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Editorial

COVID-19 and malaria: A symptom screening challenge for malaria endemic countries



The unprecedented global coronavirus disease (COVID-19) pandemic caused by SARS-CoV-2 has rapidly spread to all continents (WHO, 2020a). Whilst spread to Africa has been slow, there are now increasing numbers of COVID-19 being reported from African countries who are preparing themselves (Kapata et al., 2020) for an exponential rise in numbers of cases. As of 26th April 2020, there have been 2,804,796 confirmed COVID-19 cases reported to the WHO with 193,710 deaths. In Africa there have been 20,316 cases with 839 deaths reported from 49 countries (WHO, 2020b). In comparison, the WHO malaria report indicates that there were an estimated 228 million cases and 405,000 deaths due to malaria globally in 2018, majority of which were from the Africa region (WHO, 2020c). COVID-19 currently imposes an additional burden to the already overstretched, resource strapped health services which are grappling to bring under control the high burden of existing infectious and non-infectious diseases, including TB, HIV, and malaria. Proactive screening for COVID-19 is ongoing in high malaria endemic African countries. A case of COVID-19 is deemed 'confirmed' based on a positive laboratory test result for SARS-CoV-2 virus infection regardless of symptoms (WHO, 2020b). Health care workers and community members alike are faced with an important challenge of quickly identifying symptoms and taking appropriate steps for laboratory investigation in line with the case definition based on surveillance or clinical characterisation (WHO, 2020a).

Key steps to identifying a COVID-19 case ultimately involves symptomatic or high risk patients presenting to health providers with complaints of any of the following symptoms or travel history: fever, cough, shortness of breath, fatigue, headache and others of acute onset or history of travel to affected areas or contact with an infected person. Thus, current screening approaches for COVID-19 are likely to miss approximately 50% of the infected cases even in countries with good health systems and available diagnostic capacities (Gostic et al., 2020). Malaria shares some of the highly recognisable symptoms with COVID-19 such as: fever, difficulty in breathing, fatigue and headaches of acute onset. Thus, a malaria case may be misclassified as COVID-19 if symptoms alone are used to define a case during this emergency period and vice versa. Malaria symptoms appear within 10–15 days after an infective bite; multi-organ failure is common in severe cases among adults while respiratory distress is also expected in children with malaria, mimicking what is

usually reported in patients with COVID-19 (WHO, 2020c; White et al., 2014). Human travel history is also a significant consideration, like with COVID-19, when screening for a suspected case of malaria as well as a means of curbing transmission (Tatem and Smith, 2010; Chuquiyaauri et al., 2012). Also, both COVID-19 and malaria infected individuals may be asymptomatic for a long time while transmitting the infections through their respective modes (Nishiura et al., 2020; Chourasia et al., 2017). Globally, all countries are at very high risk of COVID-19 while half of the world is at risk of malaria, with sub-Saharan countries bearing the blunt of malaria cases and deaths while South East Asia remain at high risk of both malaria and COVID-19 (WHO, 2020b,c). Although in sub-Saharan Africa the scale of the COVID-19 outbreak is relatively lower than other regions, there are concerns that the situation may prove difficult with time considering the already weak health systems in the region (Sambo and Kirigia, 2014). Thus COVID-19 and malaria converge symptomatically and geographically in most WHO regions. The definitive way to correctly identify the underlying infectious aetiology is through laboratory investigation and therefore availability of appropriate diagnostic capacity is essential for accurate surveillance and clinical management of cases.

Currently, it is expected that a high index of suspicion is skewed towards COVID-19 given the alertness at community, health centre, country, regional and global level. In addition, another challenge is that people with fever may preferentially get tested for COVID-19 and sent home due to a negative result and conversely febrile patients may get tested for malaria when they may in fact have COVID-19 infection. The other case scenario is that patients may have malaria and COVID-19 co-infection and diagnosis and treatment of one may lead to missing the other. A single case of COVID-19 has the potential to transmit up to 3.58 susceptible individuals (Chen et al., 2020a). Untreated malaria on the other hand has the potential to cause further community infections which in turn continues to be a significant source of illness and deaths globally (WHO, 2020c; Challenger et al., 2019; Chen et al., 2016). Thus undetected COVID-19 virus and malaria parasite infections pose an immediate health challenge to the individual and public health consequences for the community (WHO, 2020b,c; Challenger et al., 2019). Furthermore, there is concern that limited mobility and lockdowns, will interrupt the supply of malaria drugs.

There is no specific treatment available for COVID-19. Host-directed therapies including repurposed drugs such as anti-retrovirals zinc, nutraceuticals, chloroquine, hydroxychloroquine are being considered (Gautret et al., 2020; Zumla et al., 2020). What is required for Africa is a low cost, safe, orally administered therapeutic which can reduce morbidity, mortality and duration of illness. The preliminary data on the use of chloroquine/azithromycin were encouraging (Gautret et al., 2020), although the trial was not randomised or controlled. Conversely a small controlled study published from China showed no significant effect (Chen et al., 2020b). Several large randomised trials are now underway and these will determine the usefulness of chloroquine for COVID-19 treatment.

Countries are struggling to meet the testing demand for COVID-19, while the malaria test kits are widely available at each point of care including the community level. There is need therefore for enhanced sensitisation on the potential of COVID-19/malaria co-infections and further guidance to clinicians on the importance of testing for other causes of illness more so in this period when there is much emphasis to early detect and isolate COVID-19 in a bid to contain further spread of the disease. Since malaria tests are relatively more available (Landier et al., 2016), we recommend that health workers perform rapid tests for malaria as they screen for COVID-19. This presents an opportunity to respond to two infectious diseases timely and reduce unnecessary morbidity and deaths. By rapidly ruling out malaria, the health workers can focus on the true cause of illness and administer appropriate management. The health and economic benefits/consequences in a real setting will provide valuable lessons for planners, clinicians, funders and governments on integrated management of infectious diseases. This issue is more relevant for travellers and people in malaria endemic countries as this is a season when malaria transmission is at its peak in sub-Saharan Africa (Wang et al., 2020).

The Global Fund has already issued a guidance as of 4th March 2020 urging countries to 'reprogram savings from existing grants and to redeploy underutilized resources to mitigate the potential negative consequences of COVID-19 on health and health systems' (The Global Fund, 2020). On an operational level, countries should look at how services for malaria and COVID-19 are organised so as to efficiently use the available resources. For instance, malaria supplies could be moved to the laboratories or sites where the COVID-19 testing is being done so as to reduce missed opportunities for malaria testing as some patients may be lost if they are declared COVID-19 negative while in fact they may be malaria positive. The rollout of rapid malaria diagnostic tests (Cunningham et al., 2019), together with point of care tests for COVID-19 (Nguyen et al., 2020) when they are rolled out should be a priority. The reorganisation of services at health facility level has been a useful approach in TB/HIV collaborative activities (Burnett et al., 2018). There is a possibility that lymphopenia seen in patients with COVID-19 may increase vulnerability to malaria, TB and other infections.

As the world commemorates world malaria day on 25th April, 2020 in the midst of the COVID-19 pandemic, the challenge still remains on how to ensure the progress made in malaria control is not setback.

Conflict of interest

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