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EFFECTIVENESS OF DIFFERENT PARAMETERS AT ADMISSION AS PROGNOSTIC MARKERS FOR MORTALITY DUE TO SARS-COV-2: A 2-CENTRE EXPERIENCE IN UK AND SPAIN

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Rationale SARS-CoV-2 is an international health crisis that has overwhelmed the healthcare capacity of many countries. There is a need for a simple and easily usable biomarker to assist in making urgent clinical decisions.

Objectives We sought to find and validate a simple, easily measurable, dependable single-parameter biomarker to predict mortality in swab-positive SARS-CoV-2 patients.

Methods All swab-positive patients were recruited from Cambridge University Hospitals NHS Trust between March-July 2020 (inclusive) to form the Cambridge cohort. All swab-positive patients were recruited from the HM Hospitales group of hospitals from March-April 2020 to form the Spanish cohort. Details of clinical parameters and potential biomarkers were extracted from the electronic patient records. Data was de-identified prior to access.

Measurements and Main Results There were 522 patients in the Cambridge cohort and 1,643 in the Spanish cohort, with a mean age of 64.6±20.9 and 66.8±15.8 years, respectively. Age, CRP, D-dimer, urea, troponin, NT-proBNP, IL-6 and ISARIC scores were significantly raised in the non-survivors *versus* survivors for the Cambridge cohort ($P<0.0001$ for all). The two cohorts were analysed independently using Receiver Operating Curves and compared to a previously validated multi-component score (ISARIC). For the Cambridge cohort, troponin and NT-proBNP levels proved to be the most effective single parameters at predicting mortality, with an area under curve (AUC, 95% confidence interval) of 0.7680 (0.7098- 0.8263) and 0.7360 (0.6724-0.7991) respectively, $P<0.0001$ for both. The AUC for ISARIC (an 8-component score) was 0.8069 ($P<0.0001$). Interestingly the AUCs for CRP and D-dimer were not as high as would be expected (0.6141 [0.5534-0.6747] and 0.6808 [0.6178-0.7438] respectively, figure 1). A similar pattern is seen in the Spanish cohort, with troponin (AUC of 0.800 [0.7728-0.8276]) outperforming CRP and D-dimer (0.6858 [0.6525-0.7192] and 0.6979 [0.6605-0.7352], respectively).

Abstract S70 Figure 1 ROCs for parameters with 30-day mortality as outcome

Conclusions The cardiac biomarkers troponin and NT-proBNP proved to be the best single-parameter biomarkers for predicting mortality in the Cambridge cohort, and this was borne out in the Spanish cohort.

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A RETROSPECTIVE ANALYSIS OF ROX SCORE FOR PREDICTING TREATMENT FAILURE AND PROGRESSION TO INVASIVE VENTILATION IN COVID PATIENTS REQUIRING ENHANCED RESPIRATORY SUPPORT

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Introduction Due to the rapid escalation of demand for critical care during the COVID19 pandemic there was an increasing requirement for systems that predicted patients requirement of invasive respiratory support. While more complex prediction models have been proposed (Douville et al. 2021 BJA 123:3 578- 589), we analysed the validity of the existing ROX score test, in patients presenting with severe COVID19 respiratory disease.

Method We retrospectively utilised data for COVID HDU admissions in a single UK hospital during a fixed period from Nov 2020 to Feb 2021. The ROX score was calculated at 2, 6, 12 and 24hr for patients started on either CPAP or HFNO and who were candidates for full escalation to critical care in the event of deterioration. ROX score pass (>4.87), fail (<3.85) or indeterminate ($3.85-4.87$) was decided using the original values determined by Roca et al (2016 JCC 35; 200-205), this was then used to determine the relative risk of intubation (ROI) for patients with low ROX score during their first 24hrs on enhanced respiratory support.

Results - Of the 233 patients in our dataset, 49 met our inclusion criteria; 28 on HFNO and 21 on CPAP.

Abstract S71 Table 1

	ROX<3.85		ROX3.85-4.87	
	ROI	RR	ROI	RR
CPAP	87.5%	7 (95%CI 1.1-44.6 P0.019)	66.6%	5.33 (95%CI 0.78-36.3 P0.043)
HFNO	87.5%	9.63 (95%CI 1.45-63.92 P0.009)	33.3%	3.66 (95%CI 0.48-29.48 P0.11)

Conclusion Our study suggests ROX score is valid in predicting intubation in COVID patients requiring enhanced respiratory support. Given the small sample size, further research utilising data from multiple sites would be useful to corroborate findings

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LUNG FUNCTION OUTCOMES IN CHILDREN WITH PAEDIATRIC INFLAMMATORY MULTISYSTEM SYNDROME – TEMPORALLY ASSOCIATED WITH SARS-COV-2 (PIMS-TS)

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