Daily physical activity in subjects with newly diagnosed COPD

Rationale Information about daily physical activity levels (PAL) in subjects with undiagnosed chronic obstructive pulmonary disease (COPD) is scarce. This study aims to assess PA and to investigate the associations between PA and clinical characteristics in subjects with newly diagnosed COPD.

Methods Fifty-nine subjects with a new spirometry-based diagnosis of mild (n=38) and moderate (n=21) COPD (63±6 years, 68% male) were matched with 65 smoking controls (62±7 years, 75% male). PA (daily steps, time spent in moderate-to-vigorous intense physical activities (MVPA) and PAL) was measured by accelerometry. Dyspnoea, complete pulmonary function tests, peripheral muscle strength and exercise capacity served as clinical characteristics.

Results PA was significantly lower in COPD versus smoking controls (7986±2648 vs 9765±3078 steps, daily time spent in moderate-to-vigorous physical activity (MVPA) (B) 64 (27–120) vs 110 (55–164) min of MVPA, 1.49±0.21 vs 1.62±0.24 PAL respectively, all p<0.05). Subjects with COPD with either mild symptoms of dyspnoea (mMRC 1), those with lower diffusion capacity (T1,co), low 6 min walking distance (6MWD) or low maximal oxygen uptake (VO2 peak) had significantly lower PA. Multiple regression analysis identified 6MWD and T1,co as independent predictors of COPD.

Conclusions The reduction in PA starts early in the disease, even when subjects are not yet diagnosed with COPD. Inactivity is more pronounced in subjects with mild symptoms of dyspnoea, lower levels of diffusion capacity and exercise capacity.

Figure 1 Daily physical activity levels (PAL) in subjects with and without chronic obstructive pulmonary disease (COPD); daily steps (A) 7986±2648 vs 9765±3078 steps, daily time spent in moderate-to-vigorous physical activity (MVPA) (B) 64 (27–120) vs 110 (55–164) min of MVPA and daily PAL (C): 1.49±0.21 vs 1.62±0.24 PAL. *p<0.05 COPD versus smoking controls.
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