Long-term impact of pulmonary function among patients recovered from SARS-CoV-2 infection in Lima, Peru: a preliminary analysis of the FUNCTION cohort study

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INTRODUCCION

The sequalae of COVID-19 have been described as a multisystemic condition and evidence suggest that respiratory system is one of the most affected bringing concern regarding the long-term complications on pulmonary function. [1]

Patients recovered from COVID-19 have shown altered diffusion capacity of the lungs for carbon monoxide (DLco) in addition to other functional patterns.[2]

OBJECTIVES

To evaluate the long-term impact on pulmonary function in patients recovered from COVID-19.

METHODOS

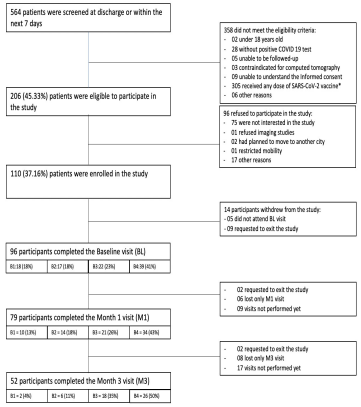
A preliminary descriptive analysis of a prospective cohort study of symptomatic patients recovered from COVID-19.

Study population based on infection severity at :
baseline as **mildly-ill (B1), moderately-ill (B2), severely-ill (B3), critically-ill (B4)** .

Follow-up consisted of 4 visits: within 7 days from discharge (BL), and at month 1, 3 and 6. This analysis includes until 3rd month

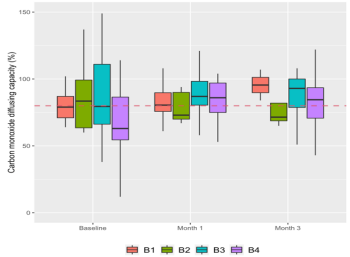
Pulmonary function capacity assessed by DLco, spirometry, and 6-MWT. A **DLco<80% was considered abnormal and reverted if >80% at follow-up visits.**

RESULTS



By the time of tthis preliminary analysis, the follow-up visits were still ongoing

Variables at BL visit N = 96	N (%)	Group B1 (n=18)	Group B2 (n=17)	Group B3 (n=22)	Group B4 (n=39)	p-value[6]
Male	65 (67.71)	07 (38.9)	09 (52.9)	16 (72.7)	33 (84.6)	<0.01
Age, years, median, IQR	37.5 (28.0-46.25)	28.0 (24.25-32.5)	37.0 (33.0-55.0)	39.0 (28.75-55.25)	40.0 (31.5-46.0)	0.02
BMI, median, IQR	26.70 (23.73-30.43)	25.70 (22.10-29.11)	27.01 (23.67-29.14)	26.17 (23.70-29.05)	27.33 (24.51-31.48)	0.42
COVID-19 test type	-	-	-	-	-	0.41
Molecular PCR	38 (39.58)	04 (22.2)	07 (41.2)	10 (45.5)	17 (43.3)	-
Antigenic	58 (60.42)	14 (77.8)	10 (58.8)	12 (54.5)	22 (56.4)	
Time from diagnosis to discharge, days, median, IQR	10.0 (6.0-19.5)	6.0 (4.0-7.0)	7.0 (5.0-7.0)	8.5 (6.0-11.0)	22.0 (13.0-28.5)	<0.01
Time from diagnosis to enrollment, days, median, IQR	19.5 (14.0-28.0)	13.5 (9.75-15.5)	15.0 (12.0-19.0)	19.0 (14.25-24.45)	28.0 (20.5-37.0)	<0.01
Time from discharge to baseline visit, days, median, IQR	9.0 (6.0-12.0)	9.0 (4.0-11.0)	10.0 (8.0-14.0)	10.0 (7.0-12.0)	8.0 (6.0-10.0)	0.12
Time from discharge to month 1 visit, days, median, IQR	39.0 (36.0-44.0)	30.0 (10.0-37.25)	36.5 (32.75-42.25)	40.0 (36.75-40.0)	39.0 (37.0-44.0)	0.01
Time from discharge to month 3 visit, days, median, IQR	100.0 (96.0-109.0)	88.0 (51.5-101.5)	111.5 (99.5-137.0)	97.5 (95.75-102.25)	103 (97.75-109.0)	0.12



No underlying comorbidities were reported among 63 (66%) participants, while diabetes type 2 (11%), asthma (7%) prior pulmonary tuberculosis (6%) and hypertension (5%) where the most frequent comorbidities overall; 17 (18%) reported smoking exposure.

All of the 88 (92%) participants that underwent the pulmonary function tests at BL: 49 (56%) had DLco <80% with a tendency to revert across B1-B4 groups at month 3.

Variable	N (%)	Group B1 (n=18)	Group B2 (n=17)	Group B3 (n=22)	Group B4 (n=39)	p-value[5]
DLco, n=88						
DLCO<80% predicted	49 (55.68)	9 (52.9)	6 (50.0)	10 (50.0)	24 (61.5)	0.79
Spirometry						
FVC % predicted, median, IQR	110.5 (92.0-124.25)	122.0 (117.0-125.0)	122.0 (89.75-128.5)	112.5 (100.0-120.0)	97.0 (84.0-113.5)	<0.01
FEV1 % predicted, median, IQR	101 (87.0-116.0)	118.0 (110.0-134.0)	111.0 (99.5-114.25)	104.5 (91.0-115.25)	87.0 (83.5-100.0)	<0.01
FEV1/FVC % predicted, median, IQR	102.5 (98.75-106.25)	101.0 (97.0-103.0)	101.0 (89.5-105.25)	103.0 (99.75-105.25)	104.0 (100.5-108.5)	0.08
PEF % predicted, median, IQR	106.0 (84.75-121.0)	119.0 (115.0-136.0)	106.0 (89.25-124.25)	101.0 (84.0-114.25)	99.0 (79.5-117.0)	<0.01
FEF25-75% predicted, median, IQR	107.0 (82.75-133.75)	118.0 (101.0-140.0)	98.0 (71.25-132.5)	114.5 (102.75-122.5)	102.0 (75.0-132.5)	0.14
6-minute walk test						
Meters performed, median, IQR	480 (397.5-527.0)	517.5 (467.25-531.0)	475.0 (450.0-514.0)	515.25 (462.75-531.0)	436.0 (302.25-503.25)	0.01
Maximum heart rate, median, IQR	180.0 (172.0-189.0)	187.0 (172.0-191.25)	176.5 (168.5-184.25)	183.5 (161.75-192.25)	179.5 (174.75-187.5)	0.75

CONCLUSIONS

DLCO showed to be abnormal even in non-hospitalized patients, such as B1 and B2 groups.

Abnormal DLCO tended to increase and revert to values greater than 80% in the 3-month follow-up period of patients recovered from SARS-CoV-2 infection across severity groups

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