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Title: Does oxygen pulled on the cart help or impair ambulation in COPD patients with resting and exertional hypoxaemia?

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Body: Oxygen increases exercise capacity in COPD patients with resting (RH) and exertional hypoxaemia (EH). Pulling the oxygen source on a wheeled cart is beneficial versus carrying it on a shoulder. However, pulling the cart may impair walking speed and reduce the possibility of ambulation. The aim of the study was to verify if walking with oxygen canister pulled by patient on a cart is beneficial versus walking without any load. COPD patients with RH and EH in random order performed 2 standardized 6-min walking tests: without oxygen supplementation and with oxygen (flow 6 l/min) from canister transported on a wheeled cart. We studied 34 pts (19 males, mean age 72±7 yrs, mean FEV_1 1±0,4 l (41±12% pred.): 15 with RH (mean PaO_2 52±4 mmHg) and 19 with EH (mean PaO_2 66±4 mmHg). In 6 EH patients (32%) and in 10 RH patients (67%) 6MWD improved with O_2 supplementation. In spite of significant improvement in SaO_2 during tests with O_2, neither dyspnea nor distance improved significantly in both groups. In RH 6MWD increased insignificantly by 13 m (295±110 m vs. 307±97 m) and in EH increased by only 2 m (356±94 m vs. 358±70 m). Despite the high O_2 flow, 8 RH patients (53%) and 7 EH (37%) had SaO_2 < 90% at the end of test. RH patients who desaturated had lower $PaCO_2$ (44±6 vs. 53±6 mmHg, $p<0.01$). EH patients who desaturated covered longer 6MWD with (411±41 m vs. 326±65 m; $p<0.01$) and without oxygen (415±46 m vs. 322±99 m; $p=0.03$). Oxygen supplementation from canister pulled on wheeled cart does not improve 6MWD; however, it may be more beneficial for exercise capacity in patients with RH than EH. Oxygen flow of 6 l/min does not protect against hypoxaemia during strenuous exercise.