
Aspecte epidemiologice privind hidatidoza umană în județul Cluj pe o perioadă de 18 ani (1991-2008)

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ABSTRACT

Using time analysis of the disease over a period of 18 years (1991-2008) the paper points out the importance of hydatidosis as a public health problem in Cluj county, Romania. During this period a number of 735 new surgical confirmed cases were registered. Average multiannual incidence consisted of 5.7 cases in 100.000 inhabitants, and it was more elevated in rural environment (10.3 in 100.000) and adults (6 in 100.000) and had approximately the same value in women (5.8 in 100.000) and men (5.7 in 100.000). If we would ignore 4 years (1996-1999) in which incidence values are maximum, the tendency line would be linear regarding endemic situation (in population categories and environment). The fact that this disease is diagnosed in children (even in a low level) indicates that it is maintaining in population and is a proof for recent transmission of the parasite in territory.

Cuvinte cheie: hydatidosis, echinococcosis, epidemiology.

Introduction

Hydatidosis is a zoonosis caused by the larval stage of *E. granulosus*. This parasitosis may develop asymptomatic or as a severe disease in individuals, often fatal (Eckert, 2002). It is known that hydatidosis is a zoonosis that affects Romania too, our country being situated at the border line of the great international area in which echinococcosis is endemic, the basin of the Mediterranean Sea (Eckert et al., 2002). This is the reason why we have intended to observe the development of the human hydatid disease in time, in an 18-year period (1991-2008), to characterize its distribution depending on different categories of people and on the area of Cluj county.

Materials and methods

As working material we used the surgical cases from the Surgery clinics of Cluj-Napoca, in an 18-year period (1991-2008). The cases were taken into consideration once, at the time of the first surgical intervention. The hospital documents from which we selected data were the admission books, the surgery protocols, the medical charts, the DRGs. The information taken from these documents referred to: name, sex, age, residence at the level of the village, of the parish, of the city and of the county.

For the statistical processing of data we calculated the incidence, the trend line or the tendency straight line, the \( \chi^2 \) test.

Results and discussions

In Cluj county, during the studied period, we pointed out 735 cases of hydatid cyst, which underwent surgical intervention. In these cases the presence of the larval stage determined the apparition of some symptoms. The use of the data from the surgical services in order to measure the incidence of the parasite in individuals, even if they reflect only a part of the parasitic cases, is recommended by OMS (Palmer, 1987). By carrying out a simple analysis of the 735 discovered cases, we may observe that, at a higher rate, they came from the rural environment (57.15%), females (51.56%) and adults (81.63%).
In order to evaluate more exactly what these cases represent for the population from which they proceed, and to determine the dispersion of the parasite among the population, we calculated the morbidity rate per 100,000 inhabitants. The average morbidity rate in an 18-year period is 5.7 cases per 100,000 inhabitants, value that reflects the geographical area in which we are situated (Fig. 1). It is situated between the low parasitic level of the northern Europe, which is less affected by this zoonosis, and the hyperendemic southern Europe, where morbidity rates exceed the value of 10 cases per 100,000 inhabitants (Eckert, 1995, 1997; Todorov, 1999).

By comparing the average multiannual morbidity rates from the urban environment – 3.6‰ and the rural environment – 10.3‰, we find out obvious differences between the frequencies of the parasite in the two environments. Our data regarding the priority affect of the rural population underlines the well-known fact that the higher incidence is given by the rural population (Romig, 2006; Seimenis, 2003).

Depending on sexes, the average multiannual rate is similar, slightly higher in females (5.8‰) than in males (5.7‰). The F:M sex rate of hydatidosis cases (379:356) of 1.06 is a relatively equal rate with the general population sex rate (6,534,483:6,245,614) of 1.04. If we apply the $\chi^2$ test with Yate’s correction, we get $\chi^2 = 0.65$, fact that corresponds to “p”>0.01, which proves the fact that between the two sexes there is not a significant difference in what regards the symptoms of the disease, even if most of the statistics mention a higher frequency of the parasitosis in males than in females (WHO, 2003).

By comparing the morbidity rates depending on adults and children we observe that these are higher in adults (6‰) than in children (4.6‰) in the studied period. Most of the authors show that the maximum frequency of the parasite is at the active age, between 20 and 60 years (Gherman, 1986b; Lupașcu and Panaitescu, 1968).

The incidence varies in time, reaching a maximum level during 1996-1999. The slight descendant evolution line does not explain a decrease of the disease cases, and if there were not the 4 culminating points, it will became linear, which is characteristic to endemcity. The parasite is present in all categories of population each year and is maintained in the area during 1991-2008.
By comparing the morbidity rates depending on source environments and years, we observe that the rates are higher in the rural environment during all these years. The high values in the rural environment during 1996-1999 are a reflection of the infections produced before 1989, when, on the background of complex social-economic modifications, the number of home-slaughtering in private farms increased and the sanitary-veterinary assistance was precarious. The evolution tendency depending on environments is slightly increased in rural environment than in urban environment, where the tendency of the disease is linear because the same risk factors are maintained in time (Fig. 3).

The average morbidity for the two sexes is almost the same and the fact that the trend line is slightly ascendant for females in comparison with males, shows the fact that the females represented a category of risk during the studied period (Fig. 4).

It is difficult to give appreciation of this distribution, which may depend on more factors involved in the epidemic process or may be accidental (Todorov, 1999).
By comparing the morbidity rates in adults and children during the studied period, it results that the rates are higher in adults than in children (Fig. 5). The linear evolution in adults explains older infections in adults under the circumstances in which the hydatidosis has a slow evolution in time and is discovered late. The fact that the disease is found in children even at a low level shows that it is maintained in the population and is the proof of the recent transmission of the parasite. The high descendant evolution in children shows the reduction of the infection risk under the circumstance of social-economic changes: ageing of adult population in the rural environment, more advanced and controlled hygienic and sanitary conditions, decrease of home-slaughtering in private farms, buying food for animals from pet-shops.

The presence of the parasite in children and adolescents in this area is the eloquent proof that the transmission of the cestoda is produced active and recently, unlike the hydatid disease in adults, which may be considered a chronic infection with slow evolution.

**Figure 4.** Distribution and evolution tendency depending on sexes

**Figure 5.** Incidence and disease tendency in adults and children
Conclusions

1. Cluj county is situated among the endemic areas, with a multiannual average rate of 5.7 cases per 100,000 inhabitants, with variation of the annual incidence between 3.9 o/oooo minimum (1991) and 9.5 o/oooo maximum.

2. During 1991-2008 hydatidosis was slightly descendant in Cluj county, but the presence of the parasite in each of the 18 studied years shows the fact that the cestoda is maintained in this area. It is worth to notice the fact that if there were not the 4 culminating points during 1996-1999, the trend line would be almost linear, the incidence rate in 1991 (3.9 %000) being similar to the rate in 2008 (4.04 %000), fact that shows the endemicity.

3. The dynamics of the social-economic conditions determines modifications of the infection risk (depending on source environments, on sexes, on age categories), underlined by the evolution tendency of the disease.

4. Hydatidosis still remains an uncontrollable zoonosis in our area, and for this reason common surveillance programs of human and veterinary medicine are needed.

REZUMAT
Prin analiza în timp a bolii pe o perioadă de 18 ani (1991-2008), lucrarea scoate în evidența importanța hidatidozei ca problemă de sănătate publică în județul Cluj, România. În această perioadă au fost înregistrate un număr de 735 cazuri noi de hidatidoză confirmată chirurgical. Incidența medie multianuală a fost de 5,7 cazuri la 100.000 locuitori, mai ridicată în mediul rural (10,3 la 100.000) și la adulți (6 la 100.000) și aproximativ aceeași la femei (5,8 la 100.000) și bărbați (5,7 la 100.000). Dacă am ignora cei patru ani (1996-1999) în care valorile incidenței sunt maxime atât per totalul anilor cât și la categoriile de populație (femei, masculi, rural, urban), linia de tendință ar fi liniară ceea ce caracterizează situația de endemicitate. Faptul că boala este întâlnită la copii chiar și la un nivel scăzut, denotă că boala se menține în populație și este dovada transmiterii recente a parazitului în teritoriu.

Cuvinte cheie: hidatidosis, echinococcosis, epidemiology

Reference


