African Covid-19 Critical Care Outcomes Study

Statement by the Investigators of the African Covid-19 Critical Care Outcomes Study (ACCCOS)

7 October 2020

Preamble: As the COVID-19 pandemic continues to impose a large demand on under-resourced healthcare systems, the ACCCOS Investigators have therefore released the abstract of the African Covid-19 Critical Care Outcomes Study (ACCCOS) which has been submitted for peer-review today. We hope that these data may provide some guidance for healthcare workers and administrators managing COVID-19 in under-resourced environments.

ABSTRACT (This is a preprint, and has not been peer-reviewed)

Background: There is little data on critically ill COVID-19 patient outcomes in under-resourced environments, and none from Africa. The objectives of this study were to determine resources, patient comorbidities and critical care interventions associated with mortality in critically ill COVID-19 African patients.

Methods: African multi-centre, prospective observational cohort study of adult patients referred to intensive care or high-care units with suspected or known COVID-19 infection. Patient follow up was until hospital discharge, censored at 30 days. The study recruited from March to September 2020.

Findings: 1243 patients from 38 hospitals in six countries participated. The hospitals had a median of 2 (interquartile range (IQR) 1-4) intensivists, with a nurse to patient ratio of 1:2 (IQR 1:3 to 1:1). Pulse oximetry was available to all patients in 29/35 (82·9%) sites, and 21/35 (60%) of sites could provide dialysis or proning.

The 30-day mortality following critical care admission was 54·7% (95% confidence interval (CI) 51·9-57·6). Factors independently associated with mortality were an increasing age (odds ratio (OR) 1·04, 95% CI 1·02-1·05, p<0·001), a quick SOFA score of 3 (OR 3·61, 95% CI 1·41-9·24, p=0·01), increasing respiratory support defined as the need for continuous positive airway pressure (OR 5·86, 95% CI 1·47-23·35, p=0·01), invasive mechanical ventilation (OR 16·42, 95% CI 4·52-59·65, p<0·001), three organ systems requiring support at admission (OR 5·52, 95% CI 1·13-27·01, p=0·04), cardiorespiratory arrest within 24 hours prior to admission (OR 4·43, 95% CI 1·01-19·54, p=0·05) and vasopressor requirements (OR 2·73, 95% CI 1·71-4·36, p<0·001). Human immunodeficiency virus was not associated with mortality (OR 1·84, 95% CI 0·99-3·40, p=0·05).

Interpretation: Mortality in critically ill COVID-19 African patients is higher than any other region, with an excess mortality of 18 and 29 deaths per 100 patients compared to other regions. Mortality is associated with limited critical care resources and severity of organ dysfunction at admission.

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