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**Diagnostics, other than Molecular: Diagnostic/laboratory methods (other than molecular)**

**Evaluation of the two-step algorithm in the diagnosis of *Clostridium difficile* infection in a Greek hospital**

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**Introduction:** Diagnosis of *C. difficile* infection (CDI) is an emergency for every hospital. Due to the laborious and delayed response of the toxigenic culture, a two step algorithm is proposed. The first step suggests the detection of glutamate dehydrogenase (GDH) of *C. difficile* (Cd) and the second one the detection of toxins of Cd in feces, only in the positive samples of the first step.

**Objectives:** To evaluate the recommended two step algorithm for the identification of CDI infection in a tertiary hospital in Greece

**Methods:** During the study, 138 fecal samples, from equal number of patients with diarrhea, were examined for the presence of Cd. Cycloserine-cefoxitin agar with 7% sheep blood (CLO, bioMerieux) was used for the isolation of Cd, ImmunoCard *C. difficile* GDH (Meridian) for the detection of glutamate dehydrogenase from stools and ImmunoCard TOXINS A&B (Meridian) was used for the detection of both toxins A and B of Cd from stools as well as from the isolated strains.

**Results:** Cd was isolated in 19/138 (14%) fecal samples and only one strain was non-toxicogenic.

GDH was positive in 23 samples out of which five were false positive and one false negative. This suggests a sensitivity: 95%, specificity: 96%, positive predictive value (PPV): 79% and a negative predictive value (NPV): 99%.

Toxins were found to be positive in 14 fecal samples out of which four were false positive and seven were false negative. The sensitivity of the method was 72%, the specificity: 97%, the PPV: 82% and the NPV: 94%.

**Conclusions:** The two step algorithm for the identification of CDI seems to apply in a routine hospital laboratory, but, still, when there is strong clinical evidence for CDI, toxigenic culture must be implemented.