cervix, rectum, skin is extremely high in women. Research has shown statistically that all those who have blood type O_I as well as those in other areas like Chile, the US, Denmark and some regions in Romania (such as Oltenia) has the same risk of uterine cancer and skin.(5,6)

Blood type A_{II} is the most common blood type in Europe, including in Romania (82%) and quite vulnerable to the emergence of many types of cancer. British oncobiologists consider group A the most sensitive type to cancerous diseases, 40% of the Europeans with this group having a higher risk factor.(6,7)

PURPOSE

Although blood type of patients is not a risk factor for the occurrence of cervical cancer, as happens in ovarian cancer, I studied this issue to see whether this hypothesis is confirmed.

Based on these considerations, the purpose of the research was to demonstrate the correlation between blood groups and the incidence of cervical cancer. In order to do this, there was studied the global analysis of casuistry in relation to the blood groups: analysis of casuistry in relation to living conditions (smoking), age groups, origin (urban/rural), educational level, obstetric history and degree of parity.

MATERIALS AND METHODS

The study material of this paper consists of the observation sheets and surgery registers of the Department of

Gynecology within the Clinical County Emergency Hospital of Sibiu, between 1 January 2002 and 31 December 2016 including about 200 patients diagnosed and treated surgically from neoplasm of the cervix during this period.

Statistical analysis of data was performed using the Statistical Program for Social Science (SPSS) version 19.(8) For the descriptive analysis of data we used frequency tables, measures of central tendency and of dispersion and to determine significant differences between groups, there were used statistical parametric and non-parametric tests (binomial test, chi-square test, T test, Kruskal – Wallis test). For data representation, we used Microsoft Excel software.(8)

RESULTS AND DISCUSSIONS

Statistical analysis of data based on this parameter (blood groups) showed the increased share of those with blood type A_{II}, a total of 78 persons representing 39%, followed by group O_I with a number of 65 persons, representing 32.5%, group B_{III} with a total of 34 persons, representing 17% and group AB_{IV} with a total of 23 persons, representing 11.5% of the studied cases. There is a higher incidence of cervical cancer (p <0.05) for blood groups A_{II} and O_I as compared with blood group B_{III} and AB_{IV}, in the patients under study.

The table no. 1 and figure no. 1 show the number and percentage incidence of the operated cases according to blood type.

Table no. 1. Numerical and percentage incidence of the operated cases according to blood types

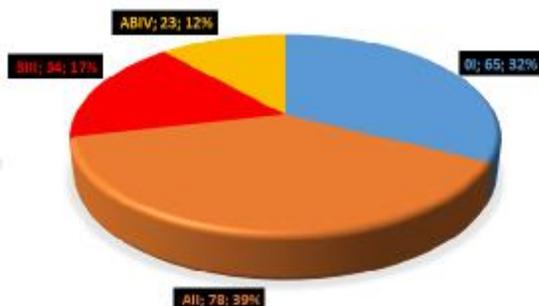
Blood type	Number	Percentage	Statistical significance
Group O _I	65	32.5%	p<0.05
Group A _{II}	78	39%	
Group B _{III}	34	17%	
Group AB _{IV}	23	11.5%	
Total of cases	200	100%	

The analysis of this aspect showed that maximum incidence of cervical cancer was in the patients with blood group A_{II}.

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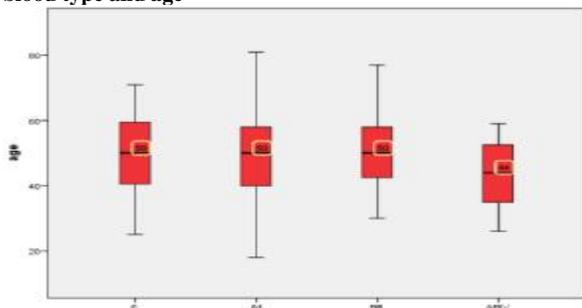
Figure no. 1. Numerical incidence of the operated cases according to blood type



From the distribution of the cases in relation to blood types, we mention the following: for blood group O_I, the youngest patient was 25 years old and the eldest 71 years, with an average of M = 49.65 (SD = 11.97). For blood group A_{II}, the youngest patient was 18 years old and the eldest 81 years, with an average of M = 50.42 (SD = 12.47). For blood group B_{III}, the youngest patient was 30 years old and the eldest 77 years, with an average of M = 50.65 (SD = 12.79). For AB_{IV} blood group, the youngest patient was 26 years old and the oldest 59 years old, with an average of M = 43.25 (SD = 11.03).

All these means between blood groups and age are plotted in figure no. 2. Lower values can be observed for the average age in the blood group AB_{IV} in comparison to other blood groups (Kruskal - Wallis test, chi-square = 0.225, p = 0.386).

Figure no. 2. Distribution of the operated cases according to blood type and age



By analyzing the operated cases according to age groups, it is observed that in the blood group O_I most patients belong to the age groups of 41-45 years, 51-55 years, 61-65 years (14.5%), respectively in the age range 36- 65 years being 80% of patients with this blood type.

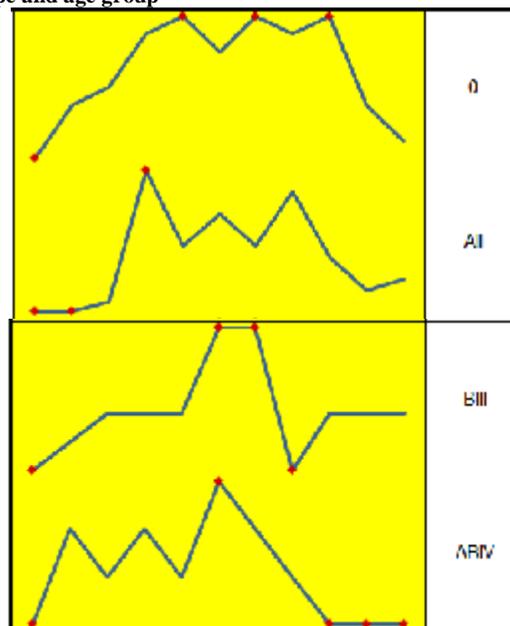
For blood group A_{II} most patients belong in the age group 36-40 years (20.9%), 56-60 years (17.9%) and in the age range 36-60 years, there were 74.6% of patients with this blood type.

For blood group B_{III} most patients belong to the age group 46-50 years, 51-55 years (21.7%) and in the age range 46-55 years there were 43.4% of patients with this blood type.

For blood group AB_{IV} most patients belong to the age groups of 46-50 years (25%), 24-30 years, 36-40 years, 51-55 years (16.7%) and in the age range 24-60 years, there 100% of patients with this blood type.

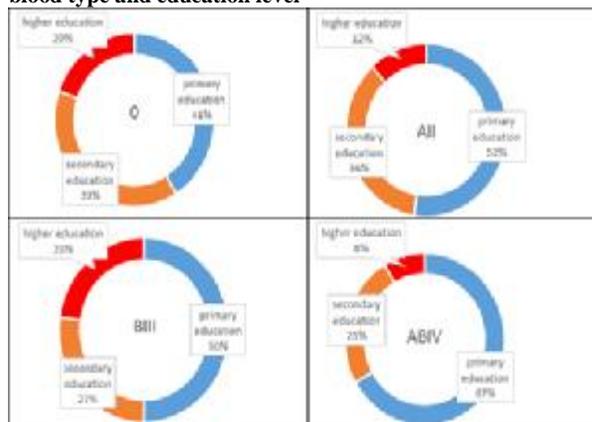
All these results on the distribution of the operated cases according to blood groups and age groups are presented in figure no. 3.

Figure no. 3. Distribution of casuistry according to blood type and age group



Of the total cases of cervical cancer in relation to the blood groups and educational level, we mention that for all blood types, the largest share was recorded in the patients with a basic level of education, so there were 41% of cases for blood type O_I, 52% of cases for group A_{II}, 50% of cases for blood group B_{III} and 67% of cases were registered for blood type AB_{IV}, as shown in figure no. 4.

Figure no. 4. Distribution of operated cases according to blood type and education level



Regarding the distribution of cases of cervical cancer related to the blood groups and area of origin, it is noticed that for blood group O_I, 50.9% of cases were from urban areas and 49.1% from rural areas (p = 0.893).

For blood group A_{II}, a percentage of 61.2% of cases were coming from urban areas and 38.3% from rural areas (p = 0.067).

For the blood type AB_{IV}, a rate of 58.3% were from urban area and 41.7% from rural area (p = .532), while for the blood group B_{III}, 56.5% were from rural areas and 43.5% of cases from urban areas (p = 0.564), as represented in table no. 2.

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Table no. 2. Distribution of cases of cervical cancer according to blood type and origin area

		blood groups				Total
		0	AII	BIII	ABIV	
urban	% area	32,6%	47,7%	11,6%	8,1%	100,0%
	% blood groups	50,8%	81,2%	43,5%	58,3%	54,8%
	% Total	17,8%	28,1%	6,4%	4,5%	54,8%
rural	% area	38,0%	36,6%	18,3%	7,0%	100,0%
	% blood groups	49,1%	38,8%	56,5%	41,7%	45,2%
	% Total	17,2%	16,6%	8,3%	3,2%	46,2%

From the results obtained in the study, based on these two parameters, there is noticed a hierarchy of blood groups in urban areas as: blood group A_{II} with 47.7%, blood group O_I with 32.6%, blood group B_{III} with 11.6% and blood group AB_{IV} with 8.1%, while a hierarchy of blood groups reported in rural areas is as follows: 38% for blood type O_I, 36.6% for blood group A_{II}, 18.3% for blood group B_{III} group and 7% for blood type AB_{IV}.

Regarding the smoker patients, the distribution of the cases according to this parameter was as follows: for blood group O_I, there were 67.3% smoker patients (32.7% non-smokers, p = 0.010), for blood group A_{II}, there were 67.2% smoker patients (32.8% non-smokers, p = 0.005), while for the blood type B_{III}, there were 82.6% smokers (17.4% non-smokers, p = 0.002) and for the blood group AB_{IV}, there were 75% of smokers (25% non-smokers, p = 0.083), as shown in table no. 3.

A hierarchy of blood groups in relation to this parameter is as follows: blood type A_{II} with 40.9% of cases, blood type O_I with 33.6% of cases, blood type B_{III} with 17.3% of cases and blood type AB_{IV} with 8.2% of cases out of the total smoker patients (70.1%).

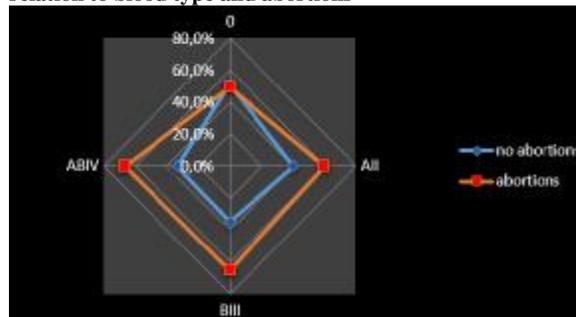
Table no. 3. Distribution of cases of cervical cancer according to blood type and smoking

		blood groups				Total
		0	AII	BIII	ABIV	
non-smokers	% smoke	38,3%	46,8%	8,0%	6,4%	100,0%
	% blood groups	32,7%	32,8%	17,4%	25,0%	28,8%
	% Total	11,0%	14,0%	2,0%	1,9%	29,9%
smokers	% smoke	33,6%	40,9%	17,3%	8,2%	100,0%
	% blood groups	67,3%	67,2%	82,6%	76,0%	70,1%
	% Total	23,6%	28,7%	12,1%	6,7%	70,1%

The number of pregnancies seems to influence the incidence of cervical cancer, too. This can be considered a risk factor both in terms of endocrine changes induced by pregnancy and in terms of the indications we give on the early debut of sexual activity. This was another aspect I aimed at in this study. Therefore, regarding the patients with abortions, for the blood type O_I, there were 49.1% of cases, (50.9% without abortions, p = 0.893), for blood group A_{II}, there were 59.7% (40.3% without abortions, p = 0.112) and for blood group B_{III}, 65.2% (34.8% without abortions, p = 0.144). For the blood group AB_{IV}, there were 66.7% (33.3% without abortions, p = 0.248).

A hierarchy of blood groups in relation to abortions is: the following: blood type II_A, 44.4% cases, blood type O_I, 30% cases, blood group B_{III}, 16.7% cases, blood group AB_{IV} with 8.9% cases of all patients who had a history pathological abortions (53.7%), as shown in figure no. 5.

Figure no. 5. Distribution of cases of cervical cancer in relation to blood type and abortions



From the literature it is known that cervical cancer is particularly found in female patients with a history of multiple births, abortions and "agitated" sexual life. It is known that nulliparous rarely get cervical cancer, and women without sexual life, quite exceptionally.(9,10)

Study results obtained can be considered significant in terms of blood groups as a risk factor, as 39% of the patients under study had blood group A_{II} and 32.5% had blood type O_I, indicating an increased incidence of cancer cervical in those groups, data which corresponds to that in the literature.(11)

Statistical analysis of epidemiological characteristics allows us to outline the most representative profile of patients who presented for surgical treatment of cervical cancer in the Gynecology Clinic within the County Clinical Emergency Hospital of Sibiu.

Table no. 4 shows the profile of cervical cancer patients under study.

Table no. 4. Profile of the patients with cervical cancer under study

Epidemiological characteristic	Profile	%
Age group	46-50	18%
Origin area	Urban	63%
Educational level	Elementary education	48%
Obstetric history	Spontaneous abortions or upon request	86,5%
No. of births	3 births	31,5%
Living conditions	Smokers	70,5%
Blood type	A _{II}	39%

CONCLUSIONS

Increased incidence of cervical cancer in combination with increasing parity was considered to be a reflection of sexual activity and age at first sexual intercourse.

We should note that this study reveals absolutely unsatisfactory aspects that should put on alert public health professionals.

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