Patients' perspective and lung function correlation:the importance of questionnaires in home mechanical ventilation

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Abstract

Classical physiological variables used to monitor respiratory function in patients under non-invasive ventilation (NIV), such as FEV1 or FVC, correlate poorly with reported impairment of physical function or overall health status and hence provide an incomplete picture of impaired health.

Aim: to investigate the association between the Portuguese S3-non-invasive ventilation (S3-NIV) questionnaire score and objective measures of lung function.

Consecutive adult patients with chronic respiratory failure, established on home NIV for at least 30 days were recruited in one outpatient clinic. Correlations between physiological variables and S3-NIV score were computed with Spearman rank coefficient.

We studied 230 stable patients (126 male, 54.8%) with a mean age of 69.2 (± 11,0) years. Demographic and spirometry characteristics, and S3-NIV respiratory and total scores are presented on the table, according to disease groups. Spearman coefficient values are also presented.

	OHS	COPD	COPD + OSA	RCWD	NMD
Patients N (%)	64 (27,4)	62 (26.5)	51 (21.8)	38 (16.2)	15 (6.4)
Age in years (SD)	68.6 (12.9)	71.6 (8.6)	69.6 (7.9)	68.0 (12.7)	63.7 (14.7)
Sex (% male)	18 (28.1)	39 (62.9)	37 (72.5)	23 (60.5)	7 (46.7)
FEV1 (% predicted) median (IQR)	72.0 (59.0-85.0)	33.0 (25.5-46.0)	48.0 (34.0-56.0)	34.5 (28.8-49.3)	53.0 (40.0-62.5)
FVC (% predicted) median (IQR)	73.0 (63.0-84.5)	68.0 (55.8-75.0)	66.0 (57.0-73.0)	37.5 (30.8-53.5	47.0 (38.5-58.0)
S3-NIV questionnaire total score, median (IQR)	7.6 (6.6-8.6)	6.7 (5.4-8.0)	7.3 (6.1-8.0)	7.8 (6.6-8.9)	7.0 (6.1-8.2)
Respiratory symptoms subscore, median (IQR)	7.5 (6.0-9.2)	6.0 (4.0-8.0)	6.5 (5.5-7.5)	7.5 (5.5-9.0)	6.5 (5.5-9.0)

Spearman rank coefficient (rho)										
	FEV 1	FVC	FEV 1	FVC	FEV 1	FVC	FEV 1	FVC	FEV 1	FVC
S3-NIV questionnaire total score	0.01	0.03	0.28	0.02	0.16	0.18	0.13	0.05	0.35	0.41
Respiratory symptoms subscore	0.13	0.11	0.22	0.02	0.24	0.31	0.02	0.10	0.08	0.12

Abbreviations: COPD, chronic obstructive pulmonary disease; OHS, obesity-hypoventilation syndrome; RCWD, restrictive chest wall disorders; COPD + OSA, combined COPD and obstructive sleep apnea; NMD, neuromuscular disorders FVC, forced vital capacity; FEV1, forced expiratory volume in one second; SD, standard deviation; IQR, interquartile range.

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Neither the S3-NIV total score nor the respiratory symptoms subscore correlate with lung function impairment in any of the disease groups. This reinforces the notion that symptoms questionnaires and patient reported outcome measures must always be obtained directly from the patient and should be included in

regular treatment monitoring.

- [Quality of life](#)
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Footnotes

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