

Procalcitonin is not a reliable biomarker of bacterial co-infection in COVID-19 at the time of hospital admission

Supplementary Material

**Contents:**

Supplementary Table 1: Characteristics of 1040 included patients.....	2
Supplementary Figure 1: Microbiological findings .....	3
Supplementary Figure 2: Relationship of plasma procalcitonin with CRP, IL-6 and TNF- $\alpha$ .....	4

Supplementary Table 1: Characteristics of 1040 included patients

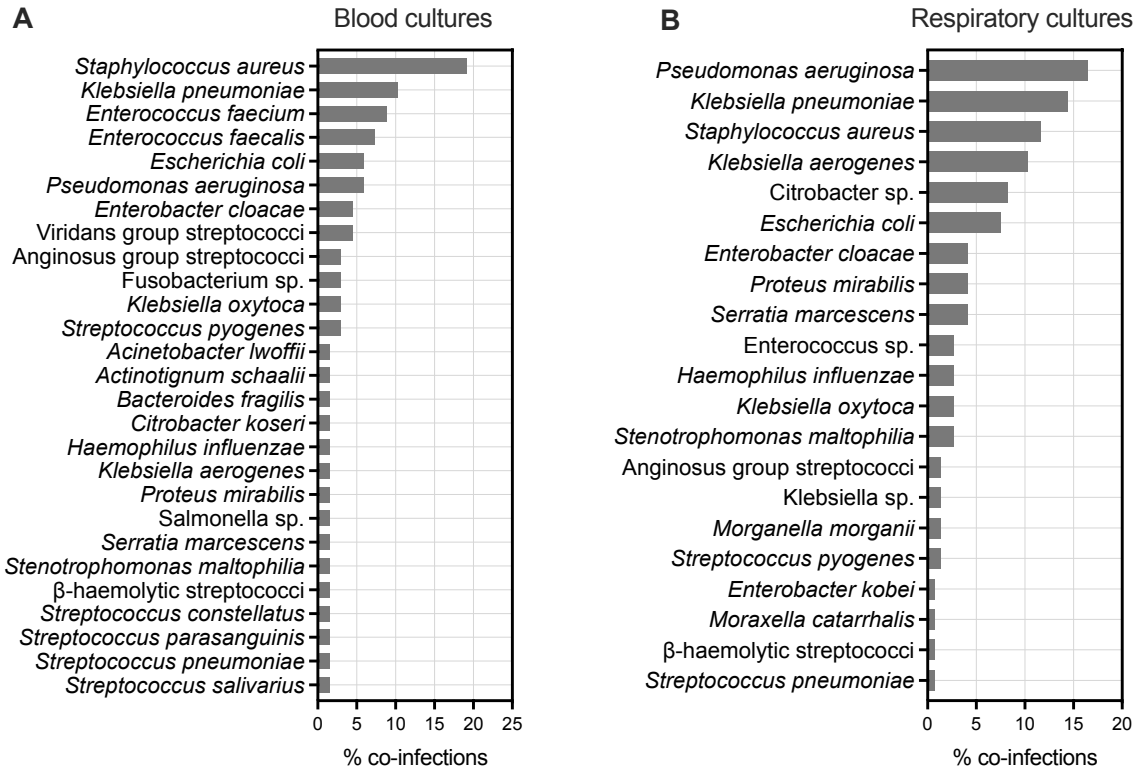
Variable	Included patients			Entire cohort
	n <sup>a</sup>	(n=1040)		(n=48,902)
<b>Patient characteristics</b>				
Male sex, n (%)	1039	635	(61.1%)	57.4%
Age, years	1037	65	(53-77)	74 (59-84)
Co-morbidities, n (%)				
Hypertension	652	326	(50.0%)	48.4%
Chronic lung disease	1014	301	(29.7%)	28.7%
Diabetes mellitus	1015	265	(26.1%)	29.4%
Chronic cardiac disease	1000	259	(25.9%)	32.3%
Immunocompromise	713	162	(22.7%)	29.3%
Obesity	889	196	(22.0%)	11.9%
Chronic kidney disease	1002	150	(15.0%)	17.8%
Liver disease	993	21	(2.1%)	1.9%
<b>Physiological parameters<sup>b</sup></b>				
Temperature, °C	1029	37.6	(36.8-38.4)	37.4 (36.3-38.5)
Respiratory rate, breaths/min	1029	24	(20-30)	21 (18-26)
Systolic blood pressure, mmHg	1028	129	(114-145)	131 (106-156)
Heart rate, beats/min	1033	94	(83-109)	92 (71-113)
SpO <sub>2</sub> , %	1026	94	(90-96)	95 (92-97)
<b>Investigations<sup>b</sup></b>				
Chest x-ray infiltrates, n (%) <sup>c</sup>	850	650	(76.5)	67.5%
Total white cell count, x10 <sup>9</sup> /L	1035	7.5	(5.5-10.5)	7.3 (5.3-10.3)
C-reactive protein, mg/L	1028	116	(56-196)	83 (35-157)
Procalcitonin, ng/mL	1040	0.28	(0.1-1.0)	0.3 (0.1-1.1)
<b>Supportive care, n (%)</b>				
Critical care admission	1040	409	(39.3%)	14.5%
Invasive mechanical ventilation	1019	301	(29.5%)	9.3%
<b>Outcomes, n (%)</b>				
Discharged alive	1040	591	(56.8%)	58.9%
In-hospital mortality	1040	346	(33.3%)	31.5%
Transfer to another facility	1040	52	(5.0%)	5.4%
Ongoing hospitalisation	1040	43	(4.1%)	2.4%
Palliative discharge	1040	8	(0.8%)	1.8%

Data are median (IQR) unless otherwise stated.

<sup>a</sup>Number of patients included in procalcitonin analysis with data available

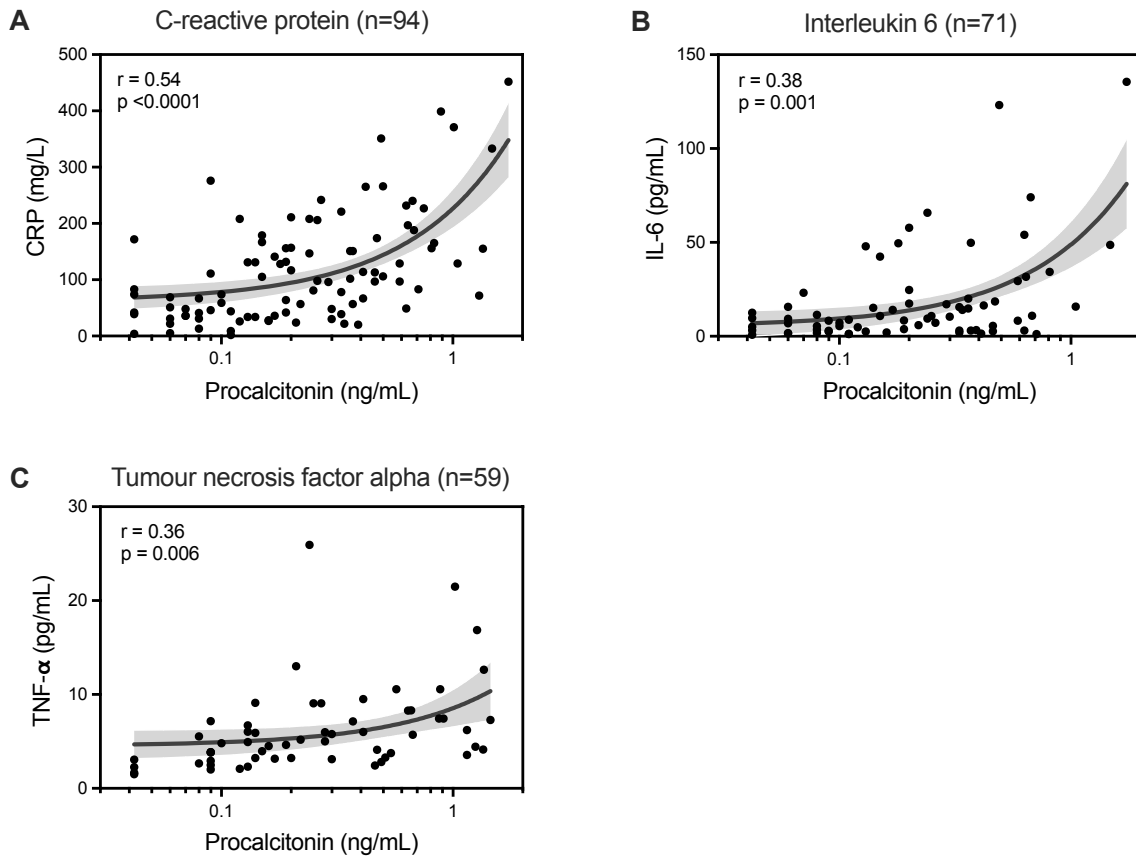
<sup>b</sup>Recorded on admission to hospital

<sup>c</sup>As a proportion of patients who had chest x-ray results recorded



**Supplementary Figure 1: Microbiological findings**

Bacterial pathogens recovered from **(A)** blood and **(B)** respiratory cultures, expressed as the percentage of co-infections from each sample type accounted for by each organism.



**Supplementary Figure 2: Relationship of plasma procalcitonin with CRP, IL-6 and TNF- $\alpha$**

The plots show linear regressions with 95% confidence intervals for procalcitonin with **(A)** CRP (n=94), **(B)** IL-6 (n=71) and **(C)** TNF- $\alpha$  (n=59). Correlation assessed with Spearman's test. Procalcitonin measurements below the lower limit of detection (LLOD) of the assay (0.06 ng/mL) were imputed with the LLOD divided by the square root of two. The x-axis shows a Log<sub>10</sub> scale.