The need for better diagnostics to support diagnosis and surveillance in monkeypox endemic countries

We read with interest the Newsdesk piece of Vijay Shankar Balakrishnan[1], discussing how the current monkeypox outbreak in non-endemic countries has brought forward the global need to upscale and improve monkeypox diagnostics.

Although the COVID-19 pandemic has highlighted the need to improve testing capacity by upscaling molecular diagnostics and PCR-related infrastructure in many low-income and middle-income countries, many of these countries still have insufficient monkeypox testing capacity. However, up until May, 2022, monkeypox was considered endemic only in the African region.

Even though case numbers are now subsiding in non-endemic countries, as of Sept 11, the WHO Regional Office for Africa reported a 12·6% increase in case numbers within 1 week (from 524 in week 35, to 590 in week 36).[2] Notably, the WHO Regional Office for Africa epidemiological update from May 2022,[3] before monkeypox started spreading in non-endemic countries, stated that in the Democratic Republic of the Congo, between epidemiological week 1 and week 15 of 2022, 1152 cases associated with 55 deaths had been reported (amounting to an estimated case fatality rate of 4·8%).

The high number of reported deaths is not only due to the different circulating clades of the monkeypox virus (the West African clade responsible for the current outbreak is associated with milder disease), but is also probably due to surveillance artifacts considering that reports of cases and deaths are typically based on symptoms and epidemiological correlations rather than confirmation of infection using molecular or other laboratory diagnoses.

An example of the importance of accurate diagnosis is found in the recent US Centers for Disease Control and Prevention (CDC) morbidity and mortality weekly report.[4] Three individuals presented with atypical rashes, uncharacteristic illnesses, absent risk factors, and no epidemiological links to known monkeypox cases, and received false-positive real-time PCR test results. In all individuals, the misdiagnosis of monkeypox was because of late cycle threshold (Ct) values, which in all individuals was 34 or higher. More importantly, all three individuals were considered to be members of high-risk groups (defined as very vulnerable by WHO) in whom antivirals and vaccines against monkeypox have never been tested: a pregnant woman at 37 week's gestation, whose newborn was not breastfed for 21 days and who had received intravenous vaccinia immune globulin prophylactically; an infant; and a child.[4] The CDC guidelines have been amended, with recommendations for laboratory professionals to verify positive diagnostic results with individual case histories and for samples to be re-extracted and re-tested when epidemiological criteria are absent or unknown and Ct value is high (generally ≥34).[5]

Such individuals with a low pretest probability of infection and high Ct PCR test values for monkeypox in the current monkeypox outbreak amid the COVID-19 pandemic highlight the importance of accurate laboratory diagnostics and evidence-based guidelines for optimal patient care. In addition to supporting monkeypox diagnostics and laboratory services, we need to invest in better surveillance and evaluate the most effective prevention and treatment strategies so that countries in the African region can mitigate the constant waves of monkeypox and other similar neglected infectious disease.

We declare no competing interests.

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