Epidemiology of surgical patients with hydatid cyst and determination of the genotype of the studied specimens and determination of hydatidosis dispersion with GIS in Ardabil province during the years 93 to 98

Abstract

Background: Cystic echinococcosis is endemic in Iran, particularly in Ardabil Province, where it causes health and economic problems. The genetic pattern of Echinococcus granulosus has been determined in most parts of Iran, except in this area.

Aims: The present study was aimed to investigate molecular diversity of *Echinococcus granulosus* isolates collected from human clinical samples using two mitochondrial genes *cox1* and *nad1* in Iran. Also, high-risk areas for hydatidosis were identified by GIS method.

Materials and Methods: Two hundred and twenty-eight human hydatid cysts were collected through surgery from hospitals in Ardabil during 2013-2018. All samples were confirmed by pathology. 116 pathological samples were available and included in the molecular study. Total genomic DNAs were extracted. Then by molecular PCR technique was performed to amplify fragments of 450 and 400 base pair (bp) for cox1 and nad1 genes, respectively. Genotype diversity and sequence variation of the strains were studied.

Results: The rate of infection was higher in housewives and urban residents. The most common organ involved was the liver, followed by the lungs. People aged 20-29 and the population with primary education had the highest incidence of infection. According to GIS results, Ardabil and Parsabad were considered as highrisk areas. The incidence rate was higher in Bilesvar city. PCR results showed that out of 116 samples, 10 samples were positive.

Conclusion: Due to the local nature of hydatidosis in the region and due to the health and economic importance of hydatidosis in humans and livestock, the implementation of infection control and prevention programs and also increase awareness of individuals it can help to control and reduce the infection of this common parasite in humans and livestock in the region and the country.

Keywords: Echinococcos granulosus, Hydatid cyst, Genotype, PCR