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ORIGINAL ARTICLE

Echinococcosis: A 15-year epidemiological, clinical and outcome overview

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KEYWORDS
Hydatidosis;
Echinococcosis;
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Abstract
Objective: To analyze the epidemiological and clinical characteristics and mortality of patients with cystic echinococcosis (CE) in northern Spain.
Patients and methods: A retrospective study of the medical records of patients diagnosed with CE and hospitalized from 1997 to 2011 in a University Hospital.
Results: A total of 76 patients (44 men) were diagnosed with CE. The mean age was 57.8 years (SD: 19.1 years; range: 14.9–92.7). The yearly average incidence was 1.08 cases/100,000 inhabitants. The highest incidence was registered in patients aged 70–79 years (22.7% of all cases). Liver was the main organ involved (92.1%), followed by lung (6.6%) and peritoneum (1.3%). Fifty-five patients (72%) received treatment: 2 (3.6%) medical treatment with albendazole, 27 (49%) surgical treatment, 3 (5.4%) medical treatment combined with cyst drainage, and 23 (42%) combined medical and surgical treatment. Eight patients had a recurrence. Twenty-four (31.2%) patients died. No patient's death was attributed directly to hydatidosis, though mortality was significantly higher in the untreated vs. the treated patient group (57% vs. 22%, $p = 0.003$).
Conclusions: Hydatidosis treatment and diagnostic approaches remain heterogeneous. The liver continues being the main organ affected. Mortality was higher in patients who did not receive treatment. However, this result might have been influenced by other factors, mainly age.

PALABRAS CLAVE
Hidatidosis;
Equinococosis;

Equinococosis: epidemiología, clínica y resultados en una panorámica de 15 años

Resumen
Objetivos: Analizar las características epidemiológicas y clínicas y la mortalidad de los pacientes con equinococosis quística (EQ) en el norte de España.

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Enfermedades zoonóticas parasitarias

Pacientes y métodos: Estudio retrospectivo de las historias clínicas de los pacientes diagnosticados de EQ, ingresados entre los años 1997 y 2011 en un Hospital Universitario.
Resultados: Se diagnosticaron de hidatidosis un total de 76 pacientes (44 varones). La media de edad fue de 57,8 años (DE: 19,1 años; rango: 14,9–92,7). El promedio de incidencia anual fue de 1,08 casos/100.000 habitantes. La incidencia más alta se registró entre los pacientes con una edad comprendida entre 70 y 79 años (22,7% de los casos). El hígado fue el principal órgano afectado (92,1%), seguido del pulmón (6,6%) y el peritoneo (1,3%). Recibieron tratamiento 55 pacientes (72%): 2 (3,6%) tratamiento médico (albendazol), 27 (49%) tratamiento quirúrgico, 3 (5,4%) tratamiento médico combinado con drenaje del quiste y 23 (42%) tratamiento médico y quirúrgico combinados. Presentaron recurrencias 8 pacientes, y fallecieron 24 (31,2%). Ninguno de los pacientes falleció por una causa atribuible a hidatidosis, aunque la mortalidad fue significativamente mayor en el grupo de los no tratados respecto al de los tratados (57% vs. 22%, p = 0,003).
Conclusiones: La aproximación diagnóstica y terapéutica de la hidatidosis continúa siendo heterogénea. El hígado sigue siendo el principal órgano afectado. La mortalidad fue mayor en los pacientes que no recibieron tratamiento, si bien este resultado puede estar influido por otros factores, principalmente la edad.

Introduction

Hydatidosis or cystic echinococcosis (CE) is a parasitic zoonosis caused by *Echinococcus*, whose larval stages infect various carnivores that act as definitive hosts for the parasite.[1] *Echinococcus granulosus* is the main cause of human hydatid infections.[2] It has a life cycle that involves dogs, sheep and sometimes other animals,[2–5] in which the eggs of the parasite are excreted in their feces and later ingested by humans.[6]

CE has a worldwide distribution, with greater prevalence in temperate zones.[2,7–9] In Spain, the autonomous regions of Castilla y León, La Rioja, Navarra, Aragón, and the Mediterranean coast are the areas where it is most commonly diagnosed.[2,10] Risk factors proposed for CE acquisition include low socioeconomic level, residing in rural areas and contact with dogs, which are in turn in contact with livestock or offal of other carnivores.[6,11]

Clinical signs and symptoms of EC may be related to the mass effect of the cyst, its superinfection or hypersensitivity reaction secondary to its rupture.[12,13] Because of its slow growth, diagnosis is usually made in adulthood[11] by combining clinical symptoms with imaging tests and serological techniques.[1] Ultrasound is a key diagnostic tool due to its accessibility and safety. The World Health Organization (WHO) has proposed a classification based on ultrasound images of the cyst for diagnosis, prognosis and treatment of CE.[14] Serology, which has good sensitivity but more limited specificity, provides good results in combination with imaging techniques.[1,15] There is no universal consensus on the management of CE. Treatment is based on three pillars: medical treatment (mainly albendazole), surgery, and percutaneous drainage. The choice of the most appropriate approach is based on the patient's clinical symptoms and the characteristics of the cysts.[1]

The aim of this study was to describe the epidemiological and clinical characteristics of CE diagnosed in the twenty-first century in Cantabria, an autonomous region of northern Spain, as well as to compare the outcome of patients according to whether they received treatment or not.

Materials and methods

From January 1, 1997 to December 31, 2011, the medical records of all patients diagnosed with CE during their admission to the Hospital Universitario Marqués de Valdecilla (a tertiary, 1000-bed teaching hospital, and the reference center for infectious diseases of the Region of Cantabria) were reviewed.

The following variables were collected: age, gender, nationality, address, occupation, reason for hospitalization, assigned ward and disease history, temperature, heart rate, blood pressure, symptoms and organs involved, hemoglobin levels, white blood cell count and platelet count, serum creatinine, urea, serum levels of sodium, potassium and glucose, serology and cultures, radiological examinations, type of treatment, duration of hospitalization and outcome. Follow-up time of patients after discharge was at least 1 year. Presence or absence of recurrence, complications and mortality were recorded. Recurrence was defined as readmission of the patient to the hospital for persistence or exacerbation of clinical symptoms of CE, provided that the first episode had occurred within the study period. Incidence of disease was calculated according to inhabitants served by the Hospital Universitario Marqués de Valdecilla.

Patient diagnoses were classified into the 3 categories proposed by WHO[1]: (a) possible case: any patient with a compatible clinical or epidemiological history, and image findings or serology positive for CE; (b) probable case: any patient with a compatible clinical and epidemiological