PROJECT

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1) Project title

Surveillance of healthcare workers for SARS-CoV-2 infection and testing of a clinical follow-up model

2) Abstract

Background: Healthcare workers (HCWs) have been identified since the beginning of the pandemic as a population at greater risk of infection albeit with different prevalence in relation to the infection control strategies implemented and the trend of infections in the geographical reference area (Gpomez-Ochoa and Franco, 2020). The Veneto Region represented one of the Italian areas most affected by the pandemic, with 1,567,516 cases (10.2% of the total), of wich about 2.5% among HCWs (Report ISS, update on 15/4/2022). The extensive vaccination coverage permitted to reduce the COVID-19 incident cases and the severity of the disease. Preserving health and safety of HCWs and preventing the medium-long term effects of the COVID-19 pandemic is crucial for health of communities.

Aim: The project consists of two lines of research. The first one aims to assess COVID-19 burden in HCWs, infection control strategies, adherence to and effectiveness of COVID-19 vaccine.
The second relates to an experimental model of a clinical follow-up of positive HCWs about one year after the diagnosis of infection, with the aim of identifying any long-term sequelae of COVID-19 and assessing their impact on work ability.

Methods: A retrospective study will be carried out involving 8217 HCWs of University Hospital of Padua present at work in the period 1 February 2020 - 31 March 2022, and routinely tested during the four phases of the pandemic with rt-PCR swab. Data of positive-tested HCWs collected during the study period will be stratified according to demographics, type and date of contact, sampling dates, results of SARS-CoV-2 testing, symptoms and their onset. We considered asymptomatic those HCWs who had no symptoms at the moment of swabs and which continued to remain asymptomatic throughout the quarantine period. The cumulative incidence of SARS-CoV-2 infection in this cohort during the study period and in the different phases will be estimated and the job-specific attributable fraction will be calculated with reference to the respective regional population. A multivariate logistic regression will be also performed to assess the associations between the variables of interest. The rates of HCWs who underwent anti-Covid-19 vaccination will be calculated, considering the vaccine coverage across different HCWs groups; data will be categorized according to the number of doses administered. The breakthrough infections will be also evaluated. Lastly, the immunological response of anti-Covid-19 vaccine will be evaluated 1-3 months after the third dose of COVID-19 vaccine.

In the clinical follow-up model, any persistence of COVID-19 related symptoms among HCWs and their working ability is assessed through *ad hoc* questionnaires, and instrumental examinations are performed to investigate respiratory and cardiac function. The analysis of these data will allow to evaluate which symptoms persist significantly over time. Expected results: Targeted health surveillance. Assessment of possible medium-long term outcomes of SARS-CoV-2. Promotion of safe return to work. Assessment of effectiveness of COVID-19 vaccines, occurrence of breakthrough infections, promotion of vaccination.