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LETTER

The Barthel index-dyspnea: a new two-dimensional dyspnea scale

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Dear editor

Clinical evaluation tools have been widely used in assessing the baseline status, treatment response, and prognosis for patients with chronic respiratory diseases and mostly for patients with chronic obstructive pulmonary disease (COPD).[1] By factor analysis, multiple domains of disease entities involve dyspnea, psychological status, health-related quality of life, and sensation or perception of dyspnea,[2] wherein dyspnea is commonly evaluated by dyspnea scales such as Medical Research Council (MRC), Baseline Dyspnea Index, Oxygen-Cost Diagram, St George Respiratory Questionnaire activity domain, and Chronic Respiratory Disease Questionnaire dyspnea domain (CRQ-dyspnea).[2] These scales describe the subjects' capability to perform at various levels of motor activity or functional status influenced or even limited by dyspnea. Indeed, exercise capacity is quantified; however, dyspnea is not. In our experience, the exertional dyspnea scales had better correlations with exercise performances ($|r|$=0.29–0.65) than dyspnea sensation intensity ($|r|$=0.06–0.55) and better correlation with walking ($|r|$=0.5–0.65) than peak exercise ($|r|$=0.29–0.39).

Recently, Vitacca et al addressed daily activities and dyspnea sensation intensity simultaneously in exertional dyspnea scale.[3] They have successfully developed a new dyspnea scale by integrating ten daily life activities of Barthel index and five categories of dyspnea sensation intensity.[3] The new scale was reported to be reliable, sensitive, and adequate as a tool for measuring the level of dyspnea while performing daily life activities and the responsiveness after treatment.

The new dyspnea scale is two-dimensional and conceptually agrees with multidimensional dyspnea profile.[4] There are some similarities between the Barthel index-dyspnea and the CRQ-dyspnea,[5] which was not discussed in Vitacca's report. The CRQ-dyspnea encompasses five items regarding exertional dyspnea part that the subject experienced during the last 2 weeks. The five items regarding activities of 26 listed activities in which the patient experiences dyspnea during day-to-day activities were selected by the research subjects as they considered these were the most important activities. The subject indicated the degree of dyspnea from grade 1 (extremely short of breath) to grade 7 (not at all short of breath) he or she had had. The five activity items were selected by the subjects' own volition, thereby being their most important activities but varying from one subject to another. In contrast, the ten daily activities of Barthel index are listed as a format, thereby probably some selected items not being their important activities but being more consistent in the subjects' daily activities during follow-up. Barthel index-dyspnea and CRQ-dyspnea scales

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simultaneously use categories to describe dyspnea sensation intensity, although the categories are different.

In Vitacca's report, Barthel index-dyspnea has strong concurrent validity with 6-minute walk test and MRC. Since 6-minute walk test and MRC are a submaximum exercise test and exercise capacity oriented scale, respectively, comparison of the utility of Barthel index-dyspnea scale with CRQ-dyspnea scale or with other quality of life questionnaires is enthusiastically anticipated in the future study. Additionally, the exercise intensity of daily activity of Barthel index is very mild-to-mild. This might be hard to extrapolate Barthel index-dyspnea scale to the subjects who have mild severity in chronic respiratory diseases as only 8.1% of study population were mild COPD in their study. Finally, magnitude of uncertainty was not quantified in Vitacca's report. Providing the confidence interval of correlation coefficient would be helpful for the readers.

Disclosure

The author reports no conflicts of interest in this communication.

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