

Overview of hydatidoses in albania and assessment of risk factors

Abstract

Introduction: Echinococcosis (Hydatidosis), this neglected iceberg, cosmopolitan zoonotic disease has a problematic character and affect more than one million people. The infection is transmitted through ingestion of parasite eggs or through direct contact with definitive animal hosts.¹⁻⁴ The clinically diagnosed cases from imaging techniques, serologic assays and surgeon treatment, are only a small part visualized of the total number of infected people. The other invisible part of this disease is: health, social and economic consequences of the affected patients. Echinococcosis is often expensive and complicated to treat, and may require extensive surgery and/or prolonged drug therapy.^{5,6} Prevention programmes involve deworming of dogs,⁷ improved slaughterhouse hygiene, and public education campaigns.⁹⁻¹¹

Aim: This retrospective study aims at displaying a detailed picture of Echinococcosis situation assessing correlation with socio-economic conditions in Albania population. The epidemiologic data were collected from the individual case-report schedule for endemic control of zoonosis referring the person-place-time triad. During five years period (2009-2013), were analyzed 658 hospitalized patients established in serological findings for anti-Echinococcosis antibodies, ultrasound, CT/RMI and surgery.

Conclusions: The available data according to this period performed that: Hydatidosis is widespread in different regions of Albania. The higher prevalence was presented in 2011 (44.5%). The positivity of cases resulted at 31.4%. The relative incidence of cases was 4.1%-4.7% (cases/100.000 people). Infestation rate related to gender was 61% female/38% male. The new cases goes up to ± 22 patients/year, comparing with earlier 2006 period (± 14). About 85% of these patients underwent surgery as treatment. 11.1% of cases were recidivists. No reported data of lethality. Echinococcosis may affect every age-group population.

This study identified several possible important risk factors: Socioeconomic status, environmental contamination, contaminated food, no vaccination of sheep, no deworming of dogs. It's very important the control of zoonotic diseases (Echinococcosis especially as a neglected diseases).

Keywords: zoonosis, echinococcosis/hydatidosis, definitive host, seroprevalence, incidence, age group

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Introduction

Hydatidosis or cystic Echinococcosis (CE) is a chronic neglected zoonotic disease of almost worldwide distribution caused by the cestode parasite *Echinococcus granulosus* whom, the predominant life cycle takes place in a synanthropic cycle with domestic dogs (*Canis lupus familiaris*) as definitive hosts and livestock animals as intermediate hosts. The disease represents a major public health problem and economic burden particularly.¹²⁻¹⁶ The aim of this review is to display a detailed picture of Echinococcosis situation, assessing correlation of socio-economic associated factors with disease, in Albania population.

Material and methods

Study area

During five years period (2009-2013), were analyzed 658 hospitalized patients established in serological findings for anti-Echinococcus antibodies, ultrasound, CT/RMI and surgery. The epidemiologic data were collected from the individual case-report schedule for endemic control of zoonosis referring the person-place-

time triad and a specific database was created assessing the risk factors too. The residence of the patients that had moved during the time was chosen that they had lived during the last 10 years.

Experimental

A blood sample was taken from each participant by the intravenous blood. Specimens were centrifuged on the same day and the serum was separated and kept at -20°C until further analysis. Human serum samples were all screened by a commercial enzyme-linked immunosorbent assay (ELISA) detecting IgG antibodies against *E. granulosus* antigens (*Echinococcus* IgG ELISA classic, Serion Immundiagnostica, Würzburg, Germany). Positive and indeterminate samples were retested, by additional serological tests ELISA at the suggested time.

Results and discussion

The available data according to this period performed that: Hydatidosis is widespread in different regions of Albania (Tirana, Mati, Dibra, Mirdita, Përmeti). The ELISA screening revealed positive results in 207 out of 658 serum samples, resulting in a seropositivity

of 31.5%. The higher prevalence was presented in 2011 (44.5%). The relative incidence of cases was 4.1% - 4.7% (cases /100.000 people). Infestation rate related to gender was 61% female and 38% male. The new cases goes up to ± 22 patients/year, comparing with earlier 2006 period (± 14).

About 85% of these patients underwent surgery as treatment. 11.1% of cases were recidivists. No reported data of lethality. Echinococcoses may affect every age-group population. The spread of cases according to residences in the years shows that 32.3% of the patients, are resident in village (rural) areas and 29.7 % of them are resident in cities (urban) areas. The most affected people were farmers (47.8%) and pet owners (13%) compared to persons in other occupations (1.9 %). A higher seropositivity was found in people who reported high dog contact (49%).

This study identified several possible important risk factors as environmental contamination, socioeconomic background linked with dog owners, food human and animal sources, knowledges about vaccination of sheep and deworming of dogs, allowing dogs to roam free, high dog-human contact. Epidemiologic data can provide important information to improve the control of the disease. It's very important the control of zoonotic diseases (Echinococcosis especially as a neglected disease).

Conclusion

Hydatidosis is widespread in different regions of Albania (Tirana, Mati, Dibra, Mirdita, Përmeti). The new cases goes up to ± 22 patients/year, comparing with earlier 2006 period (± 14). No reported data of lethality. Echinococcoses may affect every age-group population. There are no significance change between patient's residence (32.3% rural: 29.7 % urban). Risk factors for human seropositivity were related to contact with deworming domestic dogs and their feces, and dogs that roam free. Echinococcoses is a disease which may affect every age-group population and has affinity for the liver (41.5%) and lung (21.7%).

Although evidence is lacking, the exposures by uncontrolled food may be another risk for Echinococcosis. Epidemiologic data can provide important information to improve the control of the zoonotic diseases. There has never been a systematic review summarizing the significant determinants for Echinococcosis in humans and animals. The Ministry of Health and the Ministry of Food and Agriculture both, has to instigate control programs.

Conflicts of Interest

The authors declare no conflict of interest.

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