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ePoster Session

Prediction and diagnostics of respiratory infections

Winter adult hospitalizations for acute respiratory conditions: prevalence of bacterial and viral infections in a population with high level of comorbidities

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Background: Yearly winter surveillance data has highlighted the high prevalence of viral infections in adult population hospitalized for respiratory conditions. We aimed to assess the burden of viral and bacterial documented infections in patients with severe comorbidities hospitalized with a confirmed diagnosis of acute respiratory infection.

Material/methods: Following epidemiological criteria for Respiratory Syncytial Virus (RSV) and influenza circulation in the general population as defined by the Belgian Scientific Institute for Public Health (IPH), all adult patients matching with a case definition for a Severe Acute Respiratory Infection (SARI) were enrolled after initial assessment at the Emergency Department (ED). A nasopharyngeal swab for molecular analysis targeting Influenza and RSV viruses was systematically sampled. Lower respiratory tract (LRT), blood, and/or urinary tract specimens were obtained within 24 hours of admission for bacteriological culture and/or antigen detection (*Streptococcus pneumoniae*, *Legionella*), according to patient status. Medical data were prospectively recorded alongside with follow-up and clinical diagnosis at discharge, and reviewed in the Electronic Medical Records.

Results: From week 50/2014 to week 16/2015, 165 hospitalized adult SARI patients had a nasopharyngeal sampling for molecular analysis. A diagnosis of respiratory infection at discharge was confirmed in 143 (87%) of these patients. In that population, LRT and blood cultures were positive for at least one respiratory bacterial isolate in respectively 41/87 (47%) and 7/124 (6%). Six other respiratory bacterial infections were diagnosed with urine antigen detection. Altogether, 40 (28%) patients had a single bacterial infection and 52 (36%) a single viral infection documented (39 influenza, 13 RSV). Twelve (8%) patients had a bacterial infection coinfecting with one respiratory virus (8 influenza, 4 RSV). *Streptococcus pneumoniae* (n=14), *Haemophilus influenzae* (n=11), and *Pseudomonas aeruginosa* (n=10) were the predominant bacterial pathogens. Thirty-nine (27%) patients had a respiratory infection that was not microbiologically documented. In these 143 patients, 127 (89%) presented comorbidities, including 77 (61%) pulmonary conditions, and 25 (20%) onco/hematological malignant diseases.

Conclusions: We confirm the high prevalence of documented viral infections in our SARI adult population hospitalized in winter 2014-2015. In parallel, bacterial respiratory tract infection rates remains high in this population with severe comorbidities, and can be missed if appropriate respiratory tract, blood and/or urine sampling for bacteriological analysis are not obtained. Molecular diagnosis for viral respiratory infections and exhaustive bacterial coinfection assessment should be a Standard Of Care (SOC) for the management of these patients.