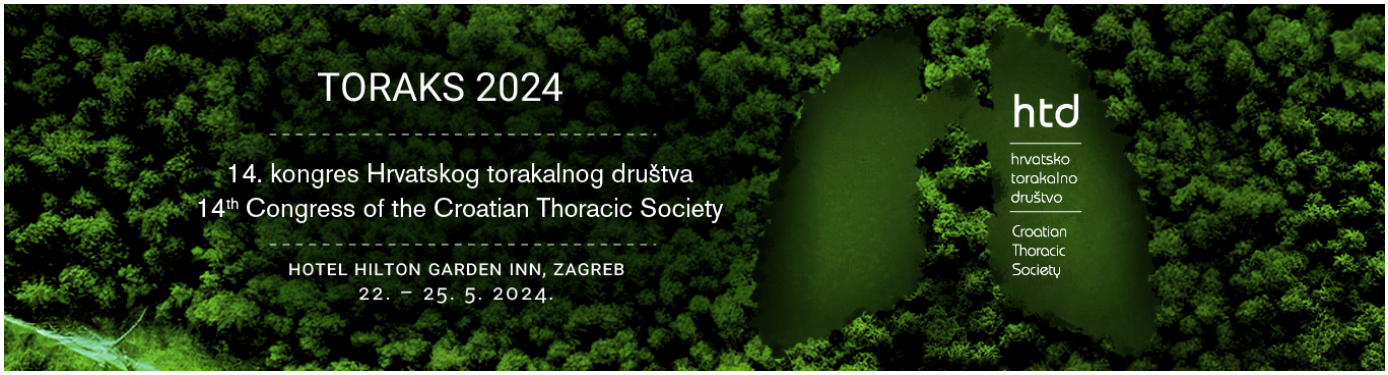

POSITIVE MULTIPLEX POLYMERASE CHAIN REACTION RESPIRATORY PANEL AMONG PATIENTS WITH ACUTE RESPIRATORY INFECTIONS: A SINGLE – CENTRE EXPERIENCE IN CROATIA

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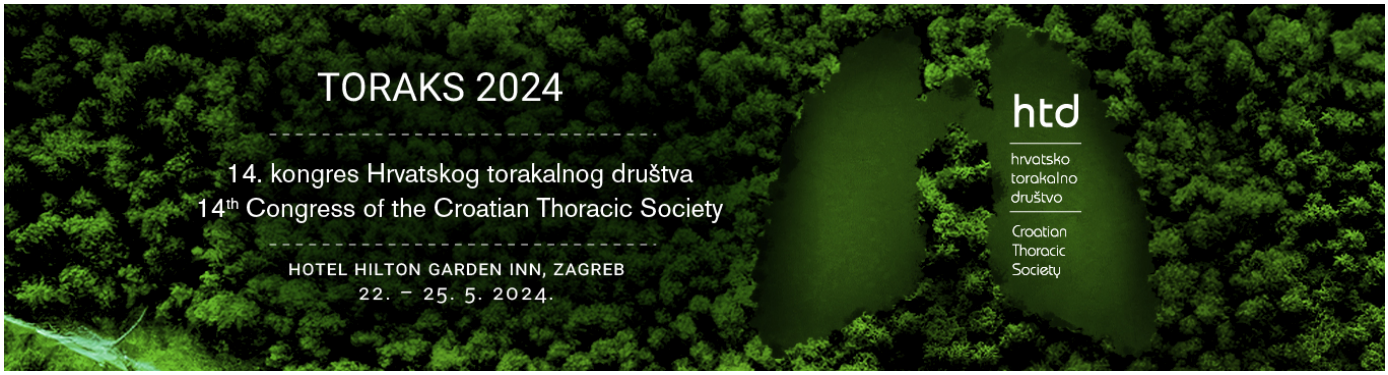
Objective:

Acute respiratory infections (ARI), especially community-acquired pneumonia (CAP), are major causes of morbidity and mortality worldwide with many causative pathogens that can lead to ARI. Recently, panel-based molecular diagnostics for the detection of respiratory pathogens in nasopharyngeal swab (NPS), nasopharyngeal aspirate (NS), bronchoalveolar lavage (BAL) and sputum (S) specimens have been highlighted.



This study aimed to evaluate the utility of NPS for the diagnosis of CAP collected from adult patients by employing multiplex PCR (mPCR) to estimate its applicability in clinical practice.

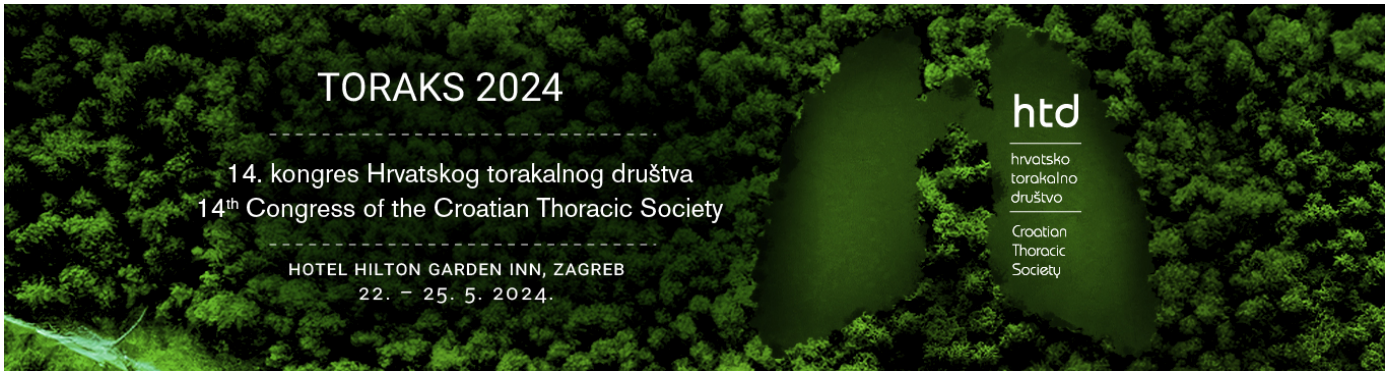
Methods:

A single-centre retrospective cross-sectional study was performed in the two largest Departments for Respiratory Diseases and Department of Clinical Microbiology in Croatia (University Hospital Centre Zagreb) from November 1, 2023, to April 30, 2024. We used NPS specimens from adult patients, respectively which were then evaluated by simultaneous testing with Allplex™ PneumoBacter Assay. Allplex™ PneumoBacter Assay is a qualitative in vitro test for single or multiple detection and identification of 7 respiratory bacteria Mycoplasma pneumoniae, Legionella pneumophila (LP), *Chlamydophila pneumonia* (CP), *Streptococcuspneumoniae* (SP), *Haemophilus influen zae* (HI), *Bordetella pertussis* (BP) and *Bordetella parapertussis* (BPP) associated with pneumonia using multiplex real-time PCR using Allplex™ system that permits simultaneous amplification and detection of target nucleic acids of CP, MP, LP, BP, BPP, SP, HI and Internal Control (Seegene).

Result:

The total of 113 patients (55.8% male; median age, 69 years) were included in the study.

Among 113 adult patients, 37 specimens (33%) were positive in Allplex™ PneumoBacter Assay. 24 specimens (64%) were positive for *SP*, 17 (46%) were positive for *HI* and 1 specimen (2.7%) was positive for *MP*. 5 specimens (13%.5) tested positive for both *SP* and *HI*. *CP* and *BP* results were all negative. Among positive specimens only 5 patients (13%) did not have any radiological changes intrathoracic.



Conclusion:

This study identified pathogens that cause respiratory infections which provide scientific evidence for management policies of domestic respiratory infections. Classical microbiological identification techniques cannot provide an efficient means of diagnosis leading to delays in detection and diagnosis. The rapid and accurate identification of early mentioned pathogens with PneumoBacter is a key component for establishing an etiological diagnosis, facilitating early appropriate treatment. Monitoring respiratory infections and developing new methods for detecting them should be continuously conducted in the future.