

# Time for a change in strategy of diagnostic parasitology

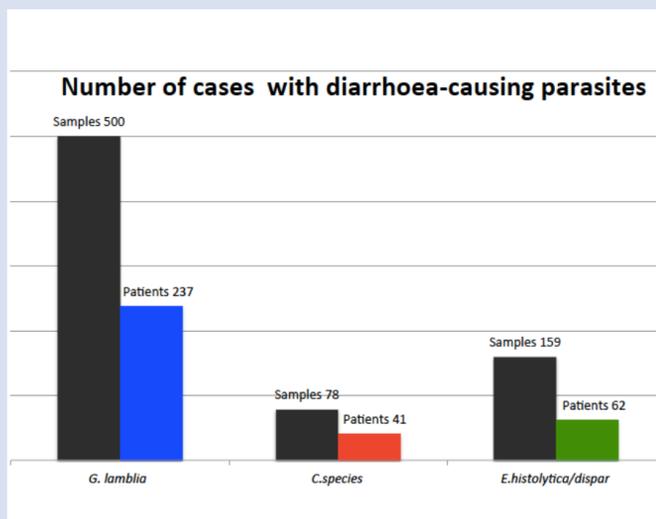
Hartmeyer GN, Hoegh SV, Skov MN, Knudsen E and Kemp M  
Department of Clinical Microbiology, Odense University Hospital, Denmark

## Introduction

For decades, various more or less well-defined indications has led to examination of stool samples for parasites. Samples have been examined by microscopy and patho-genic and non-pathogenic parasites have been reported, as have unspecific findings such as Charcot-Leyden crystals regardless of their relevance in the clinical situation.

## Purpose

In order to provide more useful information for the clinician we set to examine the consequences of a symptom based approach, dividing indications into: 1) diarrhoea and 2) other, and establishing optimal diagnostic technology for detection of parasitic agents of diarrhoea.



## Methods

For determining the most relevant parasites to test for, we counted the number of cases in which specific diarrhoea-causing parasites had been reported over a period of nine years at our laboratory.

In addition, the number of cases in which parasites not causing diarrhoea had been reported were recorded.

Based on these results we tested the ability of real time PCR assay to detect parasites in thirty microscopy-positive samples.

Three different assays, specific for *Entamoeba histolytica* and *Giardia lamblia* were tested, and for *Cryptosporidium parvum/hominis*, we tested five different assays, one of these with specific detection for *C. parvum* or *C. hominis*, respectively.

To evaluate the reliability of microscopy-based reports of *E. histolytica*, samples reported positive with microscopy, were analysed by real time PCR assays for *E. histolytica* and *E. dispar*.

\* The results in this poster have been updated compared to the numbers given in the previously released abstract.

## Results

- ***Giardia lamblia***  
(500 samples from 237 patients)
- ***Cryptosporidium parvum/hominis***  
(78 samples from 41\* patients)
- ***Entamoeba histolytica/dispar***  
(159 samples from 62 patients)

These were by far the most the most frequently reported diarrhoea causing parasites.

Apart from those, the only other diarrhoea-causing parasite identified, in a **period over nine years**, was:

- ***Cyclospora cayatanensis***  
(25 samples from 12 patients)

In addition, a variety of parasites not considered agents of diarrhoea had been reported.

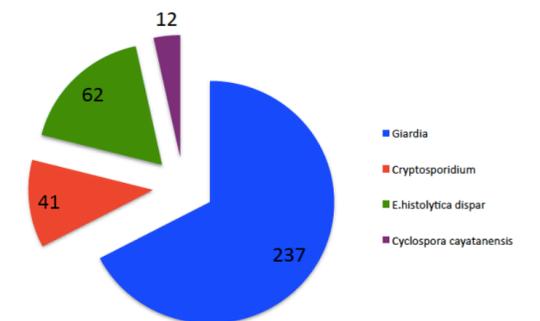
PCR confirmed *G. lamblia* and *C. parvum/hominis* in all tested samples with positive microscopy result except in one case of *Giardia* and one case of *Cryptosporidium*. All three PCR assays were negative for *G. lamblia* and all five PCR assays were negative for *Cryptosporidium sp.*

Out of ten *Cryptosporidium sp.* detected:

- **six were *C. parvum***
- **four were *C. hominis***

As previously reported, all *E. histolytica* reported from microscopy, were in fact *E. dispar* when tested by species-specific PCR (1).

Patients over a period of nine years



## Conclusion

The number of cases of diarrhoea caused by parasites **other** than *Entamoeba histolytica*, *Cryptosporidium parvum/hominis* and *Giardia lamblia* is **almost neglectable**.

Replacing microscopy with specific PCR assays for these three parasites will result in better diagnostic sensitivity and specificity.

Samples from patients with diarrhoea should be examined by specific PCR assays rather than microscopy.

Microscopy will still be of value in detection of pathogenic parasites other than those causing diarrhoea.

## References:

- 1) Hartmeyer GN, Høgh S, Chen M, Holt H, Skov MN, Kemp M. Need for species-specific detection for the diagnosis of amoebiasis in a non-endemic setting. Scand J Infect Dis. 2013; Early Online:1-4.

Corresponding Author: Gitte Nyvang Hartmeyer,  
Department of Clinical Microbiology Odense University  
Hospital, Denmark. gitte.hartmeyer@rsyd.dk

No disclosures