Use of Amplidiag Bacterial GE assay (Mobidiag) in the diagnosis of bacterial diarrhoea

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INTRODUCTION

The diagnosis of bacterial diarrhoea currently relies on cultures using selective media, a time-consuming approach whose sensitivity is still matter of debate, and time to result very long. Recently, several automated systems based on multiplex PCR assays have been developed to provide a rapid and comprehensive diagnosis. In this study, we assessed the Amplidiag Bacterial GE assay (Mobidiag) in the diagnosis of bacterial diarrhoea.

MATERIAL AND METHODS

100 consecutive stools collected between September and October 2015 in Lariboisière Hospital (Paris) for the diagnosis of infectious diarrhoea in adults, with a systematic screening of Salmonella, Shigella and Campylobacter by culture methods

43 frozen stools from children of Robert Debré Hospital (Paris), known to be positive for a large range of gastrointestinal pathogens covered by the kit

RESULTS

100 consecutive stools (LRB)

10 µL
300 µL

Dilution

DNA Extraction
m2000 sp (Abbott)

Stool sample

Dilution

Multi-collect (Abbott)

Amplification

CFX96 (Biorad)

Cultures –
(n=93)

PCR –
(n=73)

PCR +
(n=20)

Cultures +
(n=7)

PCR –
(n=0)

PCR +
(n=7)

PCR

EHEC/EPEC (n=7)

EAEC (n=6)

Campylobacter (n=1)

EHEC (n=1)

EHEC/EPEC EAEC (n=1)

EHEC/EPEC, Campylobacter (n=1)

EHEC/EPEC, ETCC; EAE (n=1)

EHEC/EPEC, Salmonella, Shigella/EIEC (n=1)

Culture

PCR

S. sonnei

Shigella/EIEC, EHEC/EPEC, EAEC, ETCC

Salmonella

Campylobacter

C. jejuni

Campylobacter

A. butzleri

EHEC/EPEC, EAEC

C. jejuni

Campylobacter

43 frozen stools (RDB)

Identification obtained by culture

Detection of the cultured pathogen by PCR

Added microorganism detected by PCR

Campylobacter (n=12)

Salmonella (n=20)

Shigella (n=10)

Yersinia (n=1)

12

15

10

1

6

10

5

0

CONCLUSION

Amplidiag Bacterial GE assay is a rapid and reliable method to screen usual bacteria involved in gastroenteritis. This approach is particularly of interest to select samples that require cultures or not. Noteworthy, the high rate of pathogenic E. coli needs further investigations to unravel the clinical significance of E. coli positive results.