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Burden of rotavirus gastroenteritis in children aged <5 years in the Kingdom of Bahrain: A hospital-based prospective surveillance (2006-2007)

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Background: Globally, rotavirus (RV) infection is the primary cause of severe gastroenteritis (GE) in children aged <5 years, leading to >500,000 deaths annually. In the Kingdom of Bahrain, recent data describing the epidemiology of rotavirus-associated gastroenteritis (RVGE) is not available. To address this gap, the present single-center, referral hospital-based surveillance study aimed to estimate the burden of RVGE in children aged <5 years in the Kingdom of Bahrain.

Methods: Children aged <5 years hospitalized for GE were enrolled at Salmaniya Medical Complex, a reference pediatric hospital, between April 2006 and April 2007. Stool samples were tested for RV using ELISA and RV-positive samples were genotyped by RT-PCR. The severity of RVGE (Severe=Vesikari score ≥ 11) was assessed using the 20-point Vesikari scale. Chi-square test was used to analyze the association between the severity of GE and RV-positivity status (post-hoc analysis).

Results: 314 children were enrolled after elimination of 75 children who did not meet the eligibility criteria. The according-to-protocol (ATP) analysis included 239 children; 107 (44.8%) children were RV-positive; 128 (53.5%) were RV-negative and 4 (1.7%) had an unknown RV status. The highest proportion of RVGE cases was observed in the 6-23 months age group (76.6%; 82/107). RVGE hospitalizations occurred year-round with peaks in March-06 (75%) and April-06 (61.9%). The association between severe GE episodes and RV-positive status was statistically significant ($p=0.0097$). Intravenous rehydration was used for treatment in 28.0% RV-positive and 17.2% RV-negative children before hospitalization. Among the 17 (15.9%) RV-positive samples serotyped and genotyped, G1 (58.8%) and P[8] (82.4%) were the most common RV types detected.

Conclusion: The data from this burden of disease study in the Kingdom of Bahrain shows that the disease burden of RVGE is substantial among children aged between 6 months and 23 months. This baseline data will facilitate the documentation of the potential reduction in the RVGE disease burden in children aged <5 years in the Kingdom of Bahrain, since the introduction of RV vaccination into the national immunization program in 2009.

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Prevalence bacterial and viral pneumonia in children on pediatric pulmonology units during last three years period in Sarajevo

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Background: Pneumonia is typically caused by an infection but there are a number of other causes. Confirming the underlying cause can be difficult in children, however, with no definitive test able to distinguish between bacterial and non-bacterial origin. With treatment, most types of bacterial pneumonia can be cleared within two to four weeks and mortality is very low in children.

Methods: A retrospective study was performed with children ≤ 14 years of age who were evaluated in the pneumonia during three years period 2008-2010, were found to take nasopharyngeal specimens, laboratory data and had chest radiography performed because of possible pneumonia. Historical features and examination findings were collected by treating physicians before knowledge of the chest radiograph results. Antibiotics were prescribed according to standard practices on pulmonology unit.

Results: Nasopharyngeal specimens were obtained from 502 children, representing 10-25% of children population groups in the different areas. Pneumococci were carried by 250 (49.8%) of the children, 7 (2.8%) of the isolates being resistant to penicillin or multiresistant. Other commonly isolated bacteria include: *Haemophilus influenzae* in 51 (20.4%), *Chlamydophila pneumoniae* in 28 cases (11.2%), *Mycoplasma pneumoniae* in 9 (3.6%), *Staphylococcus aureus*, *Moraxella catarrhalis*, *Legionella pneumophila* and gram-negative bacilli. Acute atypical bacterial infection was identified in 146 children (29.1%). Other were atypical bacterial infections. We excluded viral pneumonia infections in 99 (19.7%) hospitalized children cases.

Conclusion: The most common types of hospitalized pneumonia infectious in children were bacteria and viruses with it being less commonly due to fungi or parasites. There was no significant difference in the efficacy of the different treatment regimens followed by children with *S. pneumoniae* infection, whereas clinical failure occurred significantly more frequently among children with atypical bacterial or mixed infection who were not treated with a macrolide.

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