ADDITIONAL FILE 1 COVID-VIT-D

A single oral dose bolus of 100,000 IU of cholecalciferol at hospital admission did not improve outcomes in the COVID-19 disease. The COVID-VIT-D: A randomized multicentre international clinical trial.

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Table S1. Variables collected in the COVID-VIT-D trial.

Demographic and comorbidities

Date of birth
Gender (male/female)
Height (cm)
Weight (kg)
Smoking (yes/no)
ACEIs-ARBs use (yes/no)
Diabetes (yes/no)
Cardiovascular disease (yes/no)
Hypertension (yes/no)
Asthma (yes/no)
COPD (yes/no)

Hospitalization (clinical and evolutive data)

Hospital admission date
Hospital discharge date
ICU admission date
ICU discharge date
Positive PCR SARS-COV2 date
Symptoms onset date
Symptoms at admission
Symptoms at discharge
Death date

Biochemical and imaging parameters at admission and discharge

Calcidiol (ng/mL)
CRP (mg/dL)
Creatinine (mg/dL)
Albumin (g/L)
Haemoglobin (g/dL)
LDH (U/L)
D-dimer (ng/mL)
Procalcitonin (ng/mL)
Leucocytes (No./µL)
Interleukin-6 (pg/mL)
Ferritin (ng/mL)
Bilirubin (mg/dL)
Troponin (ng/L)
Calcium (mg/dL)
Phosphate (mgl/dL)
X-Ray/CAT (positive/ doubtful/negative)

Symptoms at admission/discharge

Cough (yes/no)
Fever (yes/no)
Weakness (yes/no)
Headache (yes/no)
Dyspnoea (yes/no)
Anosmia (yes/no)
Diarrhoea (yes/no)
Ageusia (yes/no)
Others (yes/no)

Types of drugs received during the hospitalization

Cholecalciferol (yes/no)
Azithromycin (yes/no)
Ceftriaxone (yes/no)
Hydroxychloroquine (yes/no)
Lopinavir/ritonavir (yes/no)
Tocilizumab (yes/no)
Enoxaparin (yes/no)
Methylprednisolone (yes/no)
Dexamethasone (yes/no)
Interferon ß (yes/no)
SARS-COV2 convalescent plasma (yes/no)

ACEIs-ARBs: angiotensin converting enzyme inhibitors -angiotensin receptor blockers
COPD: Chronic obstructive pulmonary
CRP: C-reactive protein
CAT: Computed axial tomography

Table S2. Symptoms at discharge.

	Cholecalciferol group		Control group	
	n	**n=274**	**n**	**n=269**
Symptoms				
Fever, n (%)	234	8 (3.4)	237	18 (7.6)
Cough, n (%)	234	62 (26.5)	237	74 (31.2)
Weakness, n (%)	234	34 (14.5)	237	38 (16.0)
Dyspnoea, n (%)	234	33 (14.1)	237	31 (13.1)
Headache, n (%)	234	11 (4.7)	237	18 (7.6)
Anosmia, n (%)	234	11 (4.7)	237	9 (3.8)
Diarrhoea, n (%)	234	2 (0.9)	237	6 (2.5)
Ageusia, n (%)	234	2 (0.9)	237	5 (2.1)
Other, n (%)	234	4 (1.7)	237	8 (3.4)
Number of symptoms, median [IQR]	234	0.0 [0.0, 1.0]	237	1.0 [0.0, 1.0]

n: number of patients available for analysis
IQR: interquartile range

Table S3. Biochemical parameters at discharge.

	Cholecalciferol group		Control group	
	n	**n=274**	**n**	**n=269**
Laboratory parameters				
Calcidiol (ng/mL), median [IQR]	207	29.0 [20.3, 35.0]	187	16.4 [11.8, 23.0]
Creatinine (mg/dL), median [IQR]	116	0.9 [0.8, 1.0]	120	0.8 [0.7, 1.0]
CRP (mg/dL), median [IQR]	164	1.3 [0.4, 16.2]	176	1.2 [0.3, 9.6]
Albumin (g/L), median [IQR]	84	38.0 [35.0, 40.0]	90	39.0 [38.0, 41.0]
Haemoglobin (g/dL), median [IQR]	123	13.5 [12.6, 14.1]	122	13.9 [12.6, 14.6]
LDH (U/L), median [IQR]	89	310.0 [195.0, 424.0]	83	283.0 [196.0, 350.0]
Leucocytes (No./µL), median [IQR]	176	7.5 [6.3, 9.2]	176	7.3 [5.9, 8.8]
Interleukin-6 (pg/mL), median [IQR]	62	2.0 [0.9, 13.0]	52	2.0 [0.5, 6.5]
Ferritin (ng/mL), median [IQR]	110	649.4 [340.2, 993.5]	114	535.0 [277.2, 990.2]
Calcium (mg/dL), median [IQR]	113	9.0 [8.7, 9.3]	122	9.0 [8.7, 9.3]
Phosphate (mg/dL), median [IQR]	77	3.4 [3.0, 4.0]	90	3.5 [3.0, 3.9]

IQR: interquartile range
CRP: C-reactive protein
LDH: Lactate dehydrogenase

Table S4. Demographic, comorbidities, and serum calcidiol categories at hospital admission

Calcidiol levels (ng/mL)	All patients		≤10		10-15		15-20		20-25		>25		
	n	n=538	n	n=96	n	n=143	n	n=124	n	n=88	n	n=87	p-value
Demographics													
Age (years), median [IQR]	538	58.0 [46.0, 68.8]	96	62.0 [51.0, 75.2]*	143	57.0 [46.0, 67.0]	124	57.0 [46.0, 67.2]	88	60.0 [47.8, 72.0]**	87	56.0 [43.0, 65.0]	0.004
Males, n (%)	538	349 (64.9)	96	51 (53.1)	143	98 (68.5)	124	86 (69.4)	88	57 (64.8)	87	57 (65.5)	0.101
BMI (Kg/m²), median [IQR]	417	28.4 [25.7, 31.6]	62	28.7 [25.4, 32.9]	114	28.8 [26.4, 31.4]	102	28.1 [24.9, 32.3]	69	28.7 [26.8, 31.9]	70	27.1 [25.3, 29.8]	0.059
Smokers, n (%)	536	59 (11.0)	96	10 (10.4)	143	16 (11.2)	123	18 (14.6)	88	10 (11.4)	86	5 (5.8)	0.388
Comorbidities													
Hypertension, n (%)	538	234 (43.5)	96	49 (51.0)	143	59 (41.3)	124	57 (46.0)	88	40 (45.5)	87	29 (33.3)	0.158
Diabetes, n (%)	538	132 (24.5)	96	27 (28.1)	143	29 (20.3)	124	34 (27.4)	88	25 (28.4)	87	17 (19.5)	0.341
Cardiovascular disease, n (%)	538	112 (20.8)	96	27 (28.1)	143	29 (20.3)	124	27 (21.8)	88	17 (19.3)	87	12 (13.8)	0.205
Asthma, n (%)	538	28 (5.2)	96	10 (10.4)	143	5 (3.5)	124	7 (5.6)	88	2 (2.3)	87	4 (4.6)	0.136
COPD, n (%)	538	23 (4.3)	96	6 (6.2)	143	4 (2.8)	124	6 (4.8)	88	4 (4.5)	87	3 (3.4)	0.732

Kruskal-Wallis test was used to assess significant differences among the calcidiol categories for numeric variables

Chi-squared or Fisher exact test (frequencies less 5) were used for categorical variables

* $p<0.005$, calcidiol ≤10 vs. calcidiol 10-15, 15-20 and >25 ng/mL respectively (Mann-Whitney U test)

** $p<0.03$, calcidiol 20-25 vs. calcidiol >25 ng/mL (Mann-Whitney U test)

n: number of patients available for analysis

IQR: interquartile range

COPD: Chronic obstructive pulmonary disease

Table S5. Relevant biochemical parameters and serum calcidiol categories at hospital admission

Calcidiol levels (ng/mL)	All patients		≤10		10-15		15-20		20-25		>25		
	n	n=538	n	n=96	n	n=143	n	n=124	n	n=88	n	n=87	p-value
Laboratory parameters													
Calcidiol (ng/mL), median [IQR]	538	16.6 [11.6, 22.0]	96	8.0 [6.3, 8.6]	143	12.9 [11.5, 13.9]	124	18.0 [16.6, 18.8]	88	22.0 [21.0, 23.9]	87	30.0 [27.4, 32.0]	<0.001
Creatinine (mg/dL), median [IQR]	521	0.9 [0.8, 1.1]	91	0.9 [0.7, 1.2]	139	0.9 [0.7, 1.1]	121	0.9 [0.8, 1.1]	87	0.9 [0.8, 1.1]	83	0.9 [0.8, 1.1]	0.434
CRP (mg/dL), median [IQR]	477	9.4 [3.7, 30.0]	85	12.5 [3.8, 47.0]	128	11.7 [3.7, 35.2]	108	10.1 [4.0, 39.5]	79	7.7 [3.4, 18.4]	77	6.3 [3.4, 11.7]	0.012
Albumin (g/L), median [IQR]	297	39.0 [35.0, 41.0]	62	38.0 [35.0, 40.0]	83	40.0 [36.0, 41.0]	64	38.0 [36.0, 40.0]	49	38.0 [34.0, 40.0]	39	41.0 [38.5, 42.0]	0.003
Haemoglobin (g/dL), median [IQR]	527	13.9 [13.0, 14.8]	92	13.5 [12.5, 14.3]	139	13.8 [12.9, 14.4]	124	14.0 [12.9, 15.0]	87	14.0 [13.2, 14.8]	85	14.3 [13.2, 15.0]	0.005
LDH (U/L), median [IQR]	440	369.0 [248.8, 476.0]	76	356.0 [260.2, 449.0]	118	387.5 [280.0, 469.8]	101	388.0 [254.0, 497.0]	74	363.0 [234.8, 456.0]	71	299.0 [168.0, 518.0]	0.241
Leucocytes (No./µL), median [IQR]	527	7.0 [5.3, 9.1]	92	6.7 [4.8, 9.2]	139	7.3 [5.6, 9.6]	124	6.8 [5.3, 8.8]	87	7.4 [5.8, 9.4]	85	6.7 [5.0, 8.6]	0.279
Interleukin-6 (pg/mL), median [IQR]	188	12.1 [4.6, 27.0]	40	17.1 [7.0, 47.8]	42	13.0 [7.0, 21.0]	39	9.9 [4.2, 28.2]	32	11.1 [3.5, 25.8]	35	6.3 [3.6, 19.1]	0.096
Ferritin (ng/mL), median [IQR]	444	650.0 [340.8, 1286.8]	78	675.0 [389.0, 1259.0]	116	634.5 [343.8, 1127.0]	98	685.0 [382.5, 1257.1]	76	679.0 [337.8, 1359.8]	76	529.0 [257.0, 1553.0]	0.832
Calcium (mg/dL), median [IQR]	394	8.8 [8.5, 9.1]	59	8.7 [8.3, 8.9]	111	8.8 [8.4, 9.1]	89	8.8 [8.5, 9.1]	68	8.9 [8.5, 9.2]	67	8.9 [8.7, 9.2]	0.006
Phosphate (mg/dL), median [IQR]	310	3.3 [2.7, 3.9]	37	2.9 [2.6, 3.2]	76	3.0 [2.6, 3.6]	72	3.3 [2.8, 3.7]	63	3.5 [3.1, 4.0]	62	3.4 [3.0, 4.1]	<0.001

Kruskal-Wallis test was used to assess significant differences among the calcidiol categories
n: number of patients available for analysis
IQR: interquartile range
CRP: C-reactive protein
LDH: Lactate dehydrogenase

Table S6. Relevant biochemical parameters and serum calcidiol categories at hospital admission in age-matched patients.

Calcidiol levels (ng/mL)	All patients		≤10		10-15		15-20		20-25		>25		
	n	n=365	n	n=73	n	n=73	n	n=73	n	n=73	n	n=73	p-value
Laboratory parameters													
Calcidiol (ng/mL), median [IQR]	365	18.0 [11.4, 23.9]	73	8.1 [7.3, 8.9]	73	12.9 [11.4, 13.9]	73	18.0 [16.6, 18.9]	73	22.0 [21.0, 23.9]	73	29.6 [27.0, 32.0]	<0.001
Creatinine (mg/dL), median [IQR]	353	0.9 [0.8, 1.1]	71	0.9 [0.7, 1.1]	71	0.9 [0.7, 1.1]	70	0.9 [0.8, 1.1]	72	0.9 [0.8, 1.1]	69	0.9 [0.8, 1.2]	0.610
CRP (mg/dL), median [IQR]	325	8.1 [3.3, 24.0]	65	15.0 [4.9, 47.0]	65	8.7 [2.0, 27.0]	65	8.8 [3.3, 15.1]	66	6.7 [3.4, 17.0]	64	6.0 [3.5, 11.6]	0.019
Albumin (g/L), median [IQR]	203	39.0 [36.0, 40.8]	48	39.0 [36.0, 40.7]	43	40.0 [36.0, 41.0]	39	38.0 [36.0, 39.0]	41	38.0 [34.0, 40.0]	32	40.0 [37.2, 42.0]	0.029
Haemoglobin (g/dL), median [IQR]	358	13.9 [13.0, 14.7]	71	13.6 [12.7, 14.2]	71	13.8 [13.0, 14.4]	73	14.0 [12.9, 14.8]	72	14.0 [13.4, 14.8]	71	14.3 [13.2, 14.9]	0.058
LDH (U/L), median [IQR]	300	357.5 [246.8, 474.8]	63	371.0 [298.0, 473.5]	60	383.0 [276.5, 455.2]	59	312.0 [220.5, 510.5]	60	358.5 [226.0, 458.5]	58	318.0 [200.0, 528.0]	0.668
Leucocytes (No./µL), median [IQR]	358	6.9 [5.1, 9.0]	71	6.8 [4.8, 9.7]	71	7.5 [5.4, 9.6]	73	6.6 [5.0, 9.0]	72	7.3 [5.2, 9.0]	71	6.7 [5.0, 8.3]	0.568
Interleukin-6 (pg/mL), median [IQR]	141	12.1 [4.0, 27.0]	28	17.1 [7.0, 43.2]	27	13.0 [6.0, 20.0]	29	11.2 [4.0, 33.8]	28	12.6 [3.1, 26.2]	29	7.4 [3.9, 21.0]	0.369
Ferritin (ng/mL), median [IQR]	307	688.0 [342.2, 1318.0]	60	723.5 [423.2, 1494.8]	60	648.0 [378.6, 1109.0]	60	741.6 [374.5, 1144.5]	63	708.0 [344.7, 1340.5]	64	595.0 [272.8, 1645.5]	0.898
Calcium (mg/dL), median [IQR]	273	8.8 [8.5, 9.1]	49	8.7 [8.3, 8.9]	59	8.8 [8.4, 9.1]	53	8.8 [8.5, 9.0]	56	8.9 [8.5, 9.2]	56	8.9 [8.6, 9.2]	0.048
Phosphate (mg/dL), median [IQR]	224	3.3 [2.8, 3.8]	29	3.0 [2.6, 3.2]	44	3.2 [2.7, 3.6]	47	3.2 [2.7, 3.7]	52	3.5 [3.1, 3.9]	52	3.3 [2.8, 4.0]	0.017

Kruskal-Wallis test was used to assess significant differences among the calcidiol categories
n: number of patients available for analysis
IQR: interquartile range
CRP: C-reactive protein
LDH: Lactate dehydrogenase

Table S7. Pulmonary involvement at admission and outcomes according to serum calcidiol categories.

Calcidiol levels (ng/mL)	All patients		≤10		10-15		15-20		20-25		>25	
ALL PATIENTS	**n**	**n=538**	**n**	**n=96**	**n**	**n=143**	**n**	**n=124**	**n**	**n=88**	**n**	**n=87**
Pulmonary involvement, %[95% CI]*	538	82.9[79.4-85.9]	96	92.7[85.1-96.8]	143	84.6[77.4-89.9]	124	80.6[72.4-87.0]	88	85.2[75.7-91.6]	87	70.1[59.2-79.2]
Outcomes												
Length of hospitalization (days), median [95% CI]	502	9.5[9.0-10.0]	86	11.5[10.0-13.5]	139	9.5[8.5-10.5]	112	9.5[8.5-10.5]	84	9.0[8.0-10.5]	81	9.5[8.5-10.5]
Admission to ICU, %[95% CI]	538	16.7[13.7-20.2]	96	24.0[16.1-34.0]	143	16.8[11.3-24.1]	124	18.5[12.4-26.7]	88	14.8[8.4-24.3]	87	8.0[3.6-16.4]
Death, %[95% CI]	538	6.7[4.8-9.2]	96	10.4[5.4-18.7]	143	2.8[0.9-7.5]	124	9.7[5.3-16.6]	88	4.5[1.5-11.9]	87	6.9[2.8-15.0]
AGE-MATCHED PATIENTS	**n**	**n=365**	**n**	**n=73**	**n**	**n=73**	**n**	**n=73**	**n**	**n=73**	**n**	**n=73**
Pulmonary involvement, %[95% CI]*	365	85.8[81.6-89.1]	73	91.8[82.4-96.6]	73	87.7[77.4-93.9]	73	89.0[79.0-94.8]	73	89.0[79.0-94.8]	73	71.2[59.3-80.9]
Outcomes												
Length of hospitalization (days), median [95% CI]	340	9.5[9.0-10.0]	66	11.5[10.0-14.0]	71	9.5[8.0-11.0]	67	9.0[8.0-10.5]	69	9.0[7.5-11.0]	67	9.5[8.5-10.5]
Admission to ICU, %[95% CI]	365	17.3[13.6-21.6]	73	28.8[19.1-40.7]	73	15.1[8.1-25.8]	73	20.5[12.3-31.9]	73	13.7[7.1-24.2]	73	8.2[3.4-17.6]
Death, %[95% CI]	365	6.8[4.6-10.1]	73	9.6[4.3-19.3]	73	2.7[0.5-10.4]	73	8.2[3.4-17.6]	73	5.5[1.8-14.2]	73	8.2[3.4-17.6]

n: number of patients available for analysis

ICU: intensive care unit

*Assessed by chest X-ray and/or computed axial tomography

Table S8. Types and number of drugs received during the hospitalization and serum calcidiol categories at hospital admission.

Calcidiol levels (ng/mL)	All patients		≤10		10-15		15-20		20-25		>25		
	n	n=538	n	n=96	n	n=143	n	n=124	n	n=88	n	n=87	p-value
Drugs prescribed													
Cholecalciferol, n (%)	538	273 (50.7)	96	48 (50.0)	143	69 (48.3)	124	65 (52.4)	88	51 (58.0)	87	40 (46.0)	0.535
Enoxaparin, n (%)	529	396 (74.9)	92	74 (80.4)	141	110 (78.0)	122	88 (72.1)	87	68 (78.2)	87	56 (64.4)	0.080
Ceftriaxone, n (%)	530	191 (36.0)	92	39 (42.4)	141	47 (33.3)	123	49 (39.8)	87	30 (34.5)	87	26 (29.9)	0.361
Methylprednisolone, n (%)	531	191 (36.0)	92	37 (40.2)	141	42 (29.8)	123	44 (35.8)	88	28 (31.8)	87	40 (46.0)	0.112
Azithromycin, n (%)	532	183 (34.4)	92	39 (42.4)	141	39 (27.7)	124	39 (31.5)	88	29 (33.0)	87	37 (42.5)	0.073
Dexamethasone, n (%)	532	161 (30.3)	92	24 (26.1)	141	48 (34.0)	124	37 (29.8)	88	22 (25.0)	87	30 (34.5)	0.461
Number of drugs per patient, median [IQR]*	532	3.0 [2.0, 4.0]	92	3.0 [2.0, 4.0]	141	3.0 [2.0, 4.0]	124	3.0 [2.0, 4.0]	88	3.0 [2.0, 4.0]	87	3.0 [2.0, 4.0]	0.200

Kruskal-Wallis test was used to assess significant differences among the calcidiol categories for numeric variables
Chi-squared or Fisher exact test (frequencies less 5) were used for categorical variables
n: number of patients available for analysis
IQR: interquartile range
*Includes cholecalciferol

Table S9. Demographic, comorbidities, and serum calcidiol categories at admission in age-matched patients.

Calcidiol levels (ng/mL)	All patients		≤10		10-15		15-20		20-25		>25		
	n	n=365	n	n=73	n	n=73	n	n=73	n	n=73	n	n=73	p-value
Demographics													
Age (years), median [IQR]	365	58.0 [50.0, 67.0]	73	58.0 [50.0, 66.0]	73	57.0 [51.0, 67.0]	73	57.0 [51.0, 67.0]	73	59.0 [48.0, 69.0]	73	58.0 [51.0, 67.0]	0.990
Males, n (%)	365	227 (62.2)	73	35 (47.9)	73	49 (67.1)	73	50 (68.5)	73	47 (64.4)	73	46 (63.0)	0.076
BMI (Kg/m²), median [IQR]	280	28.7 [26.0, 32.0]	50	28.9 [26.5, 32.9]	58	29.2 [26.8, 32.1]	59	28.7 [24.9, 32.9]	56	28.8 [26.8, 31.9]	57	27.7 [25.2, 29.9]	0.063
Smokers, n (%)	363	37 (10.2)	73	9 (12.3)	73	6 (8.2)	72	10 (13.9)	73	9 (12.3)	72	3 (4.2)	0.250
Comorbidities													
Hypertension, n (%)	365	157 (43.0)	73	35 (47.9)	73	32 (43.8)	73	35 (47.9)	73	29 (39.7)	73	26 (35.6)	0.490
Diabetes, n (%)	365	92 (25.2)	73	22 (30.1)	73	17 (23.3)	73	19 (26.0)	73	18 (24.7)	73	16 (21.9)	0.819
Cardiovascular disease, n (%)	365	70 (19.2)	73	14 (19.2)	73	17 (23.3)	73	17 (23.3)	73	10 (13.7)	73	12 (16.4)	0.500
Asthma, n (%)	365	15 (4.1)	73	8 (11.0)	73	1 (1.4)	73	2 (2.7)	73	2 (2.7)	73	2 (2.7)	0.067
COPD, n (%)	365	16 (4.4)	73	2 (2.7)	73	3 (4.1)	73	4 (5.5)	73	4 (5.5)	73	3 (4.1)	0.976

Kruskal-Wallis test was used to assess significant differences among the calcidiol categories for numeric variables
Chi-squared or Fisher exact test (frequencies less 5) were used for categorical variables
n: number of patients available for analysis
IQR: interquartile range
COPD: Chronic obstructive pulmonary disease

Table S10. Types and number of drugs received during the hospitalization and serum calcidiol categories at hospital admission in age-matched patients.

Calcidiol levels (ng/mL)	All patients		≤10		10-15		15-20		20-25		>25		
	n	n=538	n	n=96	n	n=143	n	n=124	n	n=88	n	n=87	p-value
Drugs prescribed													
Cholecalciferol, n (%)	538	273 (50.7)	96	48 (50.0)	143	69 (48.3)	124	65 (52.4)	88	51 (58.0)	87	40 (46.0)	0.535
Enoxaparin, n (%)	529	396 (74.9)	92	74 (80.4)	141	110 (78.0)	122	88 (72.1)	87	68 (78.2)	87	56 (64.4)	0.080
Ceftriaxone, n (%)	530	191 (36.0)	92	39 (42.4)	141	47 (33.3)	123	49 (39.8)	87	30 (34.5)	87	26 (29.9)	0.361
Methylprednisolone, n (%)	531	191 (36.0)	92	37 (40.2)	141	42 (29.8)	123	44 (35.8)	88	28 (31.8)	87	40 (46.0)	0.112
Azithromycin, n (%)	532	183 (34.4)	92	39 (42.4)	141	39 (27.7)	124	39 (31.5)	88	29 (33.0)	87	37 (42.5)	0.073
Dexamethasone, n (%)	532	161 (30.3)	92	24 (26.1)	141	48 (34.0)	124	37 (29.8)	88	22 (25.0)	87	30 (34.5)	0.461
Number of drugs per patient, median [IQR]*	532	3.0 [2.0, 4.0]	92	3.0 [2.0, 4.0]	141	3.0 [2.0, 4.0]	124	3.0 [2.0, 4.0]	88	3.0 [2.0, 4.0]	87	3.0 [2.0, 4.0]	0.200

Kruskal-Wallis test was used to assess significant differences among the calcidiol categories for numeric variables
Chi-squared or Fisher exact test (frequencies less 5) were used for categorical variables
n: number of patients available for analysis
IQR: interquartile range
*Includes cholecalciferol

Table S11. Relevant biochemical parameters and serum calcidiol categories at hospital admission in the control group (No cholecalciferol).

Calcidiol levels (ng/mL)		All patients		≤10		10-15		15-20		20-25		>25	
	n	n=265	n	n=48	n	n=74	n	n=59	n	n=37	n	n=47	p-value
Laboratory parameters													
Calcidiol (ng/mL), median [IQR]	265	16.1 [11.5, 22.0]	48	8.0 [7.0, 8.5]	74	13.0 [11.5, 13.9]	59	17.8 [16.6, 18.4]	37	22.0 [21.1, 24.0]	47	30.0 [27.6, 32.0]	<0.001
Creatinine (mg/dL), median [IQR]	253	0.9 [0.8, 1.1]	44	0.9 [0.7, 1.1]	71	0.9 [0.7, 1.1]	57	0.9 [0.8, 1.1]	37	0.9 [0.8, 1.1]	44	0.9 [0.8, 1.2]	0.861
CRP (mg/dL), median [IQR]	236	8.7 [3.3, 25.0]	39	15.0 [3.8, 55.5]	66	14.2 [2.3, 42.8]	53	9.7 [3.0, 23.0]	35	6.6 [2.7, 11.9]	43	6.3 [4.5, 9.9]	0.017
Albumin (g/L), median [IQR]	143	39.0 [36.6, 41.0]	26	39.0 [36.2, 40.0]	42	40.0 [38.2, 41.8]	29	38.0 [36.0, 39.0]	24	38.0 [35.8, 39.2]	22	41.0 [40.0, 42.0]	0.003
Haemoglobin (g/dL), median [IQR]	258	14.0 [13.0, 14.9]	45	13.5 [12.7, 14.3]	71	14.0 [13.0, 14.6]	59	14.2 [12.7, 15.0]	37	14.0 [13.4, 14.9]	46	14.4 [13.6, 15.1]	0.027
LDH (U/L), median [IQR]	212	347.0 [243.0, 461.0]	35	390.0 [298.0, 522.0]	61	384.0 [255.0, 476.0]	47	390.0 [280.5, 464.5]	30	274.5 [194.8, 376.2]	39	291.0 [93.5, 421.5]	0.006
Leucocytes (No./µL), median [IQR]	258	7.0 [5.1, 8.9]	45	7.5 [5.0, 10.5]	71	7.5 [5.6, 9.4]	59	6.8 [5.2, 8.2]	37	6.8 [5.1, 8.9]	46	6.7 [4.9, 8.7]	0.726
Interleukin-6 (pg/mL), median [IQR]	91	11.0 [3.8, 24.9]	16	19.5 [7.0, 51.0]	17	13.0 [6.1, 21.1]	18	8.9 [3.8, 25.2]	18	14.7 [3.4, 25.3]	22	5.7 [3.2, 12.1]	0.205
Ferritin (ng/mL), median [IQR]	216	584.0 [302.8, 1108.5]	39	650.0 [305.5, 1151.0]	56	465.0 [292.2, 872.5]	45	793.0 [453.0, 1300.0]	33	514.0 [231.0, 1166.0]	43	452.0 [297.0, 917.5]	0.156
Calcium (mg/dL), median [IQR]	190	8.9 [8.5, 9.1]	29	8.6 [8.3, 8.9]	58	8.9 [8.6, 9.1]	44	8.8 [8.5, 9.1]	25	9.1 [8.9, 9.3]	34	8.9 [8.7, 9.2]	0.004
Phosphate (mg/dL), median [IQR]	149	3.2 [2.7, 3.8]	21	2.9 [2.6, 3.1]	36	3.0 [2.6, 3.5]	33	3.3 [3.1, 3.6]	24	3.6 [3.1, 4.0]	35	3.7 [3.0, 4.1]	0.004

Kruskal-Wallis test was used to assess significant differences among the calcidiol categories
n: number of patients available for analysis
IQR: interquartile range
CRP: C-reactive protein
LDH: Lactate dehydrogenase

Table S12. Types and number of drugs received during the hospitalization and serum calcidiol categories at hospital admission in the control group (No cholecalciferol).

Calcidiol levels (ng/mL)	All patients		≤10		10-15		15-20		20-25		>25		
	n	n=265	n	n=48	n	n=74	n	n=59	n	n=37	n	n=47	p-value
Drugs prescribed													
Cholecalciferol, n (%)	265	0 (0.0)	48	0 (0.0)	74	0 (0.0)	59	0 (0.0)	37	0 (0.0)	47	0 (0.0)	–
Enoxaparin, n (%)	260	187 (71.9)	45	33 (73.3)	73	54 (74.0)	58	45 (77.6)	37	28 (75.7)	47	27 (57.4)	0.181
Ceftriaxone, n (%)	260	92 (35.4)	45	18 (40.0)	73	24 (32.9)	58	19 (32.8)	37	15 (40.5)	47	16 (34.0)	0.868
Methylprednisolone, n (%)	261	92 (35.2)	45	17 (37.8)	73	22 (30.1)	59	21 (35.6)	37	11 (29.7)	47	21 (44.7)	0.510
Azithromycin, n (%)	261	95 (36.4)	45	19 (42.2)	73	20 (27.4)	59	16 (27.1)	37	16 (43.2)	47	24 (51.1)	0.032
Dexamethasone, n (%)	261	78 (29.9)	45	14 (31.1)	73	20 (27.4)	59	20 (33.9)	37	9 (24.3)	47	15 (31.9)	0.855
Number of drugs per patient, median [IQR]*	261	3.0 [3.0, 4.0]	45	4.0 [3.0, 5.0]	73	3.0 [2.0, 4.0]	59	3.0 [3.0, 4.0]	37	4.0 [3.0, 4.0]	47	3.0 [3.0, 4.0]	0.379

Kruskal-Wallis test was used to assess significant differences among the calcidiol categories for numeric variables
Chi-squared or Fisher exact test (frequencies less 5) were used for categorical variables
n: number of patients available for analysis
IQR: interquartile range
*Includes cholecalciferol

Table S13. Pulmonary involvement at admission and outcomes according to initial serum calcidiol categories in the control group (No cholecalciferol).

Calcidiol levels (ng/mL)	All patients		≤10		10-15		15-20		20-25		>25	
	n	n=265	n	n=48	n	n=74	n	n=59	n	n=37	n	n=47
Pulmonary involvement, %[95% CI]*	265	80.4[75.0-84.9]	48	91.7[79.1-97.3]	74	82.4[71.5-90.0]	59	79.7[66.8-88.6]	37	83.8[67.3-93.2]	47	63.8[48.5-76.9]
Outcomes												
Length of hospitalization (days), median [95% CI]	251	9.5[9.0-10.0]	42	11.5[9.5-14.5]	74	9.0[8.0-10.5]	54	9.0[8.0-10.5]	37	8.5[7.0-10.0]	44	10.0[8.5-11.0]
Admission to ICU, %[95% CI]	265	16.2[12.1-21.3]	48	22.9[12.5-37.7]	74	18.9[11.1-30.0]	59	22.0[12.7-35.1]	37	5.4[0.9-19.5]	47	6.4[1.7-18.6]
Death, %[95% CI]	265	5.3[3.0-8.9]	48	12.5[5.2-25.9]	74	0.0[0.0-6.1]	59	8.5[3.2-19.4]	37	0.0[0.0-11.7]	47	6.4[1.7-18.6]

n: number of patients available for analysis
ICU: intensive care unit
*Assessed by chest X-ray and/or computed axial tomography