Endemic pemphigus foliaceus: social and demographical characteristics and incidence in the microregions of Goias, based on patients seen at the Tropical Diseases Hospital, Goiania – Goias*

*Pênfigo foliáceo endêmico: características sociodemográficas e incidência nas microrregiões do estado de Goiás, baseadas em estudo de pacientes atendidos no Hospital de Doenças Tropicais, Goiânia, GO**

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Abstract: BACKGROUND: Endemic pemphigus foliaceus is an autoimmune, cutaneous and bullous disease, most incident in the Midwest of Brazil and with a lower incidence in some South-American countries. Although its autoimune character has been demonstrated by the presence of autoantibodies and by the importance of genetic predisposition, the environmental factors that trigger the disease have not been clearly established yet.
OBJECTIVES: to know the distribution of the disease in the State of Goias, and its social and demographic characteristics.
CASUISTRY AND METHODS: two hundred and ten patient records with an established diagnosis from the period between 1996 and 2001 were analyzed. Demographical information was correlated with the State population, and the incidence of the disease was determined for each of its microregions.
RESULTS: a higher incidence of the disease was observed in the rural areas, among patients in the third decade of life, with a slight familiar occurrence and with no gender preference. The largest contingent (74.3%) of patients came from the State of Goiás, and the greatest incidences occurred in the microregions of Anicuns, Chapada dos Veadeiros, Rio Vermelho, Vale do Rio dos Bois, Iporá e Aragarças.
CONCLUSIONS: there was a prevalence of the disease in the third decade of life and in those individuals who lived or worked in rural areas. Disease concentration areas were detected, through calculation of an incidence coefficient, in some of the microregions, especially in the central area of the state of Goiás. Further research is necessary to clarify the reasons for this ecological concentration.
Keywords: Autoimmune diseases; Endemic diseases; Pemphigus/epidemiology

Resumo: *FUNDAMENTO – O pênfigo foliáceo endêmico é doença auto-imune, cutânea, bolhosa, com incidência maior na região Centro-Oeste do Brasil e menor em alguns países sul-americanos. Embora tenha sido demonstrado seu caráter auto-imune pela presença de auto-anticorpos e a importância da predisposição genética, não estão ainda claramente estabelecidos os fatores ambientais intervenientes.*
OBJETIVOS – Conhecer as características sociodemográficas da doença, bem como sua distribuição no Estado de Goiás.
CASUÍSTICA E MÉTODOS – Foram analisados 210 prontuários com diagnóstico estabelecido no período de1996 a 2001. As informações demográficas foram correlacionadas com as da população do estado, e a incidência da doença, determinada em cada uma de suas microrregiões.
RESULTADOS – Maior incidência da doença na terceira década e na zona rural, leve ocorrência familiar e sem predileção por sexo. O maior contingente (74,3%) de pacientes foi do Estado de Goiás, e a maior incidência, nas microrregiões de Anicuns, Chapada dos Veadeiros, Rio Vermelho, Vale do Rio dos Bois, Iporá e Aragarças.
CONCLUSÕES – Houve predomínio da doença na terceira década e naqueles com domicílio ou atividade na zona rural. Foram detectadas, pelo cálculo do coeficiente de incidência, áreas de concentração da doença em algumas microrregiões, principalmente na zona central do Estado de Goiás. Novas pesquisas são necessárias para esclarecer as causas dessa concentração ecológica.
Palavras-chave: Doenças auto-imunes; Doenças endêmicas; Pênfigo/epidemiologia

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INTRODUCTION

The word pemphigus refers to a group of diseases of cutaneous and occasionally mucosal affection, which have as a common feature the presence of intraepithelial acantholytic bullae.[1,2]

Pemphigus Foliaceus is considered to be a chronic autoimmune disease that is endemic in some regions of the world.[1-4] It has two very distinct clinical forms: Cazenave's Pemphigus and Endemic Pemphigus Foliaceus (EPF), or wild fire. Both have the same clinical picture, histological and immunological basis, being distinguished only by epidemiological aspects.[5] Even though it sometimes occurs in children, Cazenave's Pemphigus usually manifests from the fourth decade on and does not exhibit an endemical character.[1,2,6]

EPF predominantly occurs in young adults and adolescents who live in the vicinity of rivers and creeks, in rural areas and some indigenous tribes, with no predilection for gender or race.[1,2,6-9] The literature refers to familiar occurrence as one of its features, and recent work demonstrates that cases are genetically related in the majority of instances.[1,2,10,11]

EPF has been sporadically described in various other countries throughout the American Continent - from Mexico to northern Argentina, especially in Paraguai, Bolivia, Peru and Venezuela - and in some tropical areas in the African Continent, such as Tunisia.[2,12]

In the Brazilian territory, it occurs in regions located between 45º and 60º longitude West and between 5º and 25º latitude south, in heights ranging from 500 to 800 meters, with rare occurrence below 400 meters, reaching peak incidence in Distrito Federal and in the states of Goiás, Mato Grosso do Sul, Mato Grosso, Tocantins, Minas Gerais, Paraná e São Paulo.[2,5] Initially, the disease was known as South American Pemphigus Foliaceus and Brazilian Pemphigus Foliaceus. From the end of the 1980s on, it has been called Endemic Pemphigus Foliaceus, a name the reflects more accurately its main distinguishing feature, namely, endemicity.[2,5,10,13,14]

The first record of EPF in Brazil dates back to 1903, made by Paes Leme. In the year of 1912 new cases coming from Minas Gerais and the northeast of São Paulo were reported. In the 1930s, the number of cases increased significantly in São Paulo. From the 1940s onwards, the endemics spread to the west and southwest of São Paulo, passed its borders and, in the 1950s, reached Goias and Mato Grosso, and, a little later, northern Paraná. Goiás and Mato Grosso have become the densest foci of EPF, making the Brazilian Central-Western region the one with the highest incidence, after the demise of the endemics in São Paulo and Minas Gerais.[2,13-15] Except for these large foci, the number of registered cases in the other states, such as Pará, Amazonas and Rio de Janeiro is of little significance.[2]

Hence, the epidemiological history of EPF in Brazil shows an ascension followed by decline in some regions, which coincided with their exploration and occupation. The state of Rondônia is an exception to this history, for reasons not fully understood. Nowadays, there seems to be a stabilization of the endemics in restricted areas remnant of the big foci.[2]

The present study has the goal of reviewing EPF behavior in Goiás in its demographical aspects, seeking the identification of areas with the highest concentrations of the disease, by means of the calculation of its incidence in the state's microregions, based on a series of cases.

METHODS

The study was carried out the Hospital de Doenças Tropicais/Anuar Auad (HDT/AA) in Goiânia, GO, which is a tertiary health care unit part of the Unified Health System (Sistema Único de Saúde - SUS), and works as a regional reference center for infectocontagious diseases and EPF.

That unit currently operates with a total of 120 beds, Intensive Care Units (ICU) for both adult and children, 13 outpatient clinics, not to mention support laboratory and radiology service.[16]

Patients referred because of diagnosis of EPF are seen in the ambulatory, regardless of scheduling. Once the diagnosis is confirmed, they are medicated in the hospital and are hospitalized when necessary, receiving daily follow-up by dermatologists and dermatology residents.

The chosen type of study was series of cases that included all 210 patients that were diagnosed with EPF between 1996 and 2001, and who were seen at HDT/AA.

Disease incidence in the state's microregions was calculated by determining the number of cases per 100 thousand inhabitants, according to place of residence or work by the time of disease onset and to demographical data of the Statistic Annals of the State of Goiás/1996.[17] Statistical significance was assessed with the adherence X^2 test.[18]

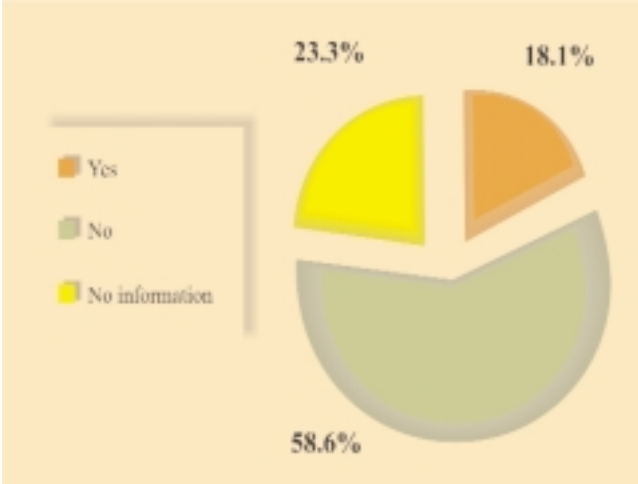
Fox-Pro, Epi-Info 2000 and Excel were the softwares used for data storage, processing and analysis.

RESULTS

As seen in Graph 1, 210 new cases of EPF were seen at HDT/AA, in the period going from 1996 to 2001, and that yearly incidence was practically stable, albeit with a slight increase in 1997.

Graphs 2 and 3 respectively represent frequen-

GRAPH 1: Endemic Pemphigus Foliaceus: yearly case distribution (HDT/AA - GO, 1996-2001)



GRAPH 2: Endemic Pemphigus Foliaceus: distribution of patients according to familiar occurrence (HDT/AA - GO, 1996-2001)

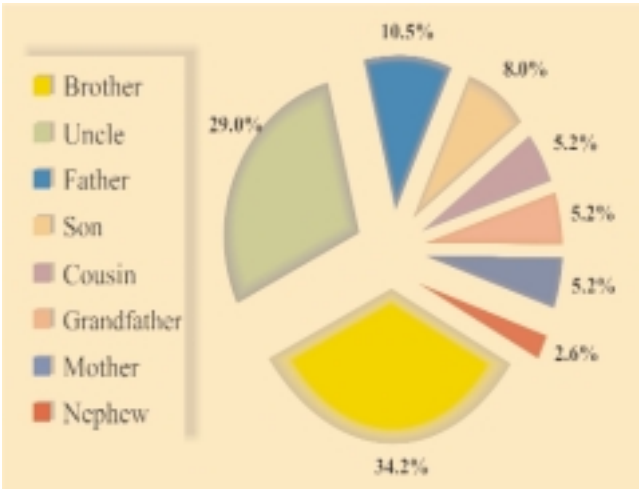
cy and situation of family occurrence, showing family occurrence in 18.1% of the cases, with a predominance of cases among siblings and parents' siblings.

Depicted in Graph 4 is the fact that the majority of patients lived in the State of Goiás.

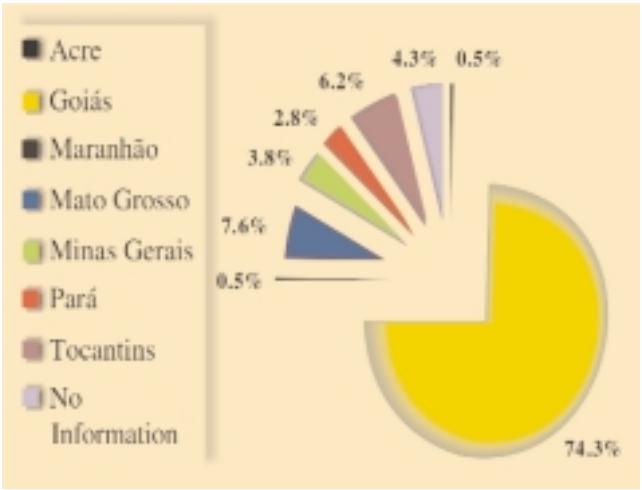
Table 1 shows that the disease is rare during childhood, but it has a higher incidence from adolescence on (with a slight predominance in the third decade) and in rural environment (residence or work), with no significant difference between genders.

According to table 2, the majority of patients lived in the microregions of Goiânia (18,6%), Anicuns (11,6%), Anápolis (10,9%), the outskirts of Brasília (10,2%) and Rio Vermelho (9,6%) at the moment they were seen by a physician. Disease incidence coefficient for these microregions was greater than the percentage of patients only in Anicuns and Rio Vermelho, a fact also observed in other microregions, mainly in Chapada dos Veadeiros, Vale do Rio dos Bois, Iporá and Aragarças.

Figure 1, a map of the state of Goiás, shows that the incidence coefficient ranged from 1 to 17.8/100 thousand inhabitants in the various microregions, and it is greater than 16/100 thousand inhabitants in Rio Vermelho and Anicuns; between 10 and 16/100 thousand inhabitants in Chapada dos Veadeiros; and between 3.5 and 10/100 thousand inhabitants in the microregions of Vale do Rio dos Bois, Iporá and Aragarças. In the others, the incidence coefficient was below 3.5/100 thousand inhabitants, except for São Miguel do Araguaia, which had no cases at all.



GRAPH 3: Endemic Pemphigus Foliaceus: distribution according to kinship (HDT/AA - GO, 1996-2001)



GRAPH 4: Endemic Pemphigus Foliaceus: distribution of patients' place of residence, according to place of origin (HDT/AA - GO, 1996-2001)

DISCUSSION

Since HDT/AA is a statewide reference center for EPF, it would be feasible to admit that most patients in the State of Goiás are referred there. Thus,

TABLE 1: Endemic Pemphigus Foliaceus: distribution of patients according to demographical data at disease onset in relation to state population (HDT/AA - GO, 1996-2001)

Variables	Frequency	% patients	Incidence*	X^2
Age (years)				
0 a 9	6	2.8	0.7	
10 a 19	49	23.4	5.2	
20 a 29	56	26.7	6.9	
30 a 39	34	16.2	5.2	
40 a 49	29	13.8	6.3	
50	36	17.1	6.4	
Gender				
Female	118	56.2	5.4	$p > 0,05$
Male	92	43.8	4.2	
Residence/Professional activity				
Rural	90	42,9	8.6	$p < 0,05$
Urban	115	54.7	3.5	
No information	5	2.4		

*Coefficient per 100 thousand inhabitants, according to analyzed variables.

TABLE 2: Endemic Pemphigus Foliaceus: distribution of patients and incidence coefficient in the state microregions (HDT/AA - GO, 1996-2001)

Place	Frequency	% patients	Incidence *
Microregions			
1. São Miguel do Araguaia	0	–	–
2. Rio Vermelho	15	9.6	16.4
3. Aragarças	2	1.3	3.6
4. Porangatu	9	5.7	3.9
5. Chapada dos Veadeiros	6	3.8	11.4
6. Ceres	8	5.1	3.8
7. Anápolis	17	10.9	3.9
8. Iporá	3	2	4.7
9. Anicuns	18	11.6	17.8
10. Goiânia	29	18.6	1.9
11. Vão do Paranã	3	2	3.4
12. Entorno de Brasília	16	10.2	2.5
13. Sudoeste de Goiás	7	4.5	2.6
14. Vale do Rio dos Bois	5	3.2	5.1
15. Meia Ponte	10	6.4	3.4
16. Pires do Rio	3	2	3.7
17. Catalão	4	2.5	3.6
18. Quirinópolis	1	0.6	1.1

* Coefficient per 100 thousand inhabitants.

the present casuistry may be considered representative of a demographical approach of this disease in the state.[16]

From 1996 to 2001, 210 new cases of EPF were registred at HDT/AA, with a practically stable yearly incidence.[17]

Even though a few cases have happened in childhood years, the majority of them occurred from the adolescence on, with a slight peak in young adults (third decade), which agrees with the literature.[1,2,6,11,13]

As to gender (populational basis), although the disease incidence coefficient is a little higher for females, the X^2 test yielded $p > 0,05$, thus discarding a statistically significant difference,[18] also in agreement with the literature, which reports no gender prevalence.[1,2,5,13]

FIGURE 1: Endemic pemphigus foliaceus: distribution of incidence coefficient of the disease in the State's microregions (HDT/AA – GO, 1996-2001)

As for professional activity and residence place at onset of disease, the incidence coefficient was higher for those who lived or carried out their professional activities in the rural environment. This is a significant finding, for the X^2 test revealed $p < 0,05$.[18] Hence, these data confirm a higher incidence of EPF in the rural environment, as already described in the literature.[1,2,6,11,13]

Skin color frequency displayed a little predominance of non-white (54.8%) - brown, black, indian - over white (45.2%), even though consulted literature describes non-occurrence of color predilection.[1,2,5,11,13] A familiar pattern of occurrence was positive in 18.1% of patients and higher among siblings. The issue of familiar composition, although not highlighted in the consulted literature, was included in the study because of the possibility of exposure of relatives to the same risk factors. However, calculation of incidence coefficient for familiar composition, degree of kinship and skin color was not possible because of unavailability of this information about the state population.

The majority of patients came from the State of Goiás. Out of its 18 microregions, only one - São Miguel do Araguaia - had no cases of EPF, a datum that shows a widespread distribution of the disease in the state. The microregion of Goiânia was the one with the largest number of affected persons. However, notwithstanding the fact that it holds one-third of the population of Goiás, it contributed a little over one- fifth of all cases. On the other hand, the microregions of Anicuns, Rio Vermelho, Chapada dos Veadeiros, Vale do Rio dos Bois, Iporá and Aragarças, which contributed 31.5% of the cases, together represent a mere 10.5% of the state population, thus evidencing a higher disease concentration in these microregions. Calculation of disease incidence coefficient per microregions reveals higher coefficients for central-western than for southern or northern areas.

As to patients coming from other states, the largest contingent was Mato Grosso, also part of the Central-Western region of Brazil.[2,8,9,15]

CONCLUSION

Similarly to what has already been observed, the present study shows that the incidence of EPF with respect to age range was practically homogenous from the adolescence onwards, with a slight enhancement in the third decade.

No significant differences were observed for gender.

The correlation of residence or place of professional activity of patients with the populational composition of the state, in relation to these variables, confirmed higher incidence in rural areas.

The disease exhibits wide and varied distribution in Goiás and, in spite of the larger number of patients in the central microregions of the state, calculation of the incidence coefficient showed a clear ecological concentration only the microregions of Anicuns, Rio Vermelho, Vale do Rio dos Bois, Iporá and Aragarças, located in the central-western region of the state, a fact also observed in Chapada dos Veadeiros, located in the north, data that demand further study on the determining reasons for this phenomenon. ❑

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