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Particularities Regarding the Evolution of Trichinosis in Constanta County

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ABSTRACT

Abstract: Meat is a staple food for a large part of the population and excessive consumption is often done, with serious repercussions on health. But there are situations where even the occasional meat intake can affect the health of the population, if the products have not been verified for sanitary standards. Trichinosis is an example for this situation. Romania has a significant number of cases compared to other European countries. In Constanta County trichinosis incidence is increasing continuously in 2009-2013. Considering these data we can say that prevention and control measures are not sufficient for this pathology.

Keywords: meat, trichinosis, prevention

Introduction

Meat is a staple food for a large part of the population. It is beneficial to the body by intake of high quality protein, B complex vitamins and several minerals. Unfortunately, excessive consumption is often done, with serious repercussions on health.

But there are also situations where even the occasional meat intake can affect the health of the population, if the products have not been verified for sanitary standards. Trichinosis is an example for this situation.

Therefore, in this study we have proposed an evaluation of cases diagnosed in Constanta County in the context that in recent years Romania was ranked first in Europe to this pathology.

Material and methods

The study included a group of 27 patients diagnosed with trichinosis, hospitalized in the Clinical Infectious Diseases Hospital of Constanta in 2009-

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2014. Data were taken from the patients' record files.

As a method of analysis we calculated the proportions for each parameter investigated.

Results

In the period 2009-2014 in Constanta County were 27 cases of trichinosis and in Romania were registered 1325 cases.

At country level the incidence of trichinosis is decreasing in 2009-2011, from 1.70‰ to 0.66‰, followed by an oscillatory evolution with significant growth in 2014 at 1.61‰ [1].

In Constanta County trichinosis incidence is increasing continuously from 0.4‰ in 2009 to a triple value of 1.24‰ in 2013 (figure 1). Surprisingly in 2014 such cases have not been diagnosed.

Figure 1– Incidence trends for trichinosis in Constanta County and at national level

Studying morbidity by season we found that in Constanta County more than half of cases were diagnosed in the first days of January. The rest of cases occurred in June, August and October (figure 2).

Of the 27 cases of trichinosis recorded in 2009-2014, 16 representing 59.25% of the total number were in urban areas and 11 representing 40.75% of the total were from rural areas.

Evaluating the cases after the age of patients we found that most, 22 in number, affect the people

15-60 years old, 3 appear at elderly and 2 cases appear at children aged 5-14 years.

Figure 2 – The proportion of cases in Constanta County depending on the time of occurrence

At national level we have the same tendency: trichinosis predominantly affects adults.

In Constanta County no cases of trichinosis were reported in children 0-4 years. However pediatricians do not recommend pork products in the diet of children less than 3 years of age. But practice shows that not all parents take this into account.

Unfortunately at national level trichinosis was diagnosed also in the age group 0-4 years.

Figure 3 – The proportion of cases in Constanta County divided by age groups

Distribution of cases by sex does not show a

major difference between male and female subjects.

Analyzing the clinical records of the patients we found that the predominant clinical manifestations were myalgia, fever and diarrhea (figure 4).

Figure 4 - The proportion of cases in Constanta County depending on clinical manifestations

For the assessment of the laboratory data we analyzed the number of white blood cells (WBC), eosinophils and the values of muscle enzymes.

Of all patients with trichinosis 14 had a high number of WBCs, with a maximum of 23300 per microliter (μL).

Increased values of eosinophils were registered in 26 cases. The values of eosinophilia ranged between 15 and 67%. Eosinophilia is a diagnostic criterion even in asymptomatic cases of an outbreak if it is proved the consumption of meat.

For the assessment of muscle enzymes were made tests for creatine kinase (CK) and lactate dehydrogenase (LDH). In this study, high values of CK were recorded at 10 patients, 11 patients had normal values and in 6 cases, no samples were taken for this determination. For women the maximum value of CK was 1970 U/L and for men 822 U/L.

In the case of LDH, laboratory tests have been carried out for a small number of patients (only 4) and for each determination were recorded elevated levels. The maximum value recorded for women was 803 U/L, while for men it was 358U/L.

In Figure 5 we centralized data about the study group structure based on the laboratory test results. By analyzing the chart we can see that eosinophilia, leukocytosis and high values of CK were the main elements for paraclinical diagnosis.

While all patients in the study experienced myalgia, less than half of them had elevated levels of muscle enzymes.

Figure 5 - The proportion of cases in Constanta County depending on laboratory data

Certainly other medical tests were made but these were not decisive for the final diagnosis of patients from this study. For example: ELISA immunoassay tests and examination of cerebrospinal fluid (CSF).

ELISA tests for determining IgG antibodies were made at 18 of the 27 cases of trichinosis, but only 7 samples had elevated levels. Negative results occur frequently in the early stages of the disease, so the test should be repeated after 2-4 weeks [2].

For this study CSF examination was performed only in 4 cases. Every time the cerebrospinal fluid was clear, with negative Pandy reaction.

The treatment of our patients included: anti-parasitic, anti-inflammatory and hepatoprotective drugs plus hydro-electrolytic rebalancing. Against *Trichinella spiralis* was used Albendazole in doses of 400-800mg/day depending on each case. Duration of therapy ranged from 7 to 14 days depending on the severity of the disease.

Under treatment the clinical course of patients was favorable in all cases of trichinosis. The hospitalization period of these patients was between 4 and 15 days.

Discussions

Regarding the incidence of trichinosis in Romania we find that initially there is a downward trend and then appears a near doubling of cases from 2013 to 2014.

In Constanta County the evolution of disease is in reverse: the trend is upward until 2013, and in 2014 there were no cases of trichinosis.

In the same period at the European level the incidence of trichinosis has a downward trend, the incidence rates are around of 0.06‰, but in 2009 there was a peak of 0.15‰ [1].

Romania continues to report a significant number of cases compared to other European countries. Moreover, the statistics of European Centre for Disease Prevention and Control show that in recent years Romania was ranked first among European countries, and in 2012 half of the cases of trichinosis in Europe were recorded in our country. Considering these data we can say that prevention and control measures are not sufficient for this pathology.

Analyzing the Figure 2 we see that there is a seasonal disease incidence: approximately 60% of cases occur in winter, 26% occur in summer and 15% in autumn. The same pattern exists at national level, the most affected months being December and January.

Predominant occurrence of cases during cold weather is generated by popular tradition associated with the winter holidays when are consumed especially products based on pork. This distribution of cases existing at local and national level demonstrates that some people ignore the recommendations of the experts and risk their health by consuming meat without trichinelloscopic examination.

The fact that most cases of trichinosis occurred in urban areas may be a consequence of transport and consumption of meat and meat products away from the place of slaughter. But sometimes patients had consumed meat in the countryside, in a family environment, and the symptoms appeared after returning from travel. It should not be excluded the fact that sometimes rural patients, who have mild

disease, refuse to go to the doctor, so there may be cases unrecorded.

No matter where the patients come from, the cases of trichinosis have occurred due to consumption of raw or undercooked meat, which has not been checked by trichinelloscopy. This feature also exists at national level.

Most products that have been implicated in pathology of this study were based on pork. Statistics show that in Romania and in other European countries the disease also appeared after eating game meat, especially wild boar [3].

Conclusions

Considering the economic and social implications of this pathology and the fact that in recent years Romania was ranked first among European countries in regard to the incidence of trichinosis, it requires more preventive measures involving both children and adults.

In addition, these measures are necessary because specialists consider that are many mild forms, clinically inapparent, undiagnosed, so the real number of illnesses may be much higher than reported.

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