

SARS-CoV-2 serosurvey in health care workers of the Veneto Region

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Abstract

Objectives

The ongoing outbreak of coronavirus disease (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) poses formidable challenges to all health care systems. Serological assays may be used for improving disease management when appropriately applied, for investigating the antibody responses mounted against SARS-CoV-2 infection and for assessing its real prevalence. Although testing the whole population is impractical, well-designed serosurveys in selected subpopulations in specific risk groups may provide valuable information. We evaluated the prevalence of SARS-CoV-2 infection in health care workers (HCW) who underwent molecular testing with reverse transcription real-time polymerase chain reaction (rRT-PCR) in the main hospitals of the Veneto Region of Italy by measuring specific antibodies (Abs).

Methods

Both immunoglobulin (Ig)M and IgG antibodies against SARS-Cov-2 S-antigen and N-protein were measured using a validated chemiluminescent analytical system (CLIA) called Maglumi™ 2000 Plus (New Industries Biomedical Engineering Co., Ltd [Snibe], Shenzhen, China).

Results

A total of 8,285 HCW were tested. SARS-CoV-2 specific antibodies (IgM, IgG or both) were detectable in 378 cases (4.6%, 95% CI 4.1-5.0%). Seroconversion was observed in 4.4% of women vs. 5.0% of men, but this difference was not significant. Although detectable antibodies were found in all HCW who developed severe COVID-19 infection (100%), lower seropositivity was found in mild disease (83%) and the lowest prevalence (58%) was observed in asymptomatic subjects.

Conclusions

Seroprevalence surveys are of utmost importance for understanding the rate of population that has already developed antibodies against SARS-CoV-2. The present study defined precisely the circulation of SARS-CoV-2 in a cohort of HCW in the Veneto Region, with its prevalence (4.6%) reflecting a relatively low circulation. Symptomatic individuals or those hospitalized for medical care were 100% antibody positive, whilst Abs were only detectable in 58% of asymptomatic carriers.

Keywords: COVID-19; SARS-CoV-2 antibody; health care workers; seroprevalence.

FULL TEXT

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