

### COMPARATIVE STUDY OF REAL-TIME PCR, LATEX, AND CULTURE FOR DETECTION OF BACTERIAL MENINGITIS

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Bacterial meningitis is a severe infection that may lead to lethal consequences. Rapid, accurate diagnosis is essential for optimal management of patients and for provision of prompt prophylaxis to contacts. The objective of this study was to compare three different methods (Real Time PCR, latex and culture) for the detection of *Neisseria meningitidis*, *Streptococcus pneumoniae* and *Haemophilus influenzae*. The study was performed in 456 CSF and 49 sera samples. Specimens were provided from different regions of Paraná state and collected between January 2008 and May 2009. The samples were analyzed by Real Time PCR (RT-PCR) (triplex reaction by TaqMan system); Latex, performed according to manufacturer's instructions (Pastorex™ Meningitis Bio-Rad, Marnes-la-Coquette, France) and standard culturing; and the results obtained were compared. Of the 505 samples analyzed, 46 (10.08%) were positive for *Neisseria meningitidis*. Culture was positive for 13 samples (2.85%), latex for 25 samples (5.48%) and RT-PCR for 44 samples (9.64%). Culture and RT-PCR results were concordant for 11 samples (2.41%). However, 33 (7.23%) and 20 (4.38%) samples were positive only for the RT-PCR, when compared with culture and latex, respectively. Among the 49 patients suspected of meningococemia, *N. meningitidis* was detected by both latex and RT-PCR in only 3 (6.12%) sera samples. However, this species was detected by RT-PCR in 11 samples (28.57%). *Streptococcus pneumoniae* was detected in 66 (14.47%) samples. Culture was positive for 25 samples (5.48%), latex for 29 samples (6.35%) and RT-PCR for 66 samples (14.47%). Comparing the three assays, it was observed that there was no false positive result i.e 100% of specificity. None of the samples was identified as *Haemophilus influenzae*.

Conclusions: These findings may reflect the RT-PCR is more sensitive in identifying *N. meningitidis* and *S. pneumoniae*. However, latex is a useful tool to generate prompt results and thus aid proper clinical decision-making.