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BATTERIOLOGIA

SIMULTANEOUS RESEARCH OF MYCOBACTERIUM TUBERCULOSIS COMPLEX AND ISONIAZIDE AND RIFAMPICIN GENOTYPIC RESISTANCE FROM DIFFERENT CLINICAL SAMPLES BY MDR/MTB ELITE MGB® KIT

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INTRODUZIONE

The MDR/MTB ELITe MGB® Kit on the ELITe InGenius® platform (ELITechGroup SpA, Italy) is a fully automated system for simultaneous research of the Mycobacterium tuberculosis complex (MTBc) genome and of the main mutations responsible for resistance to isoniazid (inhA, katG genes) and rifampicin (rpoB genes).
The aim of the study is to evaluate the performances of this product on pulmonary and extra-pulmonary samples, respect to MTBc culture and phenotypic antimicrobial susceptibility test (AST).

METODI

The study included 97 MTBc negative samples, previously tested by culture, of which 40 pulmonary and 57 extra-pulmonary were tested as negative samples.
Among 97 negative samples 20 bronchoalveolar lavage, 20 bronchoaspirate, 20 biopsies, 20 cavitary fluids were all spiked rifampicin/isoniazid sensitive H37RV strain, rifampicin-resistant rpoB mutant isolate and isoniazid-resistant isolates with inhA mutant and katG mutant obtained 320 samples and considered as positive.
In addition, were tested 15 MTBc positive of which 6 pulmonary and 9 extra-pulmonary, among the pulmonary samples, 2 were rifampicin-resistant and 13 were sensitive; for a total of 93 MTB positive and rifampicin/isoniazid sensitive samples and 242 MTBc positive and rifampicin or isoniazid resistant samples.

RISULTATI

The 432 samples were tested: fourteen (3.2%) invalid results: 1.5% among pulmonary samples and 4.9% among extra-pulmonary samples .
For the pulmonary samples, were in agreement for the 97.5% (36/37) among negative valid MTB-samples and 97.8% (45/46) among extra-pulmonary samples.
For the pulmonary samples, were in agreement for the 91.3% (42/46) among MTB-positive samples and 91.8% (45/49) for extra-pulmonary samples.
The determination of the resistance profiles was evaluated on the 80 spiked samples for each matrix, with a sensitivity and specificity of 100%.

CONCLUSIONI

In conclusion MDR/MTB ELITe MGB® Kit and ELITe InGenius constitute an effective solution in the simultaneous detection of MTB and of genotypic resistance to rifampicin and isoniazid on pulmonary and extra-pulmonary samples. This fully automated system simplifies the laboratory workflow, cuts the report time and is an aid in the appropriate choice of therapeutic treatment and patient management.