



ERS

INTERNATIONAL CONGRESS 2021

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Late Breaking Abstract - Factors associated with health-status of COPD patients on Dry Powder Inhaler (DPI) maintenance therapy

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Background

Critical factors determining the effectiveness of COPD maintenance therapy with DPIs are poorly known.

Aim

To determine associations of COPD health status & exacerbations with peak inspiratory flow (PIF), inhalation technique and medication adherence.

Methods

Cross-sectional observational study in the Netherlands, Spain, Portugal, Greece, Poland & Australia in COPD patients (≥ 40 yrs) on maintenance DPI therapy for ≥ 3 months. Typical PIF at resistance of patient's DPI, health status (Clinical COPD Questionnaire), adherence (Test of Adherence to Inhalers) & inhalation technique (video recording rated for errors) were assessed. Exacerbation frequency for previous 12 months was collected. Multilevel regression outcomes with 95% CI and p value are reported.

Results

1434 patients were included (69 ± 9 yrs, 50% male). 29% of patients exhibited suboptimal PIF. Compared with optimal PIF, suboptimal PIF was associated with worse CCQ score (0.21 [CI-0.10, 0.33], $p < 0.001$) and increased exacerbation rates (0.75 [0.60, 0.94], $p = 0.01$). 51% of patients exhibited at least one critical inhalation error. Based on association with CCQ, 3 critical errors were identified: Not sealing teeth & lips around mouthpiece (0.21 [0.05, 0.36], $p = 0.01$); Not inhaling strongly/calmly and deeply (0.234 [0.126, 0.343]; $p < 0.001$); Not breathing out calmly after inhaling (0.30 [0.04, 0.56], $p = 0.03$). CCQ score did not differ between adherent (56%) and non-adherent patients (-0.001 [-0.11, 0.11], $p = 0.98$).

Conclusion

Suboptimal PIF is associated with poorer health status and more exacerbations. PIF could be important for inhaler selection. Inhalation technique should be assessed at every opportunity to optimize therapy.

