

EPIDEMIOLOGY AND CONTROL OF EOSINOPHILIC MENINGITIS IN THAILAND : AN UPDATE

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Abstract. Eosinophilic meningitis is a food-borne zoonosis caused by *Angiostrongylus cantonensis*. The third stage larvae in the intermediate host (terrestrial and aquatic snails, slugs) are infective to humans by raw food consumption. It is a sporadic parasitic disease in Thailand. Data obtained from the national surveillance system over the past 10 years indicated the reported cases of eosinophilic meningitis per 100,000 population had increased since 1995, from 0.2 to 2.2 in 2000, and had declined to 0.9 in 2002. The incidence of this disease was remarkably high during the harvest season (October to March). Some variations were found among different regions; an obvious one was in the northeastern region. Meanwhile, the higher incidence was among the working age group. Deaths from this disease during the said period were very low, with a case-fatality rate of 0-0.36%. Control operations have been integrated into basic health services, under the responsibility of the provincial public health facilities, with technical support from the Department of Disease Control. The main control measures are comprised of treating the infected person, health education, control of rats, epidemiological assessment, and surveillance.

INTRODUCTION

Eosinophilic meningitis is a food-borne zoonosis caused by a nematode parasite (lungworm of rats), *Angiostrongylus cantonensis*. The third-stage larvae in the intermediate host (terrestrial and aquatic snails, slugs) are infective to humans by raw food consumption. The incubation period is usually 1-3 weeks, but may be longer or shorter. The pathology affects the central nervous system predominantly with meningeal involvement. Invasion may be asymptomatic or mildly symptomatic. It is more commonly characterized by severe headache, stiffness of the neck and back, and various paresthesia. Temporary facial paralysis occurs in 5% of patients, and low-grade fever may be present. The worm has been found in the CSF and in the eye. CSF usually exhibits pleocytosis with >20% eosinophil; blood eosinophilia is not always present, but has reached 80%. Illness may last a few days to several months. Deaths have rarely been reported.

Diagnosis, especially in endemic areas, is suggested by eosinophils in the CSF and a history of eating raw molluscs. Immunodiagnostic tests are presumptive, and demonstration of the worms in the CSF or at autopsy is confirmatory.

Differential diagnosis includes cerebral cysticercosis, paragonimiasis, echinococcosis, gnathostomiasis, tuberculous meningitis, coccidioidal meningitis, aseptic meningitis, and neurosyphilis.

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CURRENT SITUATION OF EOSINOPHILIC MENINGITIS IN THAILAND

Eosinophilic meningitis is a sporadic parasitic disease in Thailand. Data obtained from the national surveillance system over the past 10 years indicated reported cases of eosinophilic meningitis per 100,000 population in Thailand had increased since 1995, from 0.2 to 2.2 in 2000 and had declined to 0.9 in 2002 (Fig 1). The incidence of this disease was remarkably high during the harvest season, October to March (Fig 2).

Differences in infections are found among geographical regions; an obvious one was in the northeastern region, where the numbers of reported cases of eosinophilic meningitis were higher than other regions (Fig 3). Meanwhile, reported cases of this disease by age group showed higher numbers of cases among the working ages (Fig 4).

Deaths of eosinophilic meningitis in Thailand during the said period were very low, with a case-fatality rate of 0-0.36%.

CONTROL MEASURES FOR EOSINOPHILIC MENINGITIS

Control operations have been integrated into basic health services under the responsibility of provincial public health facilities with technical support from the Department of Disease Control. The important control measures include the following: 1) treatment of infected persons; 2) report to local health authority; 3) educate the general public in preparation of well

EOSINOPHILIC MENINGITIS IN THAILAND

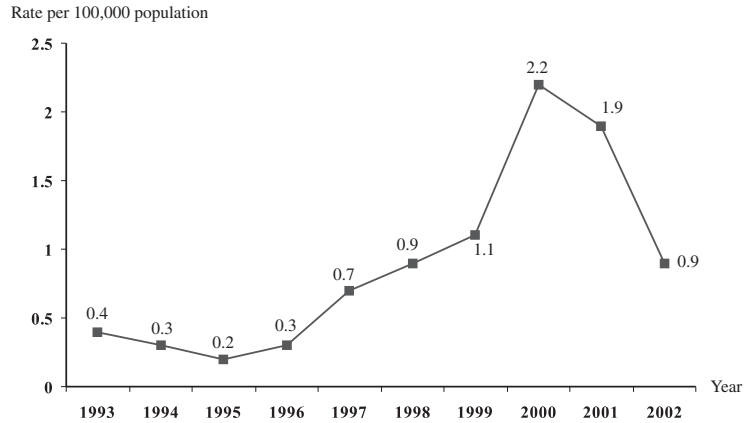


Fig 1- Reported cases of eosinophilic meningitis per 100,000 population, by year, Thailand, 1993-2002.

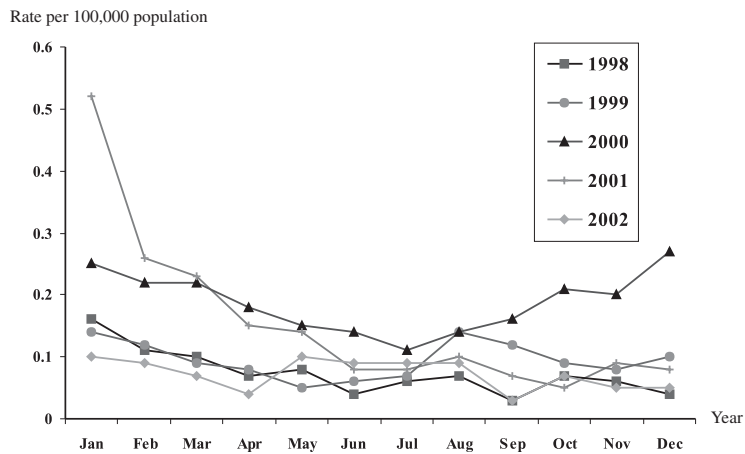


Fig 2- Reported cases of eosinophilic meningitis per 100,000 population, by month, Thailand, 1998-2002. (Division of Epidemiology, 1998-2002; Bureau of Epidemiology, 2001, 2002).

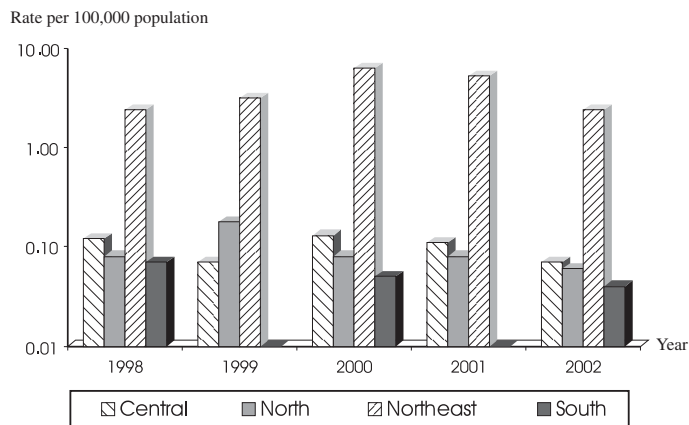


Fig 3- Reported cases of eosinophilic meningitis per 100,000 population, by region, Thailand, 1998-2002. (Division of Epidemiology, 1998-2002; Bureau of Epidemiology, 2001, 2002).

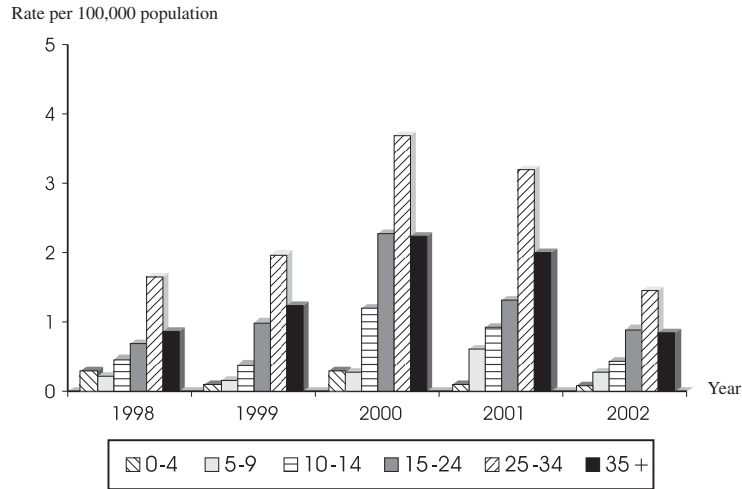


Fig 4- Reported cases of eosinophilic meningitis per 100,000 population, by age-group, Thailand, 1998-2002. (Division of Epidemiology, 1998-2002; Bureau of Epidemiology, 2001, 2002).

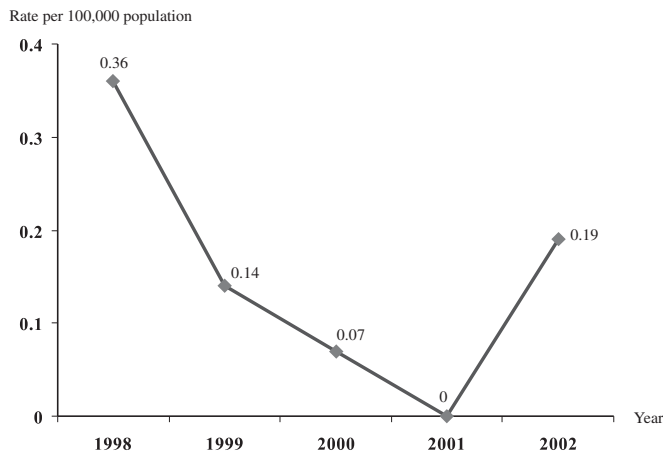


Fig 5- Reported case-fatality rate of eosinophilic meningitis per 100,000 population, by year, Thailand, 1998-2002. (Division of Epidemiology, 1998-2000; Bureau of Epidemiology, 2001, 2002).

cooked foods, both aquatic and terrestrial snails; 4) control rats; 5) epidemiological assessment and surveillance.

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