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ABSTRACT

In recent years, numerous scientific research papers have focused on the analysis of immunological, biochemical, ultrastructural, molecular and genetic factors that govern the clinical aspects of basal cell carcinomas. This retrospective study was carried out in the Clinical Department of Dermatovenerology at the County Emergency Clinical Hospital "Sf. Apostol Andrei", Constanta. The research included a total of 140 patients treated in the clinic, with a diagnosis of basal cell epithelioma. We analyzed several biochemical and hematological markers including creatinine, male HDL cholesterol, female HDL cholesterol, LDL cholesterol, urea, serum glucose. More than half of patients with BCC present data of possible hepatic impairment and high atherogenic risk.

Keywords: Urea, cholesterol, creatinine, basal cell carcinoma

Introduction

The epithelial organization contains, from the surface to the inside: the epidermis (together with associated annexes, pilosebaceous follicles, and sweat glands), the dermis, separated from the epidermis by the dermo-epidermal junction, and the hypoderm (1). The epidermis is composed of the outermost layers of the skin cells. It is a stratified squamous epithelium consisting of basal and differentiated suprabasal proliferative keratinocytes that act as a major barrier against an intimate environment by preventing pathogens, which makes the skin a natural barrier against infections (2). Human skin protects the body as a barrier to various environmental threats and has to face a huge amount of germs as well as potential pathogens (3). The base substance is made up of macromolecules that fill the space between the fibers and the dermal cells and is more abundant in the papillary dermis and around the cutaneous supplements. It is not visible in normal histological sections. Biochemical consists of glycoproteins and proteoglycans (hyaluronic acid, dermatan sulfate, chondroitin-4-sulfate, fibronectin, tenascin, etc.) that interact with the fibrous and cellular components of the dermis (4).

In recent years, numerous scientific research papers have focused on the analysis

of immunological, biochemical, ultrastructural, molecular and genetic factors that govern the clinical aspects of basal cell carcinomas. Although changes in the lipid profile of patients with basal cell carcinoma (BCC) are still irrelevant (5), this study aims to investigate certain risk factors for the onset of BCC associated with hematological markers that can cause diseases that may favor an increased risk of occurrence of more frequent cancers (6). In addition, the systematic existence of many globular formations at the periphery of the tumor, constituted by an amorphous substance, limits the peripheral extension of the tumor by fitting the junction with the normal skin tissue, which explains their slow evolution in years (7), and might be related to their recurrence (8).

Materials and method

The retrospective study was carried out in the Clinical Department of Dermatovenerology at the County Emergency Clinical Hospital "Sf. ApostolAndrei" in Constanța, between 01.01.2017 - 31.12.2017. The research included 140 patients treated in the clinic with basal cell epitheliomas. We have analyzed several biochemical and haematological markers of which: creatinine, HDL cholesterol, LDL cholesterol, urea serum glucose. The data was added into the database using the Microsoft Access application and the processing was performed using Microsoft Excel. We used the Chi-square test to determine the statistical significance of association between the types of indicators evaluated, and for comparison t test and Anova test, depending on the number of independent variables. The threshold of statistical significance chosen is $p \le 0.05$.

Results

With regard to gender distribution of the analyzed cases, of the 140 cases, 44 (31%) were women and 96 (69%) were males (Table 1). The proportion of men with BCC is higher than that of women and also the fac. It may be caused by their prolonged outdoor activities under UV rays, certain categories (farmers, fishermen) carcinomas significance becomes even occupational disease (9,10). Further, we compared patients based on the environment they are coming from (urban or rural). In this case we observe the fact that 51% of the patients come from rural area. This represents an important environmental aspect, as it differs significantly form the population distribution of the county, where around 70% of the people live in urban areas.

Regarding the age of the patients, most of the patients (27%) belong to the 70 to 79 years age group. The tumor size was less than 1 cm in 35% of the cases, 1 to 2 cm in 40% of the cases, 2-3 cm around 40% and more than 3 cm for 5% of the patients.

		Number	Percentage
Total		140	
Gender	Male	96	69
	Female	44	31
Environment	Urban	69	49
	Rural	71	51
Age Group	<50	20	14
	50-59	27	19
	60-69	27	19
	70-79	38	27
	>80	28	20
Tumor size	<1 cm	49	35
	1-2 cm	56	40
	2-3 cm	28	20
	>3 cm	7	5

Table 1 Distribution of the patients

Table 2 Creatinine

Creatinine		Mean	Standard Deviation	Р
Gender	Male	0.70	0.02	0.52
	Female	0.70	0.02	0.55
Environment	Urban	0.70	0.02	0.26
	Rural	0.70	0.02	0.30
Age Group	<50	0.696	0.027	
	50-59	0.701	0.024	
	60-69	0.697	0.020	0.38
	70-879	0.708	0.033	
	>80	0.703	0.025	
Tumor size	<1 cm	0.703	0.023	
	1-2 cm	0.699	0.026	0.8
	2-3 cm	0.705	0.037	0.8
	>3 cm	0.702	0.020	

We applied t test or Anova to determine the statistical significance of the difference observed for the creatinine level. Mean values and standard

deviation, by subgroup and p values are available in table 2. We observed no statistically significant difference for any of the analyzed variables, such as gender, environment, age group or tumor size.

Applying the test t in Table 3, p = 0.63, the H0 hypothesis is valid, sex has no effect on the urea indicator. For p = 0.48, the environment does not influence the urea indicator. Applying the Anova test in the analysis of age influence on this indicator, the probability p = 0.8 H0 is accepted, so there is no statistically significant influence. Also, the tumor size analysis shows no influence on the urea indicator, p = 0.88.

Urea		Mean	Standard deviation	Р
Canalan	Male	42.41	6.66	0.62
Gender	Female	41.83	6.38	0.05
Environment	Urban	41.98	7.72	0.49
Environment	Rural	42.46	5.85	0.48
	<50	43.14	1.499	
	50-59	42.37	1.261	
Age Group	60-69	42.83	1.239	0.80
	70-79	42.12	1.084	
	>80	41.00	1.269	
Tumor size	<1 cm	42.57	6.702	
	1-2 cm	41.67	6.877	0.00
	2-3 cm	42.63	6.000	0.88
	>3 cm	42.63	6.183	

Table 3 Urea

Figure 1 shows that most urea values do not exceed the normality threshold (84%). However, there is a 16% above this limit.



Figure 1 Analysis of urea indicator

HDL Cholesterol had an average value of 54.4 mg/dl for males and a 53 mg/dl for women. Still, the difference was not statistically significant (p=0.29). (Table 4) In all other comparisons, there was no statistically significant difference

(p=0.91 for environment, p=0.56 for age group, p=0.47 for tumor size).

Table 4	HDL cho	lesterol
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HDL Cholesterol		Mean	Standard deviation	Р
Gender	Male	54.4	7.35	0.20
	Female	53	7.12	0.29
Environment	Urban	53.9	7.61	0.01
	Rural	54	7.02	0.91
Age Group	<50	51.6	6.755	
	50-59	54.3	8.383	
	60-69	55.03	6.888	0.56
	70-79	53.6	6.689	
	>80	54.6	7.789	
Tumor size	<1 cm	54.15	7.376	
	1-2 cm	53.12	7.359	0.47
	2-3 cm	55.66	7.192	0.47
	>3 cm	52.70	6.589	

For LDL Cholesterol, mean values and standard deviation are represented in Table 5. From the analysis of the data, we observed that males have a higher average value (difference not statistically significant, p=0.19), patients from rural and urban environment have approximately the same average values, with a higher dispersion for patients in urban area (difference is not statistically significant, p=0.78). According to age, patients between 60 and 79 years old have the highest values for LDL Cholesterol, but there is no statistically significant difference (p=0.39). Tumor size, even if the values appear to have a higher average value as the tumor size grows, is not influencing the LDL Cholesterol values in a significant way (p=0.51).

Table 5 LDL cholesterol

LDL Cholesterol		Mean	Standard deviation	Р
Gender	Male	124.71	124.71	0.10
	Female	121.33	121.33	0.19
Environment	Urban	123.34	14.84	0.79
	Rural	123.99	13.50	0.78
Ages	<50	121.89	13.37	
	50-59	120.09	15.11	
	60-69	126.12	13.63	0.39
	70-79	126.07	11.33	
	>80	122.68	17.35	a
Tumor size	<1 cm	122.74	13.37	
	1-2 cm	122.48	15.05	0.51
	2-3 cm	127	13.38	0.51
	>3 cm	126	15.92	

What is interesting is that, almost 40% of the female patients have LDL Cholesterol values above the normal limits (Figure 2).



Figure 2 Analysis of the LDL indicator

Discussions

Regarding to male creatinine analysis, it is noted that 43% of patients have values below normal, indicating a glomerular filtration impairment, which may create a relative state of immunodeficiency that may influence the development of cancer (11). In men, 1.5% of the creatine stock is converted daily into creatinine. Food creatine (especially meat) increases creatine and creatinine. Reduction of protein intake decreases creatinine levels by the absence of arginine and glycine amino acids, creatine precursors (12).

Elevated urea levels beyond the normality limit may be due to prerenal causes, such as some mechanisms that work before glomerular filtration. One of these mechanisms is the effect of reducing renal blood flow due to diabetes mellitus or insipid diabetes. In addition, studies have shown that the incidence rate and the risk of developing BCC is significantly increased in adults with diabetes (13). Other causes of elevated values are renal (glomerular, tubular, vascular or intestinal disorders): acute renal failure (glomerulonephritis). Male HDL cholesterol values show a high percentage of 68% above normal. There are 32% of normal values, correlated with elevated LDL cholesterol. indicating a high atherogenic risk (10), confirming other studies showing that although serum LDL cholesterol levels were observed in patients with BCC, there is still no statistically

significant difference between patients and healthy individuals (14).

Cholesterol distribution in females shows that 59% of patients with BCC have possible hepatic impairment and high atherogenic risk factor.

A study of patients with different malignancies showed that total lipid, cholesterol and HDL cholesterol levels were inversely associated with the incidence of cancer (15). In women, HDL cholesterol values show a percentage of normal values of 41%. And the values below the normality range are high (39%) and the values above the normality threshold are 20%. Thus, 59% of patients with CBC have hepatic impairment and high atherogenic risk factor.

Conclusions

Basel-cell epitheliomas are slow-growing tumors, usually non-metastatic but invasive. It develops from the primitive germ cells of the skin epithelium and especially of the skin annexes.

Regarding the male creatinine indicator, 49% of the patients show normal values, and 51% of patients have values below normal.

The urea indicator shows that most values do not exceed the normality threshold (84%), but 16% of the patients exceed the normality limit due to pre-renal causes.

For male cholesterol analysis the values do not show values below normal, but show a high percentage of 68% of values above normal values. There are 32% of normal values, correlated with elevated LDL cholesterol. The present study shows the non-correlation between this indicator and the basal cell carcinoma dimensions.

HDL cholesterol values show a percentage of normal values of 41%. The values below the normality range are high (39%) and the values above the normality threshold are 20%. In conclusion, 59% of patients with BCC have hepatic impairment and high atherogenic risk factor.

Regarding the LDL indicator, LDL cholesterol is found to be between 59% normal values and below these values in only 2%. Above the limits of normality is 39%.

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