Importance of Influenza vaccination in children for disease control in Pakistan 2009–2017

Nadia N[1], **Bashir U**[2] and **Badar N**[3]
[1]University of Arid Agriculture, Pakistan
[2]National University of Sciences and Technology, Pakistan
[3]Quaid-i-Azam University, Pakistan

Background: Influenza is a common illness of childhood and the burden of disease is higher among pre-school children with attack rates up to 20%–30%. Limited information about burden of influenza in children is available in Pakistan, therefore the present study was designed to estimate incidence rate of influenza in both outpatient and hospitalize children with underlying risk factors and clinical features.

Methods: During 2009-17 throat and nasopharyngeal swabs collected from children ≤12 years of age were processed for detection of influenza viruses by Real-Time PCR protocol of CDC. SPSS 22.0 was used for statistical analysis presented in this study.

Results: A total of 13,081 influenza-associated outpatients and hospitalized children were enrolled during 2009 to 2017. Influenza virus detection rate was 72% (9418) in the outpatients and 28% (3663) in the hospitalized patients. Of these 54% children (7064) were aged ≥ 12 years. Influenza viruses were detected in 17% (1216) children, of whom 845 (69%) were positive for Inf A and 371 (31%) as Inf B viruses respectively. The detection of influenza B strain was higher in both groups of children 29% and 35% respectively following the A/H1N1pdm09 strain. The high frequency of influenza viruses were reported in year 2011 and A/H1N1pdm09 was dominant strain as well. The mean ± S.D of children age ≥ 6 and ≥ 12 years was 2.4 ± 1.7 and 9.2 ± 2.4 respectively. The gender ratio amongst both groups was equal. Cross sectional analysis showed that fever 1120(96%), cough 1204(99%) and sore throat 1021 (84%) was significant factors for influenza infections ($p = 0.001$), however no significant differences were observed with respect to respiratory, liver and metabolic diseases between these groups. Influenza vaccination status was record only in 1% cases. The incidence rate of influenza outpatient and hospitalized was 27/1000 and 13/1000 persons years respectively. The average annual rate of influenza was higher (180 cases/1000) among ≥ 6 years of age than ≥ 12 years old children (145 cases/1000).

Conclusions: Higher influenza incidence rate was observed particularly among six year old children, which might contribute to increase in the hospitalization. We believe that vaccination of children will reduce the hospitalization rate and socio-economic burden of influenza in the community if included in national extended program of immunization. Furthermore improvements in existing influenza virus surveillance system are required to estimate the actual burden of influenza in children.

nisar.nadia@gmail.com