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Cross-protection to new drifted influenza A (H3) viruses and prevalence of protective antibodies to seasonal influenza, between 2014 in Portugal

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Introduction: Immune profile for influenza viruses is highly changeable over time. Serological studies can assess the prevalence of influenza, estimate the risk of infection, highlight asymptomatic infection rate and can also provide data on vaccine coverage. The aims of the study were to evaluate pre-existing cross-protection against influenza A (H3) drift viruses and to assess influenza immunity in the Portuguese population.

Materials & Methods: We developed a cross-sectional study based on a convenience sample of 626 sera collected during June 2014, covering all age groups, both gender and all administrative health regions of Portugal. Sera antibody titers for seasonal and new A (H3) drift influenza virus was evaluated by hemagglutination inhibition assay (HI). Seroprevalence to each seasonal influenza vaccine strain virus and to the new A (H3) drift circulating strain was estimated by age group, gender and region and compared with seasonal influenza-like illness (ILI) incidence rates before and after the study period.

Results: Our findings suggest that Seroprevalence of influenza A (H3) (39.9%; 95% CI: 36.2–43.8) and A (H1) pdm09 (29.7%; 95% CI: 26.3–33.4) antibodies were higher than for

influenza B, in line with high-ILI incidence rates for A (H3) followed by A (H1) pdm09, during 2013/2014 season. Low pre-existing cross protection against new A (H3) drift viruses were observed in A (H3) seropositive individuals (46%). Both against influenza A (H1) pdm09 and A (H3) Seroprotection was highest in younger than 14-years old. Protective antibodies against influenza B were highest in those older than 65 years old, especially for B/Yamagata lineage, 33.3% (95% CI: 25.7–41.9). Women showed a high Seroprevalence to influenza, although without statistical significance, when compared to men. A significant decreasing trend in seroprotection from north to south regions of Portugal mainland was observed.

Conclusions: Our results emphasize that low seroprotection increases the risk of influenza infection in the following winter season. Seroepidemiological studies can inform policy makers on the need for vaccination and additional preventive measures.

Speaker Biography

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