

Microscopic and molecular evaluation of intestinal Microsporidia in children with cancer undergoing chemotherapy in Tabriz hospitals, 2014-2015

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Abstract

Background: Intestinal Microsporidia are a various group of obligate intracellular eukaryotes, some of which are associated with life-threatening chronic diarrhea and systemic disease. According to the available studies, very limited epidemiologic investigations have been done on human microsporidiosis in Iran. Therefore, the aim of the present study is the evaluation of intestinal Microsporidia in children with cancer undergoing chemotherapy by staining and molecular methods during 2014-2015.

Methods: In this descriptive- cross sectional study, 132 stool samples were collected from cancer children undergoing chemotherapy referred to Tabriz Children's Hospital. Stool samples were examined by using modified trichrome staining and Nested PCR methods.

Results: Microsporidia were identified in 14 cases (10.6%) by both PCR and staining methods, and 3 samples were positive only by staining. These results were verified by sequencing of PCR products. From positive cases, 2 Microsporidia prevalent species were identified: *Enterocytozoon bieneusi* (10 isolates) and *Encephalitozoon intestinalis*

(4 isolates). Although identified microsporidiosis among these patients but we couldn't observe any statistical association between Microsporidia infections and variables.

Conclusions: *Enterocytozoon bieneusi* is one of the most commonly diagnosed cause of microsporidiosis infection in immunocompromised patients in Tabriz, Northwest of Iran. Molecular method can be used as a confirmatory technique besides staining for Microsporidia species differentiation. It can be concluded that using these diagnostic methods for detection of microsporidiosis are necessary in pediatric oncology hospital.

Keywords: Cancer children, Intestinal Microsporidia, Nested PCR, Staining, Iran