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Effect of the 2020/21 season influenza vaccine on SARS-CoV-2 infection in a cohort of Italian healthcare workers



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ABSTRACT

Objectives: Healthcare workers (HCWs) are a priority group for seasonal influenza vaccination (SIV). The 2020/21 SIV campaign was conducted during the second wave of the COVID-19 pandemic. Vaccines, including SIV, may exert non-specific protective effects on other infectious diseases which may be ascribable to the concept of trained immunity. The aim of this study was to explore the association between 2020/21 SIV and SARS-CoV-2 positivity in a cohort of Italian HCWs.

Methods: In this observational study, a cohort of HCWs employed by a large (ca 5000 employees) referral tertiary acute-care university hospital was followed up retrospectively until the start of the COVID-19 vaccination campaign. The independent variable of interest was the 2020/21 SIV uptake. Both egg-based and cell culture-derived quadrivalent SIVs were available. The study outcome was the incidence of new SARS-CoV-2 infections, as determined by RT-PCR. Multivariable Cox regression was applied in order to discern the association of interest.

Results: The final cohort consisted of 2561 HCWs who underwent ≥ 1 RT-PCR test and accounted for a total of 94,445 person-days of observation. SIV uptake was 35.6%. During the study period, a total of 290 new SARS-CoV-2 infections occurred. The incidence of new SARS-CoV-2 was 1.62 (95% CI: 1.22–2.10) and 3.91 (95% CI: 3.43–4.45) per 1000 person-days in vaccinated and non-vaccinated HCWs, respectively, with an adjusted non-proportional hazard ratio of 0.37 (95% CI: 0.22–0.62). *E*-values suggested that unmeasured confounding was unlikely to explain the association.

Conclusions: A lower risk of SARS-CoV-2 infection was observed among SIV recipients.

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1. Introduction

Seasonal influenza vaccination (SIV) is a key public health measure that can reduce the socioeconomic burden of the disease, and several priority population groups for annual immunization are well recognized [1,2]. Among these, healthcare workers (HCWs) occupy a prominent place; indeed, almost all European jurisdictions recommend free-of-charge annual influenza vaccination for

all HCWs [3]. The rationale behind this recommendation is to protect both HCWs themselves and their patients and may be seen as a “core . . . safety practice with which noncompliance should not be tolerated” [4]. Nevertheless, the coverage rate is below 30% in most instances [5].

In the northern hemisphere, the 2020/21 seasonal SIV campaign was carried out during an unprecedented period characterized by the circulation of SARS-CoV-2. Indeed, the number of newly diagnosed SARS-CoV-2 cases increased sharply from October 2020 onwards [6]. In the fear of the possible co-circulation of both influenza viruses and SARS-CoV-2 (with objective difficulties in making

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