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Abstract (oral session)

Evaluation of bacterial and viral aetiology in community-acquired pneumonia requiring hospitalisation with polymerase chain reaction

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Objectives: It is important to detect the etiologic agent by the rapid diagnostic tests with high sensitive and specificity rates. Etiologic results may be learnt in less than hours with the new molecular diagnostic tests, therefore a proper antimicrobial therapy for the pneumonia can be managed early. This early targeted therapy can avoid the adverse reactions and the increased resistance profile of unnecessary antimicrobials and decrease the total cost. In this study it was aimed to evaluate the bacterial and viral etiology of CAP with polymerase chain reaction. **Methods:** The study sample comprised adult cases (aged>18) diagnosed as CAP and required hospitalization according to Infectious Diseases Society of America guidelines. Patients with healthcare-associated pneumonia or received antibiotics in the last 48 or hospitalized in the previous 48 h were excluded. Physical examination, radiological and laboratory follow up was performed on day 0-7 and 14. Deep tracheal aspirate was received from all cases. Bacterial culture was performed for all samples. In addition PCR for bacteria and viruses was performed. For respiratory viruses we used Seeplex RV15 ACE Detection (South Korea) and for bacteria we used Seeplex PneumoBacter ACE Detection (South Korea) dual primaryy oligonucleotide kits. **Results:** The rate of the specific agent detection with either conventional methods or PCR in the patients with community acquired pneumonia was 100 %. *S. pneumoniae* was the most common agent (78%) similar with previous studies (table 1). Fifty four percent of the patients had more than one pathogen with mostly *H. influenzae* and rhinovirus. The viral agents which have increasing popularity in the last years were detected with a high ratio (36%) in our study (table 2). They were detected as single agent in two patients and as concomitant agent in 16 patients. Unexpectedly, the most common viral agent was Rhinovirus. Coronavirus and Human Metapneumovirus were detected in one patient each. **Conclusion:** PCR increased the ability to delineate the etiology upto 100% of CAP cases who had not used antibiotics in the previous 24 h. These are the first data related to newly discovered viruses such as Human Metapneumovirus, coronavirus 229E/OC43, Bocavirus in Turkey. In addition these data suggest that mix infections are more common than they are expected in CAP requiring hospitalization. We suggest the usage of the molecular diagnostic tests in lower respiratory tract infections.

Table 1: Bacterial etiology of CAP requiring hospitalization with conventional methods and PCR.

| Bacteria | Conventional culture (50 patients) | | PCR (50 patients) | |
|--|---|------------|--------------------------|------------|
| | N | % | N | % |
| <i>S. pneumoniae</i> | 16 | 41,5 | 39 | 58,2 |
| <i>H. influenzae</i> | 17 | 43,5 | 25 | 37,3 |
| <i>M. catarrhalis</i> | 4 | 10 | - | - |
| <i>P. aeruginosa</i> | 1 | 2,5 | - | - |
| Methicillin-sensitive <i>S. aureus</i> | 1 | 2,5 | - | - |
| <i>M. pneumoniae</i> | - | - | 3 | 4,4 |
| Total | 39 | 100 | 67 | 100 |

Table 2: Viruses detected with PCR.

| Etiology | n |
|-----------------------|-----------|
| Rhinovirus | 10 |
| RSV | 4 |
| Influenza A | 2 |
| Parainfluenza 4 | 2 |
| Coronavirus 229E/OC43 | 1 |
| Influenza B | 1 |
| Metapneumovirus | 1 |
| Parainfluenza 2 | 1 |
| Total | 23 |