To Prof. Kovy Arteaga-Livias, MSc Brasília-DF, March 24th, 2023
Editor in Chief of Microbes, Infection and Chemotherapy
Universidad Nacional Hermilio Valdizán – Perú
Dear Editor,
I am sending to consideration the amendments performed in the original text of the manuscript "**False-positive HIV results and COVID-19 infection or vaccination?"** in red font highlighted in yellow.
Page title
Authors' Contribution: The authors confirm contribution to the paper as follows - conception and design: Vitorino Modesto dos Santos and Taciana Arruda Modesto Sugai; data collection: Vitorino Modesto dos Santos and Taciana Arruda Modesto Sugai; analysis and interpretation of results: Vitorino Modesto dos Santos and Taciana Arruda Modesto Sugai; and draft manuscript preparation: Vitorino Modesto dos Santos and Taciana Arruda Modesto Sugai. All authors reviewed the results and approved the final version of the manuscript. All authors agreed to be responsible for all aspects of the work to ensure the accuracy and integrity of the published manuscript. Word Count: Text (1788) References: 10
Page 2. **Abstract.** Lines 1-2: More recently, some articles reporting false-positive HIV results associated with COVID-19 infections and vaccination have been published and should merit the due attention.
Page 3. Lines 1-19: From a pragmatic point of view, the COVID-19 pandemic has involved some major unresolved issues, which include possible adverse effects of vaccination; therefore, more results of research are needed to better clarify some major conundrums, and false-positive (FP) HIV tests associated with COVID-19 infections are an example (1-10). Mechanisms of these FP results are not entirely cleared, but according to respective literature data the spike proteins of SARS-CoV-2 may have structural similarities to diverse viruses, which propitiate the occurrence of anti-body cross-reactivity (1-3,5,6). The HIV-1 gp41 and SARS-CoV-2 share structural sequences and motifs, as N-terminal leucine/isoleucine repeat sequence and the C-terminal leucine/isoleucine repeat motif (3). As the helix structures are similar, the viruses can fuse their membranes by the same way, and the spike protein can of cross-react with antibodies leading to the FP results (3,5). People with COVID-19 infection can also present FP 4th generation HIV test, by not well-known physiopathology involving broad acute polyclonal antibody generation (3,6). The period spent between the FP test and last infection or vaccination, and after how many time the PCR became negative were not already established with a base on the research. There are literature data on COVID-19 vaccination causing FP results in HIV screening tests as example of the Australian COVID-19 vaccine which was abandoned (3,4,6,8). This paper aims enhance the interest of health care workers on the truly relevant issues, and the main points of some described case studies that are herein briefly commented.
Page 4. Lines 11-17: Feldman J *et al*. commented on the "Australian effect" that could occur in lower number with other Sars-CoV-2 vaccines with HIV protein fragments leading to FP HIV tests, including all the confirmatory exams, except for antibody testing by PCR technology (3). The authors stressed that FP tests were in vaccinated-only, N-protein negative people, an occurrence that should be better explained through results of future specific research (3). They suggested the HIV antibody test by PCR at least 3 times yearly for confirmation, in HIV-positive individuals without a risk profile, despite the high cost of PCR testing (3).
Page 5. Lines 22-34: Tan SS *et al*. reviewed data of two positive COVID-19 cases on rRT-PCR who also had FP HIV results on the Architect in the same month (8). One patient was an early 20s man with a persistent fever for 2 days, dry cough and pharyngitis; the second patient was a man in his early 70s who had a wife diagnosed with COVID-19 and presented high fever, dry cough and pharyngitis, and the chest X-ray image showed a lower left atelectasis (8). Both patients had no blood transfusions, intravenous drug use or drug therapies, the serum samples were examinate on different Abbott Architect platform in separate institutions and continued with positive reactivities on the HIV chemiluminescent immunoassay. Their sera were also tested on a 4th-generation (VIDAS HIV duo assay), an enzyme-linked fluorescent assay that combines the detection of anti-HIV-1 and anti-HIV-2 total immunoglobulins with the HIV-1 p24 antigens, and both evaluations resulted negative. The confirmatory tests utilizing the MP Biomedicals HIV immunoblot were negative (8). The authors stressed the importance of the HIV nucleic acid testing, which can be
Page 6. Lines 1-2: definitive, besides the investigation of cross-reactivity, studying the spiked SARS-CoV-2 antigen/antibodies on healthy sera to verify the HIV chemiluminescent immunoassay (8).
Page 7. Line 2: Based on the presented data, HIV FP results may be related to COVID-19 vaccination.
References (added):
3. Feldman J, Tudor A, Ivanova O. Possible false-positive HIV test results in persons vaccinated against Sars-CoV-2 virus? Authorea March 11, 2022. doi: 10.22541/au.164701716.69257565/v1.
8. Tan SS, Chew KL, Saw S, Jureen R, Sethi S. Cross-reactivity of SARS-CoV-2 with HIV chemiluminescent assay leading to false-positive results. J Clin Pathol 2021;74(9):614. doi: 10.1136/jclinpath-2020-206942.
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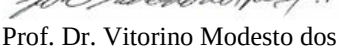
Prof. Dr. Vitorino Modesto dos Santos
Corresponding author
Armed Forces Hospital. Estrada do Contorno do Bosque s/n, Cruzeiro Novo. 70658-900, Brasília-DF, Brazil. Phone: #55-61 39662103. Fax: #55-61 32331599. e-mail: vitorinomodesto@gmail.com