



Letter to the Editor

Seroprevalence of anti-SARS-CoV2 Antibodies in Umbrian Persons Living with HIV

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To the editor.

Since the COVID-19 pandemic spread worldwide, great interest has been focused on persons living with HIV (PLWH). The possibility that these two infections act synergically¹ and the opinion that antiretroviral treatment could be a protective factor against new coronavirus² animated scientific debate in the last months. Nevertheless, there is still a paucity of literature about COVID-19 among PLWH. Our study represents a small contribution to fill the gap. However, it is limited because Umbria is a 900000-inhabitants Italian region with a low SARS-CoV2 endemicity.³

On May 4, the Italian government put an end to the lockdown period and started a serological campaign to detect antibodies against SARS-CoV2 for epidemiological scope. Taking a cue from that initiative, we tried to estimate the seroprevalence of anti-SARS-CoV2 antibodies among PLWH visited in the Infectious Diseases Clinic of Perugia teaching hospital where the majority of Umbrian PLWH is in charge. For this purpose, we considered the period from 4th to May 31 because it was the time-lapse immediately after pandemic acme.

The serological assays' appeal is because their use could have a dual purpose: to confirm an RT-PCR negative suspected case or surveillance and epidemiological aim. To make it possible are necessary high sensitivity and specificity. The best test with these characteristics is still to clarify, hence our decision to use two different serological assays. According to what was available in our hospital, we proposed SCREEN® test COVID-19 (Screen Italia, Torgiano, Perugia, Italy) as a rapid preliminary test. It is a lateral flow chromatographic immunoassay for the qualitative detection of IgM/IgG against SARS-CoV2 and needs a fingerstick whole blood specimen. Manufacturers reported an accuracy of 98.6% for IgG antibodies (sensitivity 95% CI: 86-100%; specificity 95% CI: 89.4-99.9%) and 92.9% for IgM ones (sensitivity 95% CI: 62.1-96.8%; specificity 95% CI: 86.3-99.5%). Each

patient positive underwent both nasopharyngeal swab sampling (Xpert® Xpress SARS-CoV2, Cepheid, Sunnyvale, USA) and further serological test (ARCHITECT SARS-CoV-2 IgG®, Abbott, USA). The former is a real-time RT-PCR test for the qualitative detection of SARS-CoV2 RNA, while the latter is a chemiluminescent microparticle immunoassay for the qualitative detection of IgG antibodies in human serum. For this kind of serological test, some authors reported sensitivity and specificity of 92.9% and 99.6 % (95% CI 97.6-100%), respectively, and higher accuracy than lateral flow tests.^{4,5}

We screened 270 PLWH, all asymptomatic persons, who gave their consent: mostly males (203/270, 75.2%), native of Italy (204/270 75.5%), and over 50 years old (158/270, 58.5%). Median age was 52 years (10-83), in particular 158 (58.5%) over 50 (elderly PLWH) and 10 (3.7%) over 75 years old (geriatric PLWH). Concerning risk factors for the acquisition of HIV, 79 (29.3%) were homosexual cisgender persons, 136 (50.4%) heterosexual cisgender, 5 (1.8%) transgender women, 43 (15.9%) intravenous drug users, 7 (2.6%) had other transmission ways. Smokers were 110 (40.7%), and 160 (5.2%) had at least one co-morbidity. Quite all (266/270, 98.5%) were on antiretroviral treatment (ART): NRTIs 216 (81.2%), NNRTIs 75 (28.2%), PIs 44 (16.5%), INIs 206 (77.4%). Despite 146/270 (54%) had nadir CD4 cell below 200/ μ l, at the last visit, just 14 (5.2%) individuals had CD4 cells count under 200/ μ l and 153 (56.7%). At the last visit, the Median CD4 cell number was 649/ μ l, and 248 (91.8%) patients were virally suppressed. A preliminary serological test resulted positive for IgM in 2 persons and IgG in 10; they had both a molecular test and a second serological assay, which turned out to be negative.

Taken from a total amount of 2907 HIV-seronegative individuals tested in the mentioned period, we considered, as a control group, 2843 persons within the same range of age as PLWH and 153/2843 (5.4%) resulted in IgG positive to SCREEN® test. Among

them, 111 (72.5%) had an RT-PCR negative nasopharyngeal swab, 4 an indeterminate one, 31 were positive, or had the evidence of a positive result in the past weeks while for 7 no RT-PCR test was available. For 50 sera, it has been possible to test also ARCHITECT SARS-CoV-2 IgG[®]: 41 (82%) was confirmed positive.

Translating these results on the global number of persons tested, we may estimate that about 4% of Umbrian inhabitants tested had IgG antibodies against SARS-CoV2 during the 4th-31st May period.

On the other hand, nobody of the 270 PLWH analyzed had a serologically confirmed infection by SARS-CoV2, independently from their risk factors such as male sex, older age, smoking habit, co-morbidities.^{6,7}

This result was in agreement with similar Thai findings.² However, in contrast with our Thai colleagues and supported by Italian data about co-infected patients, either antibody positive either slab RT-PCR test positive,⁸ we do not believe that ART, and in particular, PIs, had a protective role. In light of our results, just a minority of patients assumed that kind of drug. Furthermore, the efficacy of PIs administration against SARS-CoV2 infection has not been proven.⁹ On the contrary, we may speculate that Umbrian PLWHs have been vigilant because they perceived themselves to be at higher risk or that imposed social isolation could have found an ally in the stigma related to HIV infection. It is still premature to understand if that self-isolation has severely damaged the continuum of care.

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