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SHORT COMMUNICATION

ECHINOCOCCUS GRANULOSUS IN DOGS: ITS ZOONOTIC IMPORTANCE AND CHEMOTHERAPY

A. Maqbool[1], C.S. Hayat[1], N.R. Hanif[2], B. Hayat[1] and M.A. Awan[3]

[1]*Faculty of Veterinary Science, University of Agriculture, Faisalabad, Pakistan*
[2]*Department of L & DD, Punjab, Pakistan*
[3]*Allied Hospital, Faisalabad, Pakistan*

SUMMARY

A survey was carried out on 280 dogs during the period from January to December, 1992 to determine the prevalence of *Echinococcus granulosus*. The prevalence rate of 9.28% was recorded, during which time, four confirmed cases of hydatid cyst (hydatidosis) in human, involving liver and lungs, were treated at the Allied Hospital, Faisalabad. A single oral dose of mebendazole at the rate of 50 mg/kg was able to reduce 96% of faecal egg counts in dogs.

Keywords: Hydatidosis, *Echinococcus granulosus,* incidence, chemotherapy

The public health importance of cestode, particularly *Echinococcus granulosus* has long been highlighted (Hedge *et al.,* 1974; Pucciro *et al.,* 1975; Sabraghian *et al.,* 1975; Thomson and Smyth, 1975; Dada, 1978; Hayat *et al.,* 1991). The adult parasites are found in the small intestine but the larval stage can infect domesticated animals and human, causing hydatid cysts.

Dogs may ingest one or several fertile hydatid cysts while eating raw offal (liver, lung, heart, spleen, kidney and omentum) of sheep, cattle or buffalo lying dead in a field. The hygienic disposal of slaughtered animals is not generally practicable, thus the spread of infection is facilitated. Similarly, failure of sanitary supervision over the preparation of food of animal origin in Pakistan and lack of regular deworming schedule contribute to the spread of infection.

The aims of this study are to record the incidence of echinococcosis in dogs, to record the confirmed cases of hydatidosis in human in Pakistan and to determine the effectiveness of mebendazole against naturally acquired *Echinococcus granulosus* infection in dogs.

A total of 280 dogs of different breed, age and sex were brought to the Department of Clinical Medicine and Surgery, University of Agriculture, Faisalabad during the period of January to December, 1992 for treatment of various ailments. Many of the dogs were not regularly deworrned. Dogs with abnormal faeces and loss of appetite were subjected to examinations of faecal direct smears. The faeces of those found positive were collected in 5% formalin, washed through a series of mesh screens before the residues were suspended in water and examined under a x2 lens. Cestode scolices resembling *Echinococcus granulosus* were identified and recorded.

Dogs found positive in the prevalence study were divided into two groups with 20 dogs in group 1 and 4 dogs in group 2. Dogs in group 1 were fasted overnight followed by an oral treatment with mebendazole at the rate of 50 mg/kg body weight (Chanelle Alga Pharmaceutical Ltd). Dogs in group 2 remained untreated. The efficacy of the drug was based on the number of scolices or proglotides left following treatment.

During the study period, data on confirmed cases of hydatid cyst in human were obtained from records kept at the Allied Hospital, Faisalabad.

A total of 26 (9.28%) dogs were found positive to *Echinococcus granulosus* infection. During the same period of the study, 4 patients were confirmed to suffer from hydatidosis, affecting the liver and lungs. Two of the patients were male. The age of the patients ranged from 12 to 46 years old. All patients required frequent hospitalisation over a period ranging from several months to years.

Therapeutic trial in dogs using mebendazole successfully removed 96% of the worm burden. However, four of the treated dogs vomited, two had diarrhoea, three showed both diarrhoea and vomiting, three were lethargic and one showed inappetence after treatment.

The prevalence rate of *E. granulosus* infection in dogs in this study was similar to those observed elsewhere (Hedge *et al.,* 1974; Howkins, 1982). Similarly, the number of hydatidosis in human observed in this study was similar to those of Cheema (1984) in Saudi Arabia.

Several workers have reported high efficacy of mebendazole against *E. granulosus* (Guerrero *et al.,* 1981; Gemmell *et al.,* 1985; Baig *et al.,* 1986). Marked reduction of *E. granulosus* infection following

treatment of dogs with mebendazole at three monthly intervals suggests that this compound can be used in the control programme to break the cycle of zoonosis in Pakistan.

REFERENCES

Baig, M.F., Mian, M.S., Rabbani, A., Afzal, M., Khan, T.M. and Saeed, K. (1986). Study of incidence and chemotherapy of cestode infection in dogs. *Pakistan Vet. J.* **6**: 183-184

Cheema, A.H. (1984). Studies on the prevalence of diseases communicable from dogs to man and meat producing animals. *In:* SANIST Project AR-40 030, Saudi Arabia

Dada, B.J.O. (1978). Prevalence of hydatid disease in food animals reported at meat inspection in Nigeria. *J. Helminthol.* **52**: 70-72

Gemmell, H.A., Johnstone, P.D. and Oudemans, G. (1985). Significance of particle size of mebendazole in the treatment of tapeworm infections. *J. Pharmacy and Pharmacology* **37**: 659-660

Guerrero, J., Pancari, G. and Micheal, B. (1981). Comparative anthelmintic efficacy of two schedules of mebendazole treatment in dogs. *Am. J. Vet. Res.* **42**: 425-427

Hayat, C.S., Dansco, P., Hayat, B. and Khan, M.N. (1991). Prevalence of *Echinococcus granulosus* infection in stray dogs in Faisalabad (Pakistan). *Pakistan Vet. J.* **11**: 200-201.

Hedge, K.S., Rahman, A. and Rajasekarian, G.R. (1974). A study on the incidence of hydatid disease in animals and human beings in Bangalore city, Mysore. *J. Agric. Sci.,* **8**: 418-422.

Howkin, A.B. (1982). A survey of canine cestodes in Goulburn district in New South Wales. *Aust. Vet. J.* **58**: 121-122.

Pucciro, V., Larari, P. and Sgherra, F. (1975). Survey of *Echinococcus granulosus* infection in dogs in Apulia, Italy. *Acta Med. Vet.* **21**: 73.

Sabraghian, H., Hoghooghi, N. and Gnadirian, F., (1975). A survey on the prevalence of *Echinococcus granulosus* on shahre-Kord. *Iran Bull. Soc. Pathol. Exot.* **64**: 574-576.

Thomson, R.C.A. and Smyth, J.D. (1975). Equine hydatidosis I. review of the current status in Great Britain and the results of an epidemiological survery. *Vet. Parasitol.* **1**:107.

RINGKASAN

ECHINOCOCCUS GRANULOSUS *PADA ANJING: KEPENTINGAN ZOONOSIS DAN KEMOTERAFI*

Satu tinjauan telah dijalankan terhadap 280 ekor anjing selama satu tahun (1992) untuk menentukan prevalens Echinococcus granulosus. *Kadar prevalens 9.28% telah direkodkan, yang mana empat kes sah sista hidatid (hidatidosis) dalam manusia melibatkan hati dan peparu telah dirawat di Allied Hospital, Faisalabad. Satu dos oral mebendazola pada kadar 50 mg/kg telah dapat mengurangkan 96% kiraan telur tinja dalam anjing.*