Editorial

COVID-19 and the Epidemiological, Diagnostic, Clinical and Therapeutical Challenges of the Cocirculation and Coinfection with Tropical Pathogens

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COVID-19 y los Retos Epidemiológicos, Diagnósticos, Clínicos y Terapéuticos de la Cocirculación y Coinfección con Patógenos Tropicales

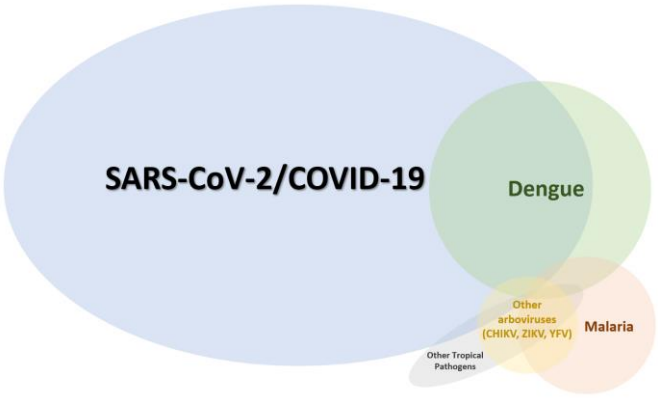
Palabras clave: COVID-19; SARS-CoV-2; Enfermedades tropicales; Cocirculación; Coinfección; Pandemia; América Latina; Asia; África.

Before the beginning of the pandemic of the Coronavirus Disease 2019 (COVID-19), caused, by the infection due to the Severe Acute Respiratory Syndrome coronavirus 2 (SARS-CoV-2), there was already concern in many regions of the world, as occurred in Latin America but certainly also in Africa and Asia, regarding the epidemiology of communicable diseases in these areas, including tropical diseases [1-4].

As usually occurs in other epidemics, during the pandemic there is high suspicion on COVID-19 diagnosis, especially when presenting with classical associated symptoms; many of them, as happens with fever, that may overlap with many other infectious and tropical diseases, including dengue, malaria, leptospirosis, acute Chagas disease, salmonellosis, among many other [5-8].

But during the COVID-19 pandemic, not everything is COVID-19. A lot of usual and endemic conditions differential diagnoses should be always considered, but even the possibility of coinfections, as these conditions may overlap between them, as reported in the past, e.g. coinfections of dengue-chikungunya-Zika [9, 10], dengue-leptospirosis-chikungunya [11], Zika-HIV [12], among other, but now, also with COVID-19 (Figure 1).

Figure 1. Overlapping between COVID-19 and tropical pathogens.



Them, from the epidemiological point of view, the surveillance should be kept, but even enhanced in most critical endemic areas. Additionally, education and training about coinfection is key. Clinical findings may overlap between COVID-19 and other tropical endemic diseases. This should be considered in febrile patients who lives in endemic areas or comes from them during the last month, according to the suspected pathology (e.g. malaria up to 1 month; arboviral diseases, last 14 days) [13].

From the diagnostic point of view, is key to understand that serological tests may yield cross-reactions and false-positive results. Then, when coinfection is specially suspected, molecular tests are preferred, RT-PCR for SARS-CoV-2 infection and for other tropical pathogens, as is the case of Dengue. For this major arboviral disease, the use of NS1 antigen is also recommended for diagnostics even in the context of COVID-19. But for other pathogens, gold standard diagnostic techniques are also recommended in this setting, as is the case of blood thick and thin smear for malaria and rapid tests. Similarly with the blood smear for Chagas disease (acute). In the case of leptospirosis the use of microagglutination test (MAT), ELISA for Hantavirus, as well as other serological tests for example for tick-borne diseases [13].

Among the tropical diseases of interest, probably Dengue has been the most studied in relationship with its circulation and coinfections with SARS-CoV-2/COVID-19. Initially during the beginning the pandemic in 2020 some case reports from French islands, such as Mayotte and La Reunión [7, 14], begun to show that Dengue and COVID-19 may present with coinfection. This was reported and observed initially in travelers, but later, in different countries, including in Latin America, Argentina, Guadalupe, and Colombia, also in native population in endemic areas [15-17]. Nevertheless, the first case series, of 13 patients with dengue/COVID-19 coinfection was published in 2021, from Argentina [18], showing that this may occur but not finding critical care requirement and evolution to severe forms. Also, another 13-patients case series from Brazil, recently published, showed too similar results without fatal outcomes [19]. But recently also, in 2021, in Peru, a study with 50 cases was published, finding that patients may evolve to severe forms and present fatal outcomes associated with the Dengue/SARS-CoV-2 coinfection [20]. In this study the overall case fatality rate was 28%, probably influenced by their comorbidities (32% hypertension, 26% diabetes). Then, the diagnostic and therapeutic aspects are challenges for this tropical pathogen, cocirculating and coinfecting with SARS-CoV-2/COVID-19.

As exampled from the situation with dengue, similarly may this occur with other tropical pathogens (Figure 1), then, this should be promoted and considered in the context of COVID-19, as well as also in the context of control programs from these tropical diseases, including dengue, malaria, Chagas disease, vector-borne disease, as well as for zoonotic diseases [21]. Finally, as has been clearly stated in multiple areas, COVID-19 is affecting the function of multiple control programmes.

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Conflicts of Interest: Dr. Rodriguez-Morales is medical advisor of Abbott Diagnostics in Latin America.