27th ECCMID Vienna, Austria 22 – 25 April 2017
The congress of ESCMID

Session: EV015 Molecular diagnostics and MALDI-TOF

**Category: 4b. Diagnostic bacteriology – non-culture based, including molecular and MALDI-TOF**

22 April 2017, 08:45 - 15:30
EV0256

# Clinical impact of rapid reporting for the molecular identification of Mycoplasma pneumoniae and antimicrobial resistance to macrolide

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**Background:**

*Mycoplasma pneumoniae* is a leading pathogen of pneumonia among children and antimicrobial resistance to macrolide in cases with *M. pneumoniae* is prevalent in East Asia.

The GENECUBE®*Mycoplasma pneumoniae* test is a newly approved molecular diagnostic test in Japan which can detect the presence of *M. pneumoniae* within an hour of run time when using the PCR-based automatic gene analyzer “GENECUBE®” system and its preparation kit (TOYOBO CO., LTD.).

In addition, the presence of a 2063 or 2064 site mutation in domain V of 23S rRNA, which is a major cause of antimicrobial resistance to macrolide, can also be simultaneously determined during this examination.

**Material/methods:**

We introduced the GENECUBE® system and GENECUBE®*Mycoplasma pneumoniae* test at Tsukuba Medical Center Hospital in Japan as point-of-care molecular testing and established a prompt

reporting system for such molecular testing results since May 2016. We reviewed the first 6 months of the examination results along with an analysis of each patient's background and clinical outcome.

**Results:**

In total, 707 throat swabs were submitted for molecular examination between May 2016 and October 2016, and *M. pneumoniae* was identified from 219 swabs (31%: 218 cases). Antimicrobial resistance to macrolide was suspected in 144 swabs (66%: 143 out of 218 cases). The median time between ordering the test by physicians and starting the examination was 41 minutes (IQR: range 27-57 minutes). The median time between the ordering time by physicians and the estimated end time of the examination was 93 minutes (IQR: range 78-114 minutes).

Among the 218 cases with *M. pneumoniae* infections (median age: 5 years old), the presence of pneumonia was radiologically identified in 173 cases (79%). The results of the molecular diagnosis were reported promptly during outpatient management and 121 cases with *M.pneumoniae* pneumonia were treated without admission on the day of the examination. Of these 121 cases, only 4 patients (3.3%) later required hospitalization.

**Conclusions:**

Our findings indicate that the point-of-care molecular testing of *M.pneumoniae* by the GENECUBE® system and the GENECUBE®*Mycoplasma pneumoniae* test is a useful diagnostic modality, especially for the outpatient management of pneumonia.