Do We Now Have a ‘Couch Potato’ Blood Test?

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In recent years the role of polymorbidity in chronic diseases has become the focus of increased research. This is particularly true among patients with chronic obstructive pulmonary disease (COPD), where the development of underlying and frequently unrecognized cardiac disease may dramatically change the prognosis of patients [1].

A hallmark of COPD, cardiovascular disease, and other chronic diseases is both a decreased capacity for physical activity (PA) (i.e. what a patient can do) along with decreased levels of activity (i.e. what a patient actually does). PA is any bodily movement (e.g. daily walking) produced by skeletal muscles that results in energy expenditure [2]. The American College of Sports Medicine and the American Heart Association recommend for all adults aged 18–65 years moderate-intensity aerobic PA for at least 30 min daily at least 5 days a week [3]. COPD patients in stable condition are frequently sedentary, even if they have the capacity for higher levels of activity [4]. Moreover, in this patient population daily PA is an important predictor of mortality and hospitalization [5].

A challenge clinicians face is the inability to rapidly and objectively assess PA in their patients with chronic disease. Some cardiac biomarkers, however, show some promise in this regard. In response to increased cardiac stress, atrial natriuretic peptide (ANP) and adrenomedul-

lin (ADM) are released from myocardial cells in the atria and from adrenal medulla, respectively. The midregional pro-molecular forms of ANP (MR-proANP) and ADM (MR-proADM), which remain in the circulation longer than mature molecules, have been suggested as biomarkers with prognostic value in COPD exacerbations [6, 7].

Data from the PROMISE (Predicting Effects and Risk Factors in Exacerbations of Chronic Obstructive Pulmonary Disease) study by Jehn et al. [8] is published in this issue of *Respiration*. Their results show among moderate-to-severe stable COPD patients a significant inverse correlation between the daily walking activity (measured by accelerometers) and the level of MR-proANP and MR-proADM. Stated differently, lower levels of time spent walking (min/day or number of steps/day) predict higher levels of these cardiac-related biomarkers. These results provide a plausible means of ‘connecting the dots’ between COPD severity, inactivity, and cardiac disease with this measure of cardiac stress (levels of MR-proANP and MR-proADM) [6, 7] and PA [5].

This study highlights the need for objective and easily obtained measures of the daily level of activity in the comprehensive assessment of COPD patients to identify the patients at increased risk for exacerbation and mortality. Expanding criteria in the classification of COPD severity beyond lung function [5] to include cardiac

measures will give a better picture of our patient's current level of functioning and prognosis [9]. The addition of a simple blood test that provides information as to the PA of the patient (i.e. is this person, regardless of their capacity, reasonably active or a 'couch potato?') is intriguing.

With interest we await future studies aimed at evaluating whether any interventions (e.g. pulmonary rehabilitation) modify the level of cardiac distress circulating biomarkers. In addition, this measure may be important as a biomarker useful in evaluating new pharmacological approaches to the treatment of COPD and its comorbid diseases.

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