Effect of Nicotine Gum Price on Medication Acquisition and Smoking Cessation in An Over-The-Counter Setting

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OBJECTIVES: The objective of this study was to evaluate the effects of nicotine gum price on medication acquisition and smoking abstinence in an over-the-counter setting.

METHODS: Adult smokers (N = 270) were randomized to acquire nicotine gum from a study clinic for $20/box, $10/box, or without charge. They were then followed at 2, 6, and 12 weeks after their initial gum purchase. At each time point, several measures were used to model the number of acquired boxes of nicotine gum as a function of intervention group, time of follow-up, and the interaction of these two factors. Smoking abstinence was modeled separately at each time point using exact multiple logistic regression. All effectiveness analyses were performed by intent to treat.

RESULTS: The mean (SD) number of boxes of gum acquired prior to the 2-week visit was 1.04 (1.21), 1.53 (1.48), and 4.01 (2.26) in the $20/box, $10/box, and $0/box arms, respectively. The mean (SD) number of boxes acquired over the course of the study was 2.11 (3.89), 3.48 (6.69), and 13.42 (12.72) in the $20/box, $10/box, and $0/box arms, respectively. Differences in the number of boxes of gum acquired across intervention groups and time points were statistically significant (p < 0.001). At 26 weeks, abstinence rates were 1.08%, 6.74%, and 10.47% in the $20/box, $10/box, and $0/box arms, respectively. Relative to the $0/box arm, the OR [95% CI] for abstinence in the $20/box and $10/box arms were 0.094 [0.004, 0.539] and 0.620 [0.197, 1.845], respectively.

CONCLUSIONS: This is the first study to demonstrate in an OTC setting that the price of nicotine replacement therapy has an effect not only on medication acquisition but also on medication effectiveness. Price was also observed to have a deleterious effect on subject retention.

TRIPLE THERAPY FOR CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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OBJECTIVES: Chronic obstructive pulmonary disease (COPD) is characterized by chronic inflammation throughout the airways, parenchyma and pulmonary vasculature. Three classes of inhaled drugs are prescribed for the treatment of moderate-to-severe COPD: anticholinergic bronchodilators, beta agonist bronchodilators and inhaled corticosteroids. All three have different mechanisms of action, therefore enable them to be used in combination. Canadian guidelines now recommend use of triple therapy (both bronchodilators plus steroid) for the management of moderate-to-severe COPD and the anticipated increase in the use of triple therapy may have an impact on publicly-funded drug programs. The objective of this research was to determine the clinical effectiveness of triple therapy for the management of moderate-to-severe COPD.

METHODS: A systematic literature search was conducted to identify randomized controlled trials of ≥3 months duration, evaluating triple therapy in COPD management. Similar clinical outcomes were pooled for meta-analyses. RESULTS: Of the 2,303 citations identified four were retained for evaluation. Triple therapy was tiotropium plus fluticasone/salmeterol combination inhaler in 3 trials, with the fourth evaluating tiotropium plus budesonide/formoterol. The monotherapy comparator for all trials was tiotropium. Meta-analyses were conducted for quality of life, lung function and exacerbations. There was a significant improvement in St George’s Respiratory Questionnaire scores: WMD 3.75 (95%CI: 1.56, 5.64) and lung function: WMD 0.06 L (95% CI: 0.03, 0.09). For acute/severe exacerbation rate the pooled OR 0.57 (95% CI: 0.32, 0.38) was not significant. Significant reduction in COPD hospitalization rate was also reported using different data types (RR 0.53 and RR 0.35). CONCLUSIONS: There is significant heterogeneity across the trials providing the exacerbation data therefore interpretation of the results of the meta-analyses is difficult. Pooled results are not significant but individual trial results are conflicting. Triple therapy does improve quality of life, lung function and COPD hospitalization rates compared to monotherapy but incremental benefit of triple therapy compared to dual therapy is still unanswered.

INCIDENCE RATE AND MAJOR CAUSES OF PROLONGED MECHANICAL VENTILATION IN TAIWAN: A POPULATION-BASED STUDY DURING 1997–2007

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OBJECTIVES: This study determined the incidence rate, cumulative incidence rate (CIR) and cluster of diagnosis in the patients under PMV (prolonged mechanical ventilation). METHODS: The reimbursement data of National Health Insurance of Taiwan was transformed into a research database by the National Health Research Institute, in which there were 8,906,406 people who ever used mechanical ventilation. The annual incidence rate of pneumonia was calculated and their characteristics were explored by data mining and cluster analysis. RESULTS: A total of 50,481 new PMV patients were found during the study period with a mean age of 72 years. The age specific incidence rates showed an increasing trend as the age grew old. The highest annual incidence rate of PMV in people who were older than 85 years increased from 1,182 to 2,584 per 100,000 between 1998 and 2004, and then decreased 2,046 per 100,000 in 2007. The CIR (17–85 years) increased from 0.103 to 0.183 between 1998 and 2004, and then decreased to 0.145 in 2007. The respiratory system or urinary tract, or cardiovascular diseases affecting lung. The latent class model yielded 3 clusters in patients under 85 years: septicemia, symptoms involving cardiovascular and chronic bronchitis of rate of PMV incidence in addition to chronic bronchitis, septicemia, and cardiovascular diseases complicated with respiratory failure appeared to be the major causes for PMV with CIR of 17 to 110 in Taiwan and deserve future studies of prevention and treatment.

COMPARISON OF CHRONIC BRONCHITIS IN ONTARIO, CANADA BETWEEN 2003 AND 2009

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OBJECTIVES: Chronic Obstructive Pulmonary Disease (COPD) is a respiratory disorder that increases disease severity of people with COPD. Chronic bronchitis (CB) is a subset of COPD. We compared CB epidemiology and related resource utilization in Ontario, between 2003 and 2009. METHODS: A 10-year database containing 176,000 patient records, from 53 general practitioners, was used to extract COPD records. Index dates were July 2003 and July 2009 for patients aged 18 to 80 years, with close propensity scores: one neighbor (0.02), five neighbors (0.02), local linear regression. All effectiveness analyses were performed by intent to treat.

RESULTS: The Framingham 10-year high risk cohort was more likely to be defined among less educated women and black patients. The average number of acute exacerbation events in 2007 was 0.105, while that among the young (≤39 years) in the control group was 0.011. The treatment was defined. Thus having a spirometry test was associated with 6% to 11% fewer acute asthma events (p < 0.01) depending on the PSM strategies used. CONCLUSIONS: Spirometry testing had a significant positive association with reduced frequency of serious asthma events.

RISK OF SERIOUS ASTHMA EXACERBATION AND SPIROMETRY TEST

Framingham 10-year high risk cohort was more likely to be defined among less educated women and black patients. The average number of acute exacerbation events in 2007 was 0.105, while that among the young (≤39 years) in the control group was 0.011. The treatment was defined. Thus having a spirometry test was associated with 6% to 11% fewer acute asthma events (p < 0.01) depending on the PSM strategies used. CONCLUSIONS: Spirometry testing had a significant positive association with reduced frequency of serious asthma events.

PROSPROPENSITY SCORE MATCHING (PSM) method to control for confounding between the groups with and without spirometry test. Four different PSM strategies were used to find for each child with spirometry all observations among children with no spirometry with close propensity scores: one neighbor (0.02), five neighbors (0.02), local linear regression and kernel matching with bandwidth 0.8. The number of acute exacerbation rate in all children who had a spirometry test while four separate control groups were generated based on each of four PSM strategies previously defined. RESULTS: Children with a spirometry test had similar demographic, geographic, health status and health plan type characteristics to those without; however children with a spirometry test had on average more controller and reliever medication refills and specialist visits related to asthma compared to children without a spirometry test. The average number of acute asthma events in 2007 in the treatment group was 0.105, while that among the young (≤39 years) in the control group was 0.011. The treatment was defined. Thus having a spirometry test was associated with 6% to 11% fewer acute asthma events (p < 0.01) depending on the PSM strategies used. CONCLUSIONS: Spirometry testing had a significant positive association with reduced frequency of serious asthma events.

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