

Project summary

Depressive symptoms in relationship with smoking cessation in patients with chronic obstructive pulmonary disease

Background

Chronic obstructive pulmonary disease (COPD) is responsible for an increasing number of deaths worldwide, and COPD is expected to be the third largest cause of death in the world by 2030 [1]. Smoking is well established as the main risk factor for developing COPD [2].

Depression appears at an increased rate among patients with COPD[3] and is associated with an increased number of exacerbations[4, 5], less effective pulmonary rehabilitation, impaired quality of life and more dyspnea[6]. Depression among patients with COPD is also associated with increased mortality [7, 8]. The reason for the increased occurrence of depressive symptoms among patients with COPD can be found in the disease itself [2, 9] but smoking is another well-known risk factor [10, 11].

Several studies on the general population have investigated the effect of smoking cessation on both the development of depressive symptoms and the effect on existing depressive symptoms. Data from a large multinational cohort study of smokers showed no correlation between neither smoking cessation and development of depressive symptoms nor smoking cessation and worsening of existing depressive symptoms [12, 13]. In large cross-sectional studies smoking cessation have been shown to have both no effect[14] and a diminishing effect[15] on the subsequent occurrence of depression.

Whether or not smoking cessation among patients with COPD affects the occurrence of depressive symptoms or affects existing depressive symptoms remains unclear.

Objective and Hypothesis

The purpose of this study is to investigate the effect of smoking cessation on the occurrence of depressive symptoms among patients with COPD.

The central hypothesis is that smoking cessation leads to a reduced occurrence of depressive symptoms in COPD patients

Materials and Methods

Data will be obtained from the Danish Register for Chronic Obstructive Pulmonary Disease (DrKOL), and will be linked to data from the national prescription database (Receptdatabasen) and the Danish National Patient Register (Landspatientregistret).

Collection of prescription antidepressants will be used as a proxy to estimate the level of depressive symptoms.

Statistical analysis

Analysis will consist of a descriptive part, a comparison of continuous data with parametric and non-parametric tests, and multivariate analysis to test the main hypothesis.

References

1. <http://www.who.int/respiratory/copd>.
2. Goodwin, R.D., et al., *Depression, Anxiety, and COPD: The Unexamined Role of Nicotine Dependence*. Nicotine & Tobacco Research, 2012. **14**(2): p. 176-183.
3. Matte, D.L., et al., *Prevalence of depression in COPD: A systematic review and meta-analysis of controlled studies*. Respiratory Medicine, 2016. **117**: p. 154-161.
4. Papaioannou, A.I., et al., *The impact of depressive symptoms on recovery and outcome of hospitalised COPD exacerbations*. European Respiratory Journal, 2013. **41**(4): p. 815-823.
5. Iyer, A.S., et al., *Depression Is Associated with Readmission for Acute Exacerbation of Chronic Obstructive Pulmonary Disease*. Annals of the American Thoracic Society, 2016. **13**(2): p. 197-203.
6. von Leupoldt, A., et al., *The Impact of Anxiety and Depression on Outcomes of Pulmonary Rehabilitation in Patients With COPD*. CHEST, 2011. **140**(3): p. 730-736.
7. de Voogd, J.N., et al., *Depressive Symptoms as Predictors of Mortality in Patients With COPD*. CHEST, 2009. **135**(3): p. 619-625.
8. Lou, P., et al., *Effects of Smoking, Depression, and Anxiety on Mortality in COPD Patients: A Prospective Study*. Respiratory Care, 2014. **59**(1): p. 54-61.
9. Ng, T.-P., et al., *Co-morbid association of depression and COPD: A population-based study*. Respiratory Medicine, 2009. **103**(6): p. 895-901.
10. Fluharty, M., et al., *The Association of Cigarette Smoking With Depression and Anxiety: A Systematic Review*. Nicotine & Tobacco Research, 2017. **19**(1): p. 3-13.
11. Luger, T.M., J. Suls, and M.W. Vander Weg, *How robust is the association between smoking and depression in adults? A meta-analysis using linear mixed-effects models*. Addictive Behaviors, 2014. **39**(10): p. 1418-1429.
12. Bolam, B., R. West, and D. Gunnell, *Does Smoking Cessation Cause Depression and Anxiety? Findings from the ATTEMPT Cohort*. Nicotine & Tobacco Research, 2011. **13**(3): p. 209-214.
13. Shahab, L., S. Andrew, and R. West, *Changes in prevalence of depression and anxiety following smoking cessation: results from an international cohort study (ATTEMPT)*. Psychological Medicine, 2014. **44**(1): p. 127-141.
14. Mykletun, A., et al., *Smoking in relation to anxiety and depression: Evidence from a large population survey: The HUNT study*. European Psychiatry, 2008. **23**(2): p. 77-84.
15. McClave, A.K., et al., *Associations between smoking cessation and anxiety and depression among U.S. adults*. Addictive Behaviors, 2009. **34**(6): p. 491-497.