Abstract

Amebic dysentery, one of notifiable parasitic diseases in Taiwan, is caused by the protozoan Entamoeba histolytica. E. histolytica resides mostly in the intestinal tract of human host. It may further invade the tissue and cause severe colitis and abscess. The clinical diagnosis of intestinal amebiasis mainly relies on the microscopic examination of E. histolytica cysts and/or trophozoites in the fecal specimen. However, the controversial issue concerning the pathogenicity of amebic infection was raised by the fact that most of the fecal examination positive patients do not show any symptom of diseases. Whether pathogenic E. histolytica can be fully described morphologically or the pathegenicity is a characteristics related to the host or environmental factors was an open question then. It took nearly two decades to solve this puzzle through research work in the fields of biochemistry, immunology and genetics concerning pathogenic and nonpathogenic Entamoeba species. Consensus was reached in the amebiasis specialist meeting held by WHO/PAHO/UNESCO in 1997. The original histolytica cysts and/or trophozoites observed under microscopic examination are indeed composed of at least two species of protozoa: E. histolytica and E. dispar. The former one is pathogenic and may cause severe disease. Treatment, control and prevention measures should be taken. The latter one is merely nonpathogenic symbiotic ameba residing in the human intestinal tract. Differential diagnosis of E. histolytica from E. dispar is a must before a treatment and/or control measure can be taken. In this research project, a strategy for the differential diagnosis of E. histolytica and E. dispar was developed. By in vitro amplication of specific fragment of small ribosomal RNA genes of both E. histolytica and E. dispar directly out of fecal specimen, we are able to distinguish this two species of protozoa. A single protozoan cell (cyst or trophozoite) from the fecal specimen can be detected and this corresponds to the sensitivity limit of molecular diagnosis. Besides, this approach was applied to a survey of prevalence rate in an amebiasis risky population. Out of 442 inpatients, 38 were first screened as E. histolytica/dispar by microscopic examination. 15/38（39.5%） are infected by E. Histolytica, whereas 23/38 （60.5%）. dispar; none of them are symptomatic.

Keywords：amoebiasis；differential diagnosis；PCR；pathogenic