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Prevalence of *Dientamoeba fragilis* in the north of Israel during 2011-2015

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Background: *Dientamoeba fragilis* (*D. fragilis*) is a trichomonad parasite found in the gastrointestinal tract of humans and implicated in gastrointestinal diseases. The details of its life cycle and mode of transmission are not completely known and unfortunately, in many places, its pathogenicity tends to be ignored. The most common symptoms in patients infected with this parasite appear to be intermittent diarrhea, abdominal pain, and fatigue. Diagnosis of *D. fragilis* infection depends on proper collection and processing techniques. Routine detection methods include: microscopy in wet and stained preparations; culture methods followed by microscopy and molecular testing. Except for a brief study performed in 1966-1968, the prevalence of this organism in Israel has not been reported. Here a retrospective prevalence study that was performed over the years 2011 -2015 in faecal samples from symptomatic patients in the north of Israel is presented.

Material/methods: *D. fragilis* was isolated from faecal samples arriving from symptomatic patients that were sent to our outpatient regional laboratory of Haifa and Western Galilee district, Clalit health services. The study was performed over the years 2011 -2015. The samples were collected and transported without any additives, and arrived at the laboratory within 3 hours after collection.

D. fragilis was detected by wet mount and cultures in Boeck and Drbohlav's medium for 48 – 72 hours at 37°C followed by direct microscopy. During those years we increased the amount of cultures, reaching about 67% of the stool samples.

Results: Out of 90,626 stool samples, received during the previous 5 years, 3522 samples (3.9%) were positive to *D. fragilis*. Increasing the use of the culture method caused a concomitantly elevation in the rate of detection of *D. fragilis* from an average of 3% in 2011 to 5.5% in 2015. The positive samples were observed in all age ranges, most of them in childhood. The number of isolates was

similar among males and females. Surprisingly, the incidence of *D. fragilis* was higher in the most cold (December) and warm (August) months of the year.

Conclusions: The addition of a culture method in appropriate medium and with suitable quality control to routine procedures for detection of *D. fragilis* increased the rate of detection in comparison to direct wet mount method. *D. fragilis* exhibits quite a high prevalence (5.5%) in faecal samples in our region, in comparison to the prevalence around the world varying between 0.4% and 71% depending on the cohort and the diagnostic method employed. These results emphasize the need for implementation of proper diagnostic tools in order to detect this neglected intestinal protozoon. Once detected, undoubtedly this parasite infection deserves to be treated. A review of the current treatment for this parasite showed that the drugs of choice are iodoquinol, paromomycin or metronidazole.