First molecular epidemiology of Entamoeba histolytica, E. dispar and E. moshkovskii infections in Yemen: different species-specific associated risk factors.


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Abstract

OBJECTIVES: To investigate the molecular epidemiology of Entamoeba histolytica, E. dispar and E. moshkovskii infections among rural communities in Yemen.

METHODS: In a community-based study, faecal samples were collected from 605 participants and examined by wet mount, formalin-ether sedimentation, trichrome staining and nested multiplex PCR techniques. Demographic, socio-economic and environmental information was collected using a pre-tested questionnaire.

RESULTS: Overall, 324 (53.6%) of the samples were positive for Entamoeba cysts and/or trophozoites by microscopic examination. Molecular analysis revealed that 20.2%, 15.7% and 18.2% of the samples were positive for E. histolytica, E. dispar and E. moshkovskii,
respectively. Multivariate analysis showed different sets of species-specific risk factors among these communities. Educational level was identified as the significant risk factor for E. histolytica; age and gender were the significant risk factors for E. moshkovskii; and sources of drinking water and consumption of unwashed vegetables were the significant risk factors for E. dispar. Moreover, living in coastal/foothill areas and presence of other infected family members were risk factors for both E. histolytica and E. moshkovskii infections.

CONCLUSION: The study reveals that Entamoeba spp. infection is highly prevalent among rural communities in Yemen, with E. histolytica, E. dispar and E. moshkovskii differentiated for the first time. Identifying and treating infected family members, providing health education pertinent to good personal and food hygiene practices and providing clean drinking water should be considered in developing a strategy to control intestinal parasitic infections in these communities, particularly in the coastal/foothill areas of the country.

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KEYWORDS: E. dispar ; E. moshkovskii ; Entamoeba histolytica ; Epidemiología; Yemen; Yémen; epidemiology; épidémiologie

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