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INFLUENZA-LIKE-ILLNESS IN PATIENTS ACCESSING THE PEDIATRIC EMERGENCY ROOM DURING WINTER SEASON 2022/2023

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INTRODUCTION

During the last two winter seasons, a drastic reduction in cases of influenza-like-illness (ILI) has been observed worldwide. In the pediatric population, rates of hospitalization due to ILI vary with age and are up to tenfold higher in children younger than two years of age causing significant healthcare and economic burden. Our aim is to evaluate, in the current winter season, the spread of the main viruses responsible for ILI in pediatric patients, with the exclusion of SARS-CoV-2.

METHODS

Between 12 October 2022 and 12 May 2023, in patients with respiratory symptoms (cough, persistent fever and rhinitis) accessing the Pediatric Emergency Room (ER) at the Sant'Orsola Polyclinic of Bologna, nasopharyngeal (NP) swabs were collected for the detection of: Influenza A (FLU-A), Influenza B (FLU-B), Respiratory Syncytial Virus (RSV), Rhinovirus (HRN), Parainfluenza Virus (PIV), Adenovirus (ADV) and Metapneumovirus (MPV). The samples were processed using the AllplexTM RV Essential Assay (Seegene MuDTTM technology, South Korea) multiparameter molecular panel and the results were obtained within few hours.

RESULTS

During the study period, 1675 NP swabs were analysed. A positive result, for at least one of the viruses responsible for ILI, has been found in 1378 samples (82%). In particular, positivity was observed as follows: 389 (28%) FLU-A, 98 (7%) FLU-B, 424 (31%) ADV, 277 (20%) RSV, 376 (28%) HRN, 111 (8%) MPV, 65 (5%) PIV. A coinfection was found in 329 cases (24%).

The first FLU-A positive sample was detected in the 41st week of 2022 and the peak was reached in the 48th. By the end of the 14th week of 2023 there are no cases of infection.

The first FLU-B positive sample was detected in the 46th week of 2022. The peak was reached between at the 8th week of 2023 and by the 19th week only rare cases were observed.

The first RSV positive sample was detected in the 46th week of 2022, while the peak was in the 49th week; by the 17th week of 2023 there are no cases of infection.

Between the 12th and the 15th week of 2023, a peak of ADV has occurred and it has not been decreased yet.

The 80% of RSV positive children was less than two years old, in comparison to the 53% of ADV positive children and to the 50% of FLU-A positive children (Fig. 1).

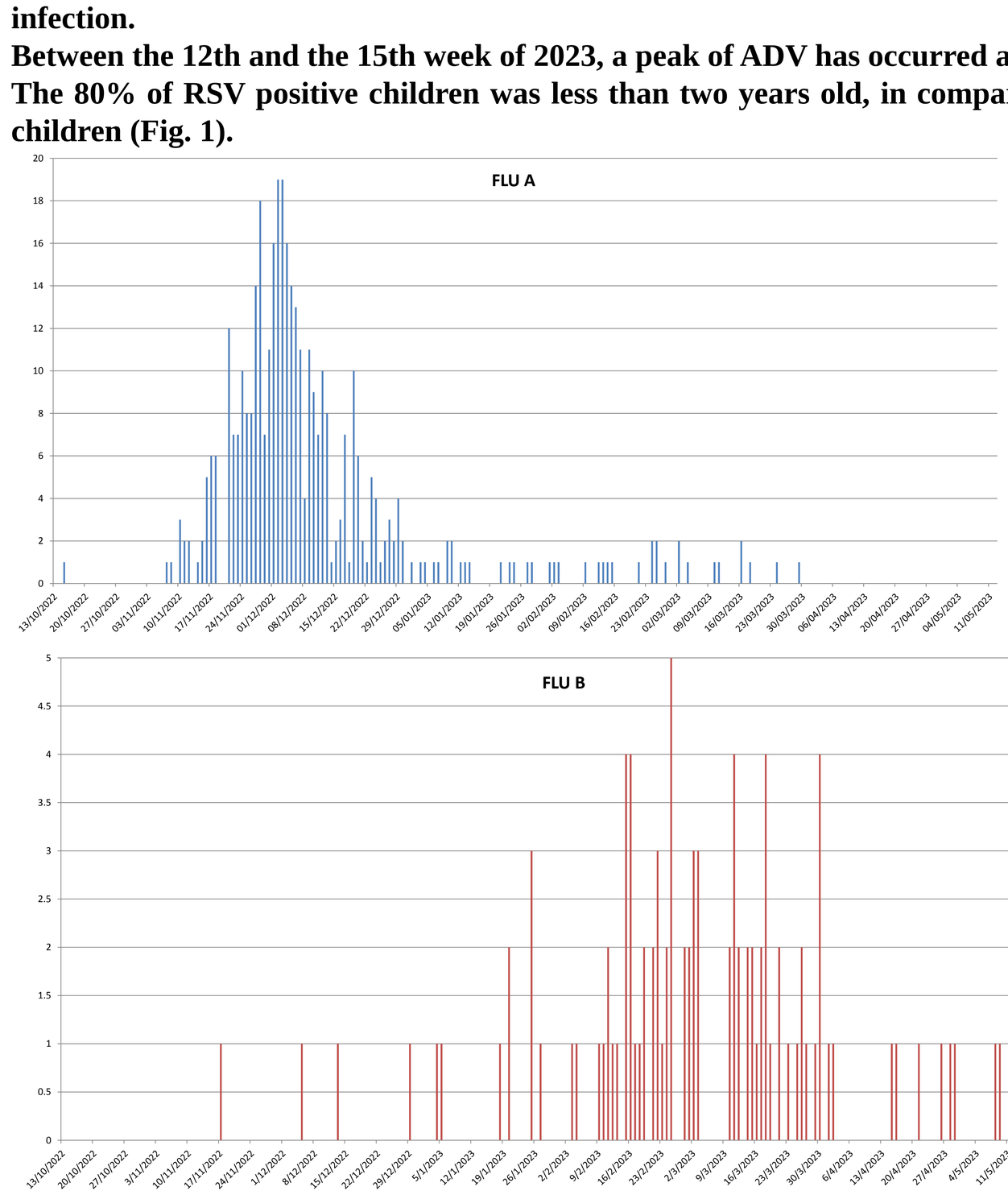

Fig.1: Flu A, Flu B, RSV and ADV trend in the pediatric population, during the winter season.

CONCLUSIONS

In the current influenza season, cases of ILI, with the exclusion of SARS-CoV-2, were mainly caused by FLU-A, RSV and later also ADV, especially in children under 2 years of age.

The use of the multiparameter molecular test with results available in few hours, allowed to simplify the diagnostic path used in children with ILI accessing the ER. If the patient has a clinical suspicion of viral respiratory infection, no further diagnostic tests is performed. Only in case of negative result with the persistence of symptoms, further diagnostic investigation should be carried out.