Usefulness of *Streptococcus pneumoniae* Antigen Detection Kit for the Management of Acute Otitis Media

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A multi-center study was conducted in 8 otolaryngological clinics in Japan to obtain the clinical usefulness of *Streptococcus pneumoniae* antigen detection kit for the management of acute otitis media (AOM). Children with acute otitis media who visited the clinics in this group study were categorized in terms of severity based on the Clinical Practice Guidelines for Pediatric Acute Otitis Media (2009 Edition), and patients with moderate or severe AOM were given diagnostic tests with *S. pneumoniae* kit (HS kit). The treatment strategy was decided by each clinic in accordance with its clinic-specific criteria. Study results from clinics that made decisions based on the current treatment guidelines (non-HS group) and in reference to the test kit results (HS group) were stratified and post analysis was performed. The usefulness of the HS kit was evaluated based on the rate of concordance with cultivation tests, the clinical course and the impression of the attending doctors regarding the usefulness. The performance of the kit in comparison to cultivation tests showed a sensitivity of 78.2% and specificity of 89.9%. The results demonstrated that in 127 of 155 subjects (81.9%) the HS kit was “extremely useful” or “useful” in identifying the infecting organism, selecting appropriate antibacterial agents, or in giving the information to explain to patients’ guardians about the management of AOM. In HS kit-positive cases, the HS group and non-HS group judged that the kits were “extremely useful” or “useful” in 97% and in 90%, respectively. On the study of reasons on judging the HS kit as useful, the HS group indicated that the kit was useful in identifying the infecting organism, selecting appropriate antibacterial agents, and in giving the information to explain to patients’ guardians about the management of AOM. On the other hand, the non-HS group considered the kit as useful mainly in identifying the infecting organism.

Based on these results, the implementation of a rapid diagnostic method using *S. pneumoniae* kit was confirmed as highly useful for the management of AOM.

**Keywords**: *Streptococcus pneumoniae* antigen detection kit, acute otitis media, *Streptococcus pneumoniae*, clinical practice guideline

References

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Usefulness of *Streptococcus pneumoniae* antigen detection kit (HS kit)
The HS kit was “extremely useful” or “useful” in identifying the infecting organism, in selecting appropriate antibacterial agents, and in giving the information to explain to patients’ guardians about the management of AOM.

Efficacy of AMPC regular-dose or high-dose on clinical symptoms and tympanic membrane findings in the HS kit positive cases
In the HS kit positive cases, high-dose AMPC was likely to be more effective on the improvement of tympanic membrane findings.

Efficacy of AMPC or CDTR-PI/TFLX on clinical symptoms and tympanic membrane findings in the HS kit negative cases
In the HS kit negative cases, suggesting that *H. influenzae* or *M. catarrhalis* were the likely pathogens, CDTR-PI/TFLX showed a significantly higher improvement rate than AMPC.