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Kosteneffektivität der Nikotinersatztherapie bei Patienten mit chronisch-obstruktiver Lungenerkrankung – ein entscheidungsanalytisches Modell

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Cost-effectiveness of Nicotine Replacement Therapy (NRT) in patients with Chronic Obstructive Pulmonary Disease (COPD): A decision-analytic model

Abstract

Introduction: Chronic-obstructive pulmonary disease (COPD) is a respiratory disorder characterised by progressive airway obstruction followed by a decrease in lung function. Tobacco smoking is considered as the most important avoidable risk factor. COPD is currently the fourth leading cause of death in the world with a predicted future increase in prevalence and mortality. The presented decision-analytic model aims to analyse the incremental cost-effectiveness ratio (ICER) of smoking cessation with Nicotine Replacement Therapy (NRT) compared to smoking cessation without NRT in COPD patients.

Methods: A Markov model simulates the long-term natural course of the disease considering the effect of smoking cessation with NRT versus no intervention, from the perspective of the German Statutory Health System. The input data, such as transition probabilities between COPD severity levels, costs (base year 2008) and NRT effectiveness, are based on several systematic literature researches and internal calculations. As an outcome the incremental costs per life-year gained (LYG) are calculated.

Results: Within a simulated time horizon of 55 years, smoking cessation with NRT is the dominant strategy with € 26,207 and 17.06 LYG (discounted). Comparatively, smoking cessation without NRT results in € 2,095 additional costs and a loss of 0.61 LYG. NRT remains the dominant strategy in most of the performed sensitivity analyses.

Conclusions: NRT is the dominant strategy compared to no intervention for smoking cessation in patients with COPD. The results of this analysis are robust to the variation of numerous model parameters and assumptions.