Early assessment of the clinical severity of the SARS-CoV-2 Omicron variant in South Africa

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Abstract

Background The SARS-CoV-2 Omicron variant of concern (VOC) almost completely replaced other variants in South Africa during November 2021, and was associated with a rapid increase in COVID-19 cases. We aimed to assess clinical severity of individuals infected with Omicron, using S Gene Target Failure (SGTF) on the Thermo Fisher Scientific TaqPath COVID-19 PCR test as a proxy. Methods We performed data linkages for (i) SARS-CoV-2 laboratory tests, (ii) COVID-19 case data, (iii) genome data, and (iv) the DATCOV national hospital surveillance system for the whole of South Africa. For cases identified using Thermo Fisher TaqPath COVID-19 PCR, infections were designated as SGTF or non-SGTF. Disease severity was assessed using multivariable logistic regression models comparing SGTF-infected individuals diagnosed between 1 October to 30 November to (i) non-SGTF in

identified. The proportion of SGTF infections increased from 3% in early October (week 39) to 98% in early December (week 48). On multivariable analysis, after controlling for factors associated with hospitalisation, individuals with SGTF infection had lower odds of being admitted to hospital compared to non-SGTF infections (adjusted odds ratio (aOR) 0.2, 95% confidence interval (CI) 0.1-0.3). Among hospitalised individuals, after controlling for factors associated with severe disease, the odds of severe disease did not differ between SGTF-infected individuals compared to non-SGTF individuals diagnosed during the same time period (aOR 0.7, 95% CI 0.3-1.4). Compared to earlier Delta infections, after controlling for factors associated with severe disease, SGTF-infected individuals had a lower odds of severe disease (aOR 0.3, 95% CI 0.2-0.6). Conclusion Early analyses suggest a reduced risk of hospitalisation among SGTF-infected individuals when compared to non-SGTF infected individuals in the same time period, and a reduced risk of severe disease when compared to earlier Delta-infected individuals. Some of this reducton is likely a result of high population immunity.

Competing Interest Statement

CC has received grant support from Sanofi Pasteur, Advanced Vaccine Initiative, and payment of travel costs from Parexel. NW, MdP and AvG have received grant support from Sanofi Pasteur. RW declares personal shareholding in the following companies: Adcock Ingram Holdings Ltd, Dischem Pharmacies Ltd, Discovery Ltd, Netcare Ltd, Aspen Pharmacare Holdings Ltd. All other authors declare no conflict of interest.

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Author Declarations

I confirm all relevant ethical guidelines have been followed, and any necessary IRB and/or ethics committee approvals have been obtained.

Yes

The details of the IRB/oversight body that provided approval or exemption for the research described are given below:

Human Research Ethics Committee of the University of the Witwatersrand gave ethical approval for this work.

I confirm that all necessary patient/participant consent has been obtained and the appropriate institutional forms have been archived, and that any patient/participant/sample identifiers included were not known to anyone (e.g., hospital staff, patients or participants themselves) outside the research group so cannot be used to identify individuals.

Yes

I understand that all clinical trials and any other prospective interventional studies must be registered with an ICMJE-approved registry, such as ClinicalTrials.gov. I confirm that any such study reported in the manuscript has been registered and the trial registration ID is provided (note: if posting a prospective study registered retrospectively, please provide a statement in the trial ID field explaining why the study was not registered in advance).

Yes

I have followed all appropriate research reporting guidelines and uploaded the relevant EQUATOR Network research reporting checklist(s) and other pertinent material as supplementary files, if applicable.

Yes

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