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## Molecular epidemiology of *Echinococcus* species in Pakistan

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**ABSTRACT Objective:** Cystic echinococcosis (CE) is a zoonotic parasitic disease and a neglected infectious disease affecting more than one million people globally. It is caused by the tapeworm parasite of *Echinococcus granulosus* sensu lato. It is endemic in the neighbours of Pakistan. However, there are limited studies on molecular epidemiology of CE in Pakistan. **Methods:** Discrimination of *Echinococcus* species has been done mostly by morphologically and less work has been done by molecular methods in Pakistan. There are limited studies have been conducted to explore the molecular epidemiology of *Echinococcus* species in human and livestock. In human just retrospective studies have been conducted and there is a serious lack of studies on molecular basis. **Results:** So far in Pakistan just four studies have been published on genotyping of *Echinococcus* spp. common sheep strain (G1) and buffalo strain (G3) in livestock (small and large ruminants) and *Echinococcus granulosus* sensu stricto (G1-G3) in buffaloes, while *Echinococcus granulosus* sensu stricto (G1-G3), *Echinococcus multilocularis*, *Echinococcus canadensis* (G6/7) in human have been reported. Based on these four studies clearly shows that CE is yet neglected in Pakistan. These findings indicate that due to the higher population of sheep and buffaloes, G1 and G3 strains are highly prevalent in human and animals. Association of stray dogs with sheep herds and other livestock at the grazing sites is responsible for the higher prevalence of CE that acts an active role in the transmission of CE while the wild animals and camel are responsible for the less infection. **Conclusion:** There is dire need of more studies on molecular identification of CE to understand its species diversity and molecular epidemiology in Pakistan. It is an important step toward management of echinococcosis based on One Health Concept.

**Keywords:** Echinococcosis; Molecular; Genotyping; Pakistan

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