Bulletin of the *Transilvania* University of Braşov
Series VI: Medical Sciences • Vol. 4 (53) No. 1 - 2011

# A CLINICAL AND EPIDEMIOLOGICAL PROSPECTIVE STUDY OF HUMAN TRICHINOSIS OF PATIENTS HOSPITALIZED DURING 2004-2010 AT INFECTIOUS DISEASES HOSPITAL OF BRASOV

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***Abstract:*** *A major parasitic zonooses, trichinosis, is characterized by a variable clinical evolution whose manifestations of human can go from inaparence forms to severe clinical forms. Clinical manifestations such as high fever, accompanied by headache which may persist for several days is something unusual for a helmintiazis; diffuse or generalized myalgia, common to the eye, appear during movement and palpation and are absent at rest; edema, orbital and facial frequently, as myalgia, can occur simultaneously with fever; they grow quickly during the 1 to 5 days and are maintained for 1-2 weeks in benign and moderate forms. In severe forms disease larvae can invade the brain, the lung, the kidney, with the appearance of clinical signs of suffering from these organs.*

***Key words:*** *trichinellosis, myalgia, fever, edema, myocarditis.*

## 1. Introduction

Trichinosis, this dangerous parazitozoonosis continues today with more victims.

Although it seems that trivial disease, undiscovered, undiagnosed and untreated can lead to death. Although in the last 10 years there was a downward trend of incidence of trichinosis,Romania is in one of the first places among incidents recorded in EU countries [2], [4].

Trichinosis has become a zoonosis spoken increasingly not only in professional circles but also in the media. Due to lack of health education and lack of information regarding clinical manifestations this parasitic disease causes permanent human population is exposed to the danger of disease [1], [3].

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## 2. Objectives

Clinical and epidemiological criteria of the studied cases are: sex, age, source of infection, membership of the outbreak, the incubation period, the period of hospitalization ,clinical disease forms, appearance of the triad : myalgia- edema – fever and complications.

## 3. Material and Methods

To achieve statistical evaluation it was performed a prospective study of a group of 52 cases of trichinosis admitted during December 2004 - February 2010 of Infectious Diseases Hospital of Brasov, as follows:

*Distribution on years in the studied group of cases of trichinosis* Table1

| **year** | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|
| **Cases** | 7 | 20 | 2 | 1 | 18 | 4 |

On the survey, in 2010 there was no case hospitalized

Source data of the study are hospitalized patients and epidemiological data recorded on admission but over the course of the case report forms. We considered all cases regardless of the clinical form, of which 47 cases were at adults and 5 children cases.

Were not taken into study patients nothospitalized, most people suspected to have consumed possible contaminated meat with threadworm, who had only outpatient prophylaxis.

## 4. Results and Discussion

Of epidemiologically analysis of gender distribution of the number of cases of illness in the studied group showed a relatively balanced damage. Percentage of involvement of men (52%) being slightly higher than of women (48%), as shown in Fig. 1.

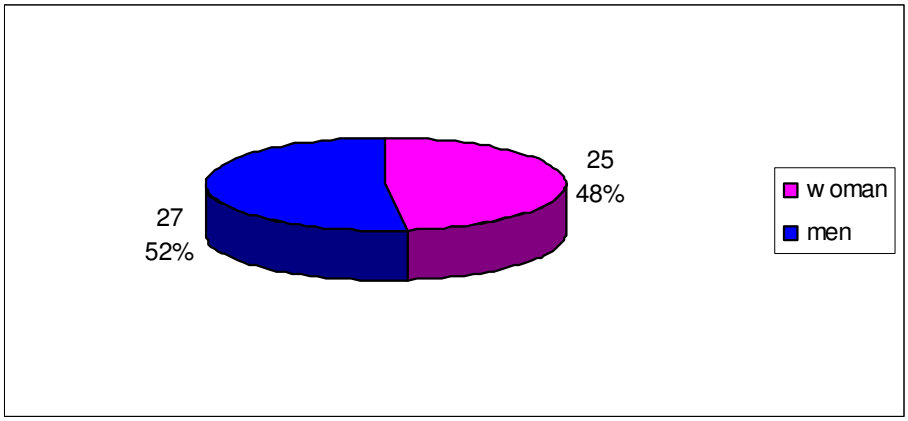


Fig. 1. *Gender distribution of cases of trichinosis in the studied group*

As regards distribution by age group studied cases of damage shows a fairly balanced group 25 -34 years, 35- 44 years and 45-54 years, each 24%, 21% and 17%, while extreme ages are less affected.

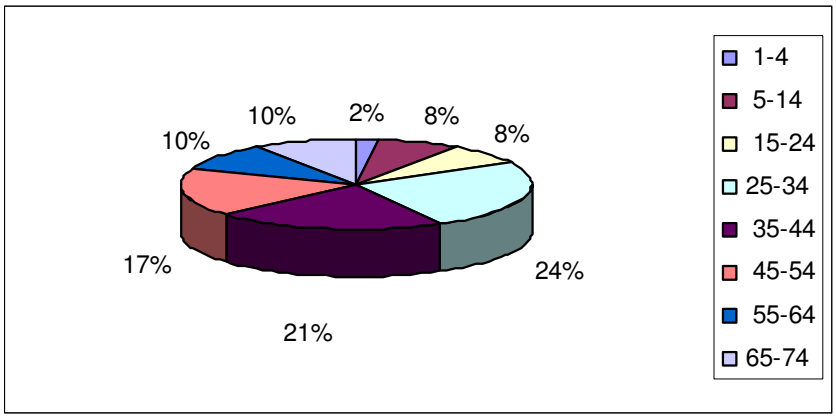


Fig. 2. *Distribution of cases by age*

In terms of source of infection all the 52 patients said they had consumed pork from their own households or knowledge. Most insufficiently cooked meat consumed (86%) while only 10% ate meat products and 4% raw meat.

In all cases there has been made the trichinoscopic control of meat.

The study shows that 96% of cases come from family outbreaks while only 4% are isolated which shows the evolution of the character of the disease outbreak.

Say that the 50 cases in the study belong to five family outbreaks. Incubation, calculated as the period of consumption of infected meat time and the onset of symptoms, was in most cases within two weeks (28 cases with incubation for about 1 week and 23 cases two weeks).

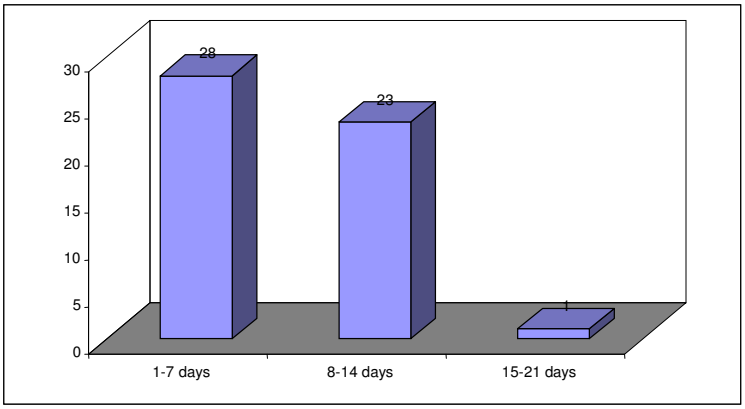


Fig. 3. *Distribution of cases according to the incubation period*

The study results show that depending on length of stay, most patients requiring hospitalization of about two weeks (18 cases), a week 15 cases, 3 weeks 11 cases and 4 weeks 6 cases.

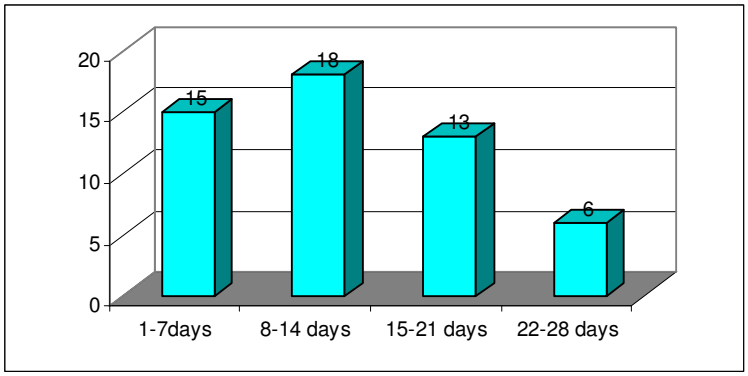


Fig. 4. *Distribution of cases by period of hospitalization*

## 5. Clinical Criteria

Clinical forms of disease:

Mild forms of trichinosis (27%) are the cases with milder symptoms and requiring only short periods of hospitalization. It appears that the largest share media forms have disease (58%) , having complications usually mild, reversible heal without sequelae.

Severe forms representing 15% of all cases studied raises more special care and medical supervision, having regard to complications arising from which the patient can remain with sequels.

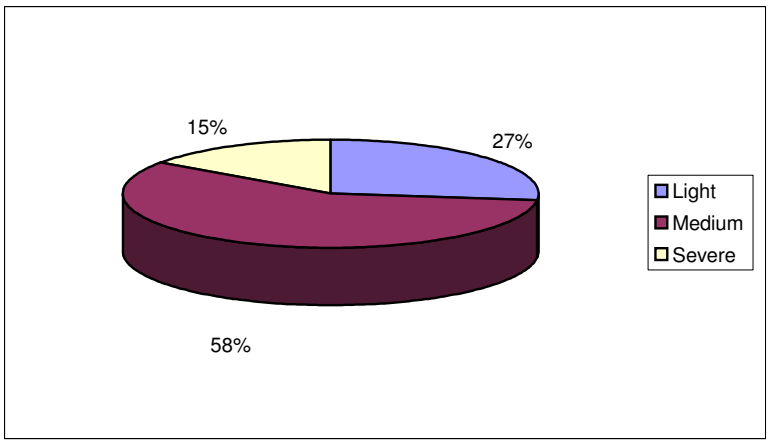


Fig. 5. *Distribution of cases according to clinical form*

Analyzing the group studied we found that these symptoms occur in most cases, regardless of clinical forms of disease.

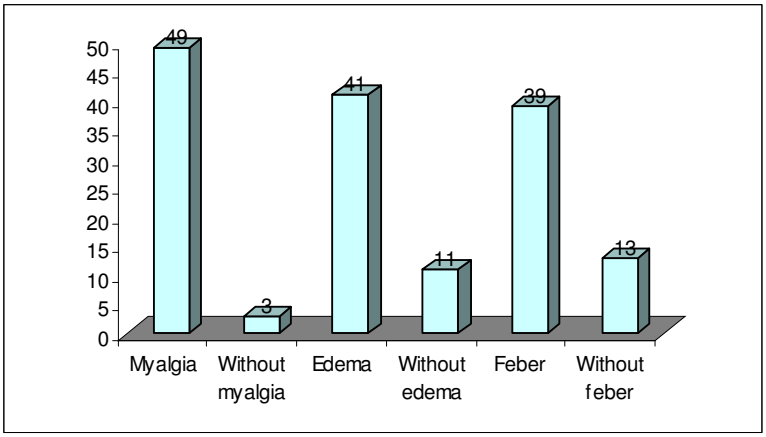


Fig.6. *The frequency of triad myalgia-edema- fever*

Myalgia accompanied by a swelling of muscle mass , painful contractions, loss of function, occur in 94% of patients being the most common symptom, correlated with the pathophysiological processes that occur in muscle.

They occur in mild forms of disease such as moderate polimyalgia, and in the media forms, that it is accompanied by severe physical fatigue, difficulties in walking, breathing, chewing, swallowing and speaking.

They are more common in the combination is often eye of photophobia and nystagmus, cervical muscles, masseter muscles, the legs and lumbar region.

Myalgia are absent at rest, occurs during movement and palpation of the muscles. Edema were present at a rate of 79% of all patients, favorite location is at the face (periorbital) in media forms, while severe infections were present in other parts of the body (legs, upper). Myalgia may occur simultaneously with fever. Swellings appear and grow rapidly during the 1 to 5 days and lasts for 1- 2 weeks of moderate and benign forms.

There is a concordance between the severity of edema and serum protein values change, first appearing as a result of hipoproteinemia with hypoalbuminaemia. While of the 30 cases of media forms found only 7 cases with low total proteins, at severe forms (8 cases) it was present hypoproteinaemia in all cases of disease.

There was a heat rise seen in all clinical forms of disease, noting that persistence was prolonged febrile syndrome in medium and severe forms. Fever may persist for several days, something unusual for a parasitic disease. Monitoring the dynamics of febrile showed an evolution, the most common aspect remittent, sometimes continuous or intermittent, with or without chills.

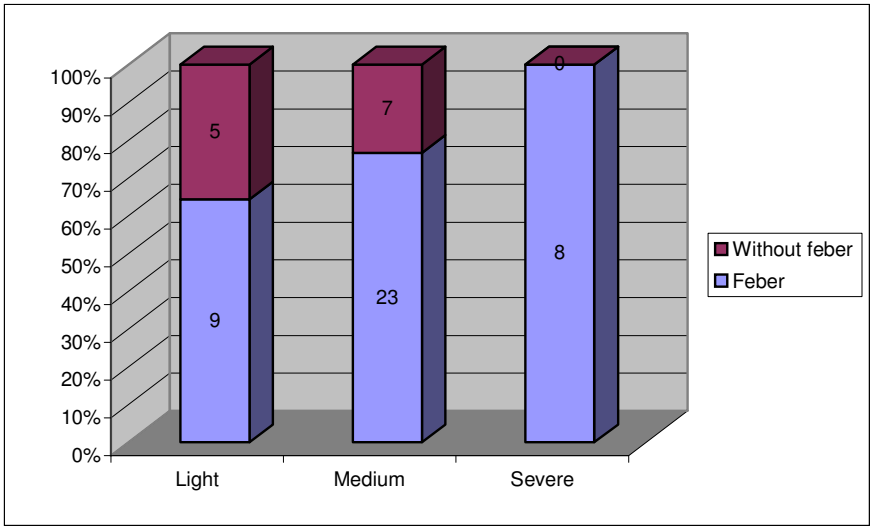


Fig. 7. *Frequency of fever according to the clinical form of disease*

Can occur: urticarial rash scarlatiniform, petechiae, maculopapular or papular rubeoliforme, subunghiale bleeding, conjunctivitis, subconjunctival hemorrhages, chemozis.

Analyzing the clinical forms of disease severity is found that is given by complications arising in the disease [5].

In severe forms, respectively severe disease, larvae can invade the brain, lung, heart, kidney,with the appearance of clinical signs of suffering from these organs [1].

Larval brain cause nonspecific disorders neuropsychiatric as: intense headache, apathy, drowsiness, agitation, delirium, mental confusion, convulsions, meningism, diminish reflexes, even coma. As a result of lung damage, respiratory manifestations may occur, patients presenting asmatiforma bouts of breathlessness, cough with blood in sputum, bronchial rales [3].

Because of presence of larvae in the myocardium and allergic disease of capilars, the course of the disease can occur myocarditis, but not before week 4 of the disease, which can result in tachycardia, soft heart sounds, arrhythmias, murmurs, hypotension, nonspecific ECG changes .

Other clinical manifestations that may occur are phlebitis, thrombophlebitis, periarterithis, liver suffering- increased enzymes in serum; glomerulonephritis, systemic vasculitis [4].

Thus, the average forms of the disease in the 30 patients, a total of 9 complications were as follows:

- Lungs: acute bronchitis (3 cases);
- -Liver: hepatitis in trichinosis (4 cases);
- -Heart: sinus tachycardia (1 case);
- -Dermatologic: skin erruptions (1 case);

In 8 cases of severe form the main complication reported in trichinosis was myocarditis confirmed by clinical examination and by echocardiographic examination, ECG that route changes (tachyarrhythmias 6 cases, hipoBP 2 cases, 1 case hiperBP, atrial extrasystoles 4 cases, 1 case of T-wave flattening).

In association with trichinosis myocarditis 8 patients have complications:

- Liver: hepatitis in trichinosis (4 cases);
- Eye chemozis (4 cases), conjunctival hemorrhages (1 case)
- Lungs: spastic bronchitis (1 case)
- Neuro psychiatric: headache, dizziness, drowsiness (2 cases).

*Distribution of type of complications in severe forms of disease* Table 2

| | |
|---|---|
| Heart+hepatic+ocular | 2 |
| Heart +pulmonary | 1 |
| Heart+ hepatic+neuro-psychiatric | 2 |
| Heart +ocular | 3 |

## 5. Conclusions

**A**.Regarding the epidemiological criteria can be said that during the five years included in the statistical study (December 2004 – February 2010), annually and epidemiological outbreaks have been circumscribed by familial character, that show the evolution of the outbreak of the disease.

Responsiveness to the disease was general meeting at both sexes in similary proportions and all age groups, excepting the incidence of extreme age groups that was much lower compared with the incidence at adults.

Maximum incidence of disease is noted for consumption of meat in winter holidays, coming in pig killing of their household and in all cases proved to be insufficiently cooked and not subject to veterinary inspection before being consumed.

Depending on the disease and associated complications, patients required different periods of hospitalization, duration in most cases ranging from 8 to 14 days.

**B**. It prevailed the medium clinical forms of disease, along with the severe forms, fewer in number and characterized by a more pronounced symptoms and complications.

The symptoms that make up the triad: fever- myalgia- edema , were present in all clinical forms of disease, differing only in intensity and duration is based on the clinical form.

Clinical forms of disease severity was defined by the disease complications.

Thus patients diagnosed with trichinosis myocarditis have been involved in severe disease and is considered the most important complication.

Complications of liver, lungs, eyes it met in medium forms and in severe forms of disease, associated with heart disease.

**Aknowledgement**

This work was cofinanced from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/89/1.5/S/63258 ”Postdoctoral school for zootechnical biodiversity and food biotechnology based on the eco-economy and the bio-economy required by eco-sano-genesys.

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