STROBE Statement—checklist of items that should be included in reports of observational studies

	Item No.	Recommendation	Page No.	Relevant text from manuscript
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1	SARS-CoV-2 Viremia is Associated with Distinct Proteomic Pathways and Predicts COVID-19 Outcomes
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2	Abstract: …
Introduction				
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3	Introduction…
Objectives	3	State specific objectives, including any prespecified hypotheses	3	
Methods				
Study design	4	Present key elements of study design early in the paper	13	
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	13	Participants were enrolled in the Emergency Department (ED) from Massachusetts General Hospital, Boston MA, from 3/24/2020 to 4/30/2020 during the first peak of the COVID-19 surge, with an institutional IRB-approved waiver of informed consent.
Participants	6	(*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants	13	Symptomatic participants of 18 years or older with nucleic acid tests confirmed of SARS-CoV-2 infection were included in this current study

		(*b*) *Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed *Case-control study*—For matched studies, give matching criteria and the number of controls per case		
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	13-14	Study endpoint section and viral load, proteomic data
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	13-15	
Bias	9	Describe any efforts to address potential sources of bias	14	Olink library contains 1472 proteins and 48 controls assays, dividing into inflammation, oncology, cardiometabolic and neurology panels, with overlap in interleukin (IL)6, IL8/C-X-C motif chemokine ligand (CXCL8), and tumor necrosis factor (TNF)-alpha for quality control (QC) purpose.
Study size	10	Explain how the study size was arrived at	NA	Based on availability

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Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	16	
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	16	
		(*b*) Describe any methods used to examine subgroups and interactions	16	
		(*c*) Explain how missing data were addressed	NA	
		(*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed *Case-control study*—If applicable, explain how matching of cases and controls was addressed *Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy	NA	
		(*e*) Describe any sensitivity analyses	16	To evaluate the association of plasma SARS-CoV-2 viral load and clinical outcomes, we used logistic regression analyses to calculate odds ratio (OR) and 95% confidence intervals (CI). Both univariate and multivariate logistic regression analyses were performed. In multivariate analyses, factors with a P value <0.10 from univariate models were included. We also used Cox proportional model to evaluate the correlation between viremia and 28-day mortality by calculating the hazard ratio (HR).
Results				
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	4	This cohort consisted of 306 participants with a molecular diagnosis of COVID-19, of which 300 participants had successful plasma SARS-CoV-2 viral load

				quantification and thus were included in this current analysis
		(b) Give reasons for non-participation at each stage	4	
		(c) Consider use of a flow diagram	Figure 1	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	4	
		(b) Indicate number of participants with missing data for each variable of interest	Table 1	
		(c) *Cohort study*—Summarise follow-up time (eg, average and total amount)	4	Higher levels of SARS-CoV-2 viremia upon ED presentation were associated with increased severity at all timepoints measured - days 0, 3, 7, and 28.
Outcome data	15*	*Cohort study*—Report numbers of outcome events or summary measures over time	Figure 3	
		Case-control study—Report numbers in each exposure category, or summary measures of exposure		
		Cross-sectional study—Report numbers of outcome events or summary measures		
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Table 2	
		(*b*) Report category boundaries when continuous variables were categorized	Table 2	
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	Figure S3	

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Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Figure S2, S3
Discussion			
Key results	18	Summarise key results with reference to study objectives	10
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	12
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	10-12
Generalisability	21	Discuss the generalisability (external validity) of the study results	10-11
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	1

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.