

Research Article

HUMAN HYDATIDOSIS IN ISFAHAN AND NAJAFABAD CITY, IRAN: A EPIDEMIOLOGICAL STUDY OF SURGICAL CASES BETWEEN 2000 AND 2010

***Shahla Rostamirad**

Department of Pathobiology, Islamic Azad University, Najafabad branch, Isfahan, Iran

**Author for Correspondence*

ABSTRACT

Echinococcosis or hydatid cyst is considered as one of the major zoonosis infection in Iran that causes many problems in communities. The aim of this study was to evaluate the rate of hydatid cyst operated in hospitalized patients in the famous hospitals of Isfahan and Najafabad city, the central region of Iran from 2000-2011. In this descriptive study file of 148 hospitalized patients who underwent surgery for Hydatid cyst during 2000 -2011 in Isfahan and Najafabad were panalyzed. In this survey, the highest rate of hydatidose was related to 21-30 age groups. Infection rate in females was higher than that in males (58.1% va 41.9% respectively). Cyst involvement of different organs was as follows: liver (57.4%) lung (36.5%) liver and lung togther (3.4%) and other organs (2.7%). The result show that in human all age groups and both sexes are exposed to hydatidosis, therefore appropriate control method is needed to prevent this zoonotic disease.

Keywords: *Human Hydatidosis, Echinococcosis, Iran, Liver*

INTRODUCTION

Hydatid cyst is a human parasitic disease caused by the larval stage of the cestode tape worm *Echinococcus granulosus*, which infests the gut of dog as a definitive host. Human being may serve as incidental hosts by the ingestion of ova in vegetables or water contaminated with dog feces (Yaliniz *et al.*, 2006). The disease is highly endemic in most of the countries including Mediterranean region including North Africa and Middle East, South America, Australia, Newzealand, Alaska, Canada, China, Russia, sub Saharan countries and it is widespread among Indian tribes (Abu-Hasan *et al.*, 2002; Matossian *et al.*, 1977).

Iran is regarded as an endemic region of hydatidosis and the disease has been reported more or less ththroughout the country (Rokni, 2009; Rokni, 2008). Cystic echinococcosis is maintained in three distinct cycles, a livestock/ dog domestic cycle, a desert cycle between dogs and camels, and a cylvatic cycle between wild carnivores and wild ruminants (Dalimi *et al.*, 2002). The prevalence of infection with hydatid cyst in sheep, goat, cattle, camel and buffaloes in various regions of Iran is high and this disease is responsible for approximately 1% of admission to surgical wards and the rate of human infection is .6-1.2% (Rokni, 2009). Knowing the prevalence of the disease in each country is of high importance, so that the necessary measures for eradication or control of the disease could be conducted. So far five countries have been able to eradication hydatidosis (Budke *et al.*, 2006). For example in Newzealand this disease is controlled by feeding dogs correctly, preventing them from strying and drug treatment for this matter incidence of hydatid disease in Newzealand has steadily declined (Lynch and Stubbs, 1999). Hydatid cyst is commonly located in the liver (55-70% of cases) and the lungs (18-35%) (Yaliniz *et al.*, 2006; Doty and Tompkins, 1989). The two organs can be affected simultaneously in about 5-13% of cases (Kir and Baran, 2008; Abu-Eshy, 1998). Hydatid cyst can be affect the brain, heart, kidney, ureter, uterus fallopian tube, spleen, mesentery, pancreas, diaphragm, and muscles (Abu-Eshy, 1998). Brain involvement, which is more commonly seen in children, is encounterd in 1-2% Of the patients (Altinors *et al.*, 1995). Cardiac involvement with Echinococcosis is uncommon (0.2-2%). pancreatis involvement has been reported in 25-75% of adult cases (Alehan *et al.*, 1995).

Research Article

Adequate information on the hydatidcyst in hospitalized patient in endemic area such as Isfahan and najafabad is necessary for prevention and treatment of this disease. Therefore this study was conducted to determine the rate of infection in hospitalized patients of these cities.

MATERIALS AND METHODS

The study was carried out in Isfahan and Najafabad city, the central region of Iran, from October 2000 to February 2011. Isfahan is the capital of Isfahan Province in Iran and is located on the main north-south and east-west routes crossing Iran. It has a population of 1,583,609 and is Iran's third largest city.

Najafabad County is the capital county in Isfahan province in Iran. At the 2006 census, the county's population was 279,014, in 73,711 families (http://en.wikipedia.org/wiki/Najafabad_County).

People from different parts of Isfahan province are referred to hospitals of these cities for general surgery. In this study human cases of hydatidosias were analyzed based on medical documents of patients who were operated in hospitals of Isfahan and Najafabad, in Iran. These patients were operated for different reasons. None of the records were kept on computer, therefore; the medical records were searched manually. In this descriptive study 159026 medical records of patient were studied. Medical records of patients who had been hydatid cyst positive were collected and analyzed. Profile of patients including age, sex, and location of the cyst and time of their surgery were recorded for each patient.

RESULTS AND DISCUSSION

In this descriptive study, 159026 medical records of patients were studied. These patients were operated for different reasons .148(0.09% of all surgery) hydatid cyst positive were observed among studied medical records, during 2000-2011. 86 cases (58.1%) of patients were female and 62 cases (41.9%) were male (table 1). The range of age was from 10 to 75 years old.the highest and the lowest rate of infection was found among age group of 21-30 (26.4%) and >60(10.1%) years old respectively (Table 3). There was no relationship between incidence of hydatid cyst and age of patients. Also, in all age groups ,no significant difference was found between male and female and their infectivity with hydatid cyst.the most common involved organ were liver (57.4%) and lung (36.5%) respectively (Table 2). It was also cited that the percentage of Hydatidose among women in Najafabad were more than women in Isfahan (75.7% and 52.3% respectively). Hydatid disease is one of the major parasitic problems in human and livestock in Iran (Nejad *et al.*, 2007). Iran is one of the hyper endemic areas with human infection rate of more than 1% of total population (Rostami *et al.*, 2007; Arbabi *et al.*, 1998). Human Hydatidose is a public concern in different provinces specially Isfahan province. In this study, which was carried out in Isfahan, the center of Isfahan province, the highest rate of human infection was observed in the age group 21-30 years old (26.4%). This result is consistent with the previous studies in different parts of the country (Rokni, 2009). Most of the suffering patient from hydatid cyst were women (58.1%). This result coincides with most other studies in the world (Hadadian *et al.*, 2004; Komaillian *et al.*, 2004). And is consistent with study in Tehran during 1994-2003 (Nejad *et al.*, 2007), in East Azarbaijan province during 5 yr period (Hadadian *et al.*, 2004). According to the results of these studies, femals were found more infected with hydatid cyst than males.our study showed that different organs were involved with hydatid cyst but liver is the most affected organ in both men and women (57.4%). During studies carried out in different provinces of Iran (Tehran, Kurdistan, khozestan) women had more hydatid surgeries than men and the most affected organ was liver, then lung (Nejad *et al.*, 2007), (Komaillian *et al.*, 2004). In most other similar studies in the world liver has been reported as the most infected organ (Nejad *et al.*, 2007; Pezeshki *et al.*, 2007; Taori *et al.*, 2006; Alghoury *et al.*, 2010). However, the result of fallah *et al.*, in East Azarbaijan showed that the pre dominant cyst in men were higher than women and cysts were located mostly in liver and lung respectively (Mehrabani *et al.*, 1999).

Conclusion

These finding indicate the existence of contaminated prevalence in Najafabad and Isfahan requires more attention and it's the first step to conduct a decisive program for controlling or eradication of the disease in these region.

Research Article

ACKNOWLEDGEMENT

This investigation was not supported financially by Grant. We really appreciate Isfahan Province Health Center and Hospitals of Isfahan and Najafabad city for their kind cooperation and valuable collaboration.

REFERENCES

- Abu-Hasan N, Daragmeh M, Adwan K, Al-Qaoud K and Abdel-Hafez S (2002).** Human cystic echinococcosis in the West Bank of Palestine: surgical incidence and seroepidemiological study. *Parasitology Research* **88**(2) 107-12.
- Abu-Eshy SA (1998).** Some rare presentations of hydatid cyst (Echinococcus granulosus). *Journal of the Royal College of Surgeons of Edinburgh* **43**(5) 347-52, PubMed PMID: 9803111, Epub 1998/11/06.eng.
- Altinors N, Senveli E, Donmez T, Bavbek M, Kars Z and Sanli M (1995).** Management of problematic intracranial hydatid cysts. *Infection* **23**(5) 283-7, PubMed PMID: 8557386, Epub 1995/09/01.eng.
- Alehan D, Celiker A and Aydingoz U (1995).** Cardiac hydatid cyst in a child: diagnostic value of echocardiography and magnetic resonance imaging. *Acta Paediatrica Japonica* **37**(5) 645-7, PubMed PMID: 8533597, Epub 1995/10/01.eng.
- Alghoury A, El-Hamshary E, Azazy A, Hussein E and Rayan HZ (2010).** Hydatid Disease in Yemeni Patients attending Public and Private Hospitals in Sana'a City, Yemen. *Oman Medical Journal* **25**(2) 88-90, PubMed PMID: 22125707, Pubmed Central PMCID: PMC3215496, Epub 2010/04/01.eng.
- Arbabi M, Masoud J, Dalimi Asl A and Sajadi M (1998).** Seroepidemiologic prevalence of Hydatid cyst in Hamadan 1991. *KAUMS Journal (FEYZ)* **2**(2) 43-50.
- Budke CM, Deplazes P and Torgerson PR (2006).** Global socioeconomic impact of cystic echinococcosis. *Emerging Infectious Diseases* **12**(2) 296-303, PubMed PMID: 16494758, Pubmed Central PMCID: PMC3373106, Epub 2006/02/24.eng.
- Dalimi A, Motamedi G, Hosseini M, Mohammadian B, Malaki H and Ghamari Z et al., (2002).** Echinococcosis/hydatidosis in western Iran. *Veterinary Parasitology* **30** **105**(2) 161-71, PubMed PMID: 11900930, Epub 2002/03/20.eng.
- Doty JE and Tompkins RK (1989).** Management of cystic disease of the liver. *Surgical Clinics of North America* **69**(2) 285-95, PubMed PMID: 2648617, Epub 1989/04/01.eng.
- Hadadian M, Ghafarifar F, Dalimi Asl AH, Sadraei J, Ghasemi Niko S and Khoshzaban F (2004).** Hydatid cyst investigation in Kurdistan Province during 1998-2002. 5th National Iranian Congress of Parasitology Tehran, Iran.
- Kir A and Baran E (2008).** Simultaneous operation for hydatid cyst of right lung and liver. *The Thoracic and Cardiovascular Surgeon* **43**(01) 62-4.
- Lynch A and Stubbs R (1999).** Hydatid disease in New Zealand. What remains and how should we treat it? *The New Zealand Medical Journal* **112**(1086) 131.
- Matossian R, Rickard M and Smyth J (1977).** Hydatidosis: a global problem of increasing importance. *Bulletin of the World Health Organization* **55**(4) 499.
- Mehrabani D, Oryan A and Sadjjadi S (1999).** Prevalence of Echinococcus granulosus infection in stray dogs and herbivores in Shiraz, Iran. *Veterinary Parasitology* **86**(3) 217-20.
- Nejad MR, Hoseinkhan N, Nazemalhosseini E, Cheraghipour K, Abdinia E and Zali M (2007).** An analysis of hydatid cyst surgeries in patients referred to hospitals in Khorram-Abad, Lorestan during 2002-06. *Iranian Journal of Parasitology* **2**(3).
- Pezeshki A, Kia E, Gholizadeh A and Koohzare A (2007).** An analysis of hydatid cyst surgeries in Tehran Milad Hospital, Iran, during 2001-2004. *Pakistan Journal of Medical Sciences* **23**(1) 138.
- Rokni M (2009).** Echinococcosis/hydatidosis in Iran. *Iranian Journal of Parasitology* **4**(2) 1-16.
- Rokni M (2008).** The present status of human helminthic diseases in Iran. *Annals of Tropical Medicine and Parasitology* **102**(4) 283-95.
- Rostami Nejad M, Hoseinkhan N, Nazemalhosseini E, Cheraghipour K, Abdinia E and Zali MR (2007).** An analysis of hydatid cyst surgeries in patients referred to hospitals in Khorram-Abad, Lorestan during 2002-06. *Iranian Journal of Parasitology* **2**(3) 29-33.

Research Article

Taori K, Sanyal R, Rathod J, Mahajan S, Jajoo G and Saxena V *et al.*, (2006). CT appearances of hydatid disease at various locations. *Australasian Radiology* **50**(4) 298-305.

Yaliniz H, Tokcan A, Salih OK and Ulus T (2006). Surgical treatment of cardiac hydatid disease: a report of 7 cases. *Texas Heart Institute Journal* **33**(3) 333.