

FIRESIDE SESSION 9

DAY 3, 25 NOVEMBER 2022

13:30 – 15:00

Late breakers

MODERATOR

Eleanor McNamara

Abstract

High vaccine effectiveness against severe COVID-19 outcomes during the Omicron era in Luxembourg, December 2021-August 2022

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BACKGROUND

Luxembourg experienced three major SARS-CoV-2 infection waves due to Omicron variants during 2022 while having achieved a high vaccination coverage in 2021. We investigated severe outcomes (hospitalisation, death) among adults in relation to variants, vaccination status and prior infection.

METHODS

We linked reported adult cases aged 20 years or older of SARS-CoV-2 from contact tracing with SARS-CoV-2 related hospitalisation and SARS-CoV-2 related deaths. We defined three time periods where different Omicron variants predominated, i.e. represented more than 75% of sequenced cases: i)BA.1 period from 27/12/2021-13/02/2022, ii)BA.2 from 14/03/2022-15/05/2022, iii)BA.5 from 20/06/2022-15/08/2022. Logistic regression was performed adjusting for age, gender, period, vaccination status and reinfection.

RESULTS

Between December 27th 2021 and August 15th 2022, we recorded a total of 160,280 SARS-CoV-2 cases, 499 (0.31%) hospitalisations and 256 (0.16%) deaths. Compared to the earlier BA.1 period, both risks of hospitalisations and deaths were significantly lower during the BA.2 period (OR 0.40, 95%CI 0.31-0.51 and OR 0.60, 95%CI 0.44-0.82, respectively) and BA.5 period (OR 0.65, 95%CI 0.50-0.84 and OR 0.43, 95%CI 0.27-0.68, respectively). Compared to unvaccinated adults, the risk of hospitalisation was 55% lower (95%CI 41%-66%) with a complete vaccination and 75% lower (95%CI 69%-80%) with a booster dose. Compared to unvaccinated adults, the risk of death was 82% lower (95%CI 75%-87%) with a booster. Previous infection was not associated with lower hospitalisation or mortality.

CONCLUSIONS

Our findings suggest that the risk of severe outcome differed during the three waves of Omicron infections in 2022. Complete vaccination and booster but not previous infection were protective against hospitalisation and death. Further monitoring will be required to assess the effectiveness of Omicron adapted vaccines.

Keywords: SARS-CoV-2, Hospitalization, Mortality, Reinfection, Vaccination

ABSTRACT ID: 553

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