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STATISTICAL DIFFERENCIES BETWEEN URBAN AND RURAL AREAS FOR PATIENTS PROFILE WHO WERE DIAGNOSED WITH CHRONIC AND ACUTE URTICARIA IN BIHOR COUNTY, ROMANIA

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Abstract

The attempt to identify patterns related to social and economical environment impact on chronic and acute urticaria incidence, could deliver misleading results taking into consideration only administrative criteria as they are collected by the actual registration system. Moreover, population mobility, even for short period of time (ex. on a daily basis) is an additional factor for a bias and unreliable results.

Age intervals, averages and gender as well, have been proved both statistically significant for different scenari, but in pair. Adjustment on data based on real local condition, but administrative rules, proves for different conclusions and by default, different approaches on setting for preventive measures related to urticaria pathology.

A deeper investigation for each patient with urticaria, such as working condition, education level, involvement in farming activitie, habits in daily nutrition, could provide better accuracy and thus detailed understanding on how environment impacts urticarias prevalence.

Key words: urticaria, gender, environmental, urban, rural, social.

INTRODUCTION

Within the last years, many researchers tried to identified correlations between acute or chronic urticaria and environmental conditions even we think on climate features or social and economical one. Some searching direction was to prouve, if possible, a link with patients age and acute urticaria prevalence, someone between ethnic features and the same urticaria condition.

According with one of the last research taken place in Norwich (UK) and Heraklion (Creta, Greece), temperature was identified as a an statistical significant factor for acute urticaria prevalence among childhood. Instead humidity has not been identified as a significant factor, as the authors stated "the statistically significant effect of relative humidity varied" (Konstantinou BN et al, 2011).

From other point of view, prevalence of acute urticaria is different if we take into consideration the very first moment of symptomatic signs occured among urticaria suspected presence among patients. That measn

according those studies that “the incidence of the different types of urticaria differs considerably at the different levels of medical care. This may be due to the fact that the patients are reffered to a specialist or to a clinic only when the diagnosis or treatment is problematic”. (Paul E, KD Greilich, 1991)

Another survey focused on some behavior / environmental factors such as drugs, infections, strees and foods. According with this, drugs, stress and food accounted for about 80% of cases. As a matter of fact “attack duration was shorter in cases in which food (p=0.04) or infection (p=0,04) was the suspected trigger”. (Comert S, et al, 2013)

Based on an wide spread survey, in which were included 5003 cases, the prevalence of chronic urticaria was higher for women comparing with men (OR=3,82; 95% confidence interval: 1,56-9,37). According with the same survey, “in 8,7% of cases chronic urticaria lasts from one to 5 years and in 11,3%, for more than 5 years. The average age of onset is 40 years.” (Gaig P et al, 2004)

As far as gender distribution is concerned, some surveys conducted between 1990 and 1997 indicated that “women accounted for 69% of all patient visits, but an equal gender distribution was observed in patients 18 years of age and younger.” (Henderson RL Jr, et al 2000)

There is also differences between regions as far as prevalence of subtypes of urticaria. In Japan “among 146 patients with chronic urticaria, 90 (61,6%) were complicated by other types of urticaria; 59(40,4%) by factitia, 29(19,9%) by angioedema, and 12(8,2%) by other types of urticaria. (Tanaka T. et al, 2006)

Within a ten-year follow-up chronic urticaria survey, the authors conclude that “infection were diagnosed in 29% of patients, autoimmune diseases in 21%, primary immunodeficiences in 4% and chronic myeloid leukaemia in 1%” (Dionigi PC et al, 2016)

Some other authors have tried to develop urticaria control test UCT and as a result they put in place “a 4-item UCT with a recall period of 4 weeks was developed based on 25 potential UCT items tested in 508 patients with chronic urticaria” (Weller K, et al, 2014)

A Canadian perspective showed us that chronic spontaneous urticaria, (CSU)” cause significant morbidity and to have a negative impact on all aspects of a patient’s life, including work, school, social activities, diet and sleep” (Gordon S., et al, 2015).

As far as patients behavior is concerned, a wide results have been posted by researchers. In one of those surveys, which has taken place among Indian students, the authors reveled that ”More than 90% of the students with cholinergic urticaria stated that they had never sought medical advice

for this condition. Two out of 25 students had chronic spontaneous urticaria." (Kiran G. et al, 2013)

AIM

This study has two aims. The first is to analyze the prevalence of urticaria from all patients with dermatological illnesses. The second is to see how the socio-economic backgroud, age and gender of the patients influences their willingness to attend a consultation with a dermatologist, in the case of hives sufferers. The last one objective which is by far the most important has also another intimate aim, respectively to provide relevant information about bias induced by administrative categories for living area and the real ones.

MATERIAL AND METHOD

All patients visiting two dermatology surgeries, exhibiting urticaria, have been analysed and included into survey database.

The two surgeries were located in different economic and socio-cultural backgrounds, first one located in a well-developed urban -Oradea- area with a stable population of cca. 230,000 inhabitants, and the second one located in an area that based on its administrative practices is cathegorised as urban -Valea lui Mihai- , but with rural real status according with its population of 10,000 people and social conditions i.e. access to utilities, pollution levels, work force development, school attendance etc.

Both surgeries received patients from urban and rural backgrounds. Data on age, gender, home address and work type were gathered for 42 patients. The structure among those 42 patients is based on 15 male gender and 27 female as well. As far as the number fo patients among this two dermatology offices is concerned, 26 have been analyzed in Oradea and 16 in Valea lui Mihai. Another structure of database has consisted in age categories as it are shown on Figure 1.

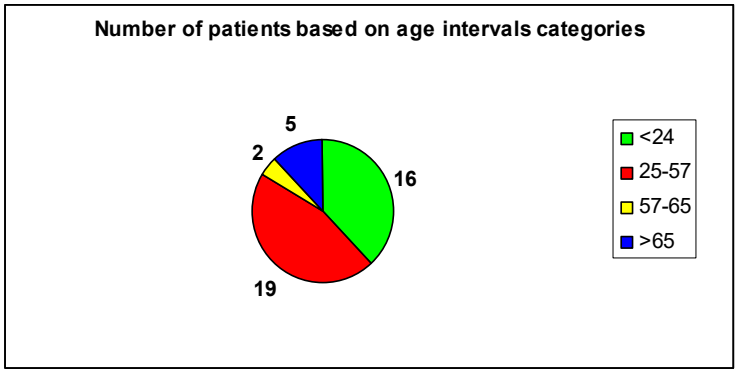

Fig.1 Patients distribution based on age intervals

RESULTS AND DISCUSSION

42 patients with acute and chronic hives were enrolled in this study. Amongst all patients with dermatological illnessed, 3.47% were suffering from hives.

Clinical investigations show 64% acute urticaria, 18% chronic urticaria caused by infections (bacterial or parasite induced), 13% urticaria with atopy and only 2 (two) patients with alergic urticaria to cow milk (5).

Gender distribution shows a higher turn up level for women than for men for both rural and urban surgeries, that is 64.28% vs. 35.72%.

From statistical point of view we have different figures when we split the patients into two groups based on living area, respectively administrative considerations criteria and real social and economic environment. The two group of data are shown in Table 1.

Table 1

Gender distribution									
Administrative considerations					Real environment considerations				
	Urban Gender		Rural Gender			Urban Gender		Rural Gender	
Age	M	F	M	F	**Age**	M	F	M	F
<24	3	5	4	4	<24	2	4	5	5
25-57	3	9	2	5	25-57	1	7	4	7
57-65	2	0	0	0	57-65	0	0	0	2
>65	1	3	0	1	>65	1	3	0	1
Total	**9**	**17**	**6**	**10**	***Total***	**4**	**14**	**9**	**15**

Our analysis does not indicate any statistically significant (P-value=0.42) differences in the turn up rate based on gender type for rural vs. urban backgroud. Age distribution shows that the average age for patients attending consultations was higher in the urban background than in the rural area: 28.2 years old for rural and 38.3 years old for urban. This difference in average age is statistically significant (P-value=0.07).

When we take into consideration a new distribution (right side of Table 1) that is strictly based on socio-economic conditions and background and not on administrative status, the new results show us that as far as the gender distribution is concerned, more women (as % of both men & women) in the urban area attended consultations than in rural area. This result is statistically significant (P-value=0.05). All abovementioned data are summarised in Table 2.

Tabel 2

	Gender distribution (Urban versus Rural)	*P-Value*	**Age** average (Urban versus Rural)	*P-Value*
Classification of "Urban / Rural", based on administrative criteria	**NO** There are no differences from statistical point of view.	**0.42**	**YES** There are differences from statistical point of view.	**0.07**
Classification of "Urban / Rural", based on actual social-economic conditions	**YES** There are differences from statistical point of view.	**0.05**	**NO** There are no differences from statistical point of view.	**0.24**

If we take into consideration age intervals, but average, data are more different based on criteria that split areas between Urban and Rural. The ANOVA analysis indicates, as it shown in Table 3, that for administrative criteria, the differencies between age intervals are quite semnificativ from statistical point of view and for living areas criteria data is very close to 0.05 limit for P-value.

The other set of data, which take into consideration real social and economical criteria, eliminate semnificancy related to differencies between Urban and Rural environment, but still keep the same situation for age intervals differences (quite close to 0.05 critical P-value).

Tabel. 3

ANOVA	Administrative criteria					
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Rows	102,5	3	34,16667	15,76923	0,024275	9,276628
Columns	12,5	1	12,5	5,769231	0,095709	10,12796
Error	6,5	3	2,166667			
Total	121,5	7				
ANOVA	Real social and economical criteria					
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Rows	102,5	3	34,1667	7,0690	0,0712	9,2766
Columns	4,5	1	4,5000	0,9310	0,4058	10,1280
Error	14,5	3	4,8333			
Total	121,5	7				

CONCLUSIONS

1. The demographic profile of patients suffering from hives, regardless of its types or causes, must be adjusted according with real social and economical environment.
2. An unclear definition of what constitutes an urban and rural space and a missplacement of patients into these categories can lead to unconclusive or erroneous results, age ranges distribution and gender as well being sensitive to enumerative statistic results.

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