SMOKING CESSATION PRESCRIPTION RATES AND PREDICTORS OF CESSATION AMONG SMOKERS WITH AND WITHOUT TYPE 2 DIABETES MELLITUS

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INTRODUCTION

Individuals with diabetes may have higher smoking rates when compared with the general population.[1] Among people with diabetes, smoking cigarettes increases:

- the risk of developing diabetes-related complications[2]
- the risk of mortality by 80%[3]

Several trials have shown that smoking cessation medications (nicotine replacement therapy [NRT] and cessation aids) are effective for smoking cessation among diabetics.[4]

Due to the competing focuses of physicians during clinical visits, it is important to understand differences in prescription rates of smoking cessation medication between smokers with and without diabetes.

To the author's knowledge, this is the first study to use an electronic health record (EHR) to identify study subjects to assess whether there are differences in smoking cessation medication prescription rates between diabetics and non-diabetics.

METHODS

An EHR system (Allscripts™ TouchWorks) was queried to identify patients who were current smokers receiving care within the University of Massachusetts Memorial Healthcare (UMMHC) system in 2012.

Data: De-identified patient level data from health records of several UMMHC clinics including:

- Demographics
- ICD-9-CM codes for tobacco use, type 2 diabetes, asthma, cancer, chronic bronchitis, chronic kidney disease, depression, emphysema, hypertension, myeloid leukemia, obesity and stroke
- Clinical encounters from Jan 2012-June 2014
- Prescriptions for Chantix, Bupropion, and OTC NRT

Cohort: The cohort consisted of 4,541 patients who were current smokers as of January 1, 2012 and had at least 2 primary care or endocrinology visits from January 1, 2012 to June 15, 2014.

- Exclusion Criteria:
  - +Under 19 years old
  - +History of Type 1 diabetes, cardiovascular disease, or chronic obstructive pulmonary disease
  - +Currently pregnant

Analysis: Binary logistic regression models and odds ratios were calculated to assess associations with NRT prescriptions and quit rates.

RESULTS

- Cessation rates did not differ significantly between smokers with and without diabetes
- Smokers with diabetes were prescribed cessation medications at a higher rate than those without diabetes (44.8% vs 36.3%, p <0.001).
- Diabetes was predictive of receiving smoking cessation prescriptions (OR 1.128; CI 95%, 0.915-1.390; p=.259). Although, this finding was not statistically significant.
- Number of clinical visits was the main predictor of prescriptions for cessation medications (OR 1.048; CI 95%, 1.036-1.06; p<.001) and for cessation (OR 1.043; CI 95%, 1.026-1.061; p<.001).

Characteristics of Smokers with and without Type 2 Diabetes (N=4541)

	Diabetes (n=487)	No Diabetes (n=4054)	P-value
Mean Age	52.9 (SD=11.5)	42.8 (SD=35.5)	<.001*
Female	238 (48.9%)	2149 (53.0%)	.088
Male	249 (51.1%)	1905 (47.0%)	
White	360 (73.9%)	3168 (78.1%)	.034*
Non-White	127 (26.7%)	886 (21.9%)	
Mean Diagnoses	2.9 (SD=1.1)	1.1 (SD=1.0)	<.001*
Mean Clinical Visits	10.1 (SD=7.4)	6.6 (SD=5.5)	<.001*
Quit	38 7.8%	251 6.2%	.169

Predictors of Cessation among Smokers who received a Smoking Cessation Medication Prescription (N=1691)

	Odds Ratio	95% Confidence Intervals	P-value
Type 2 Diabetes	.87	.50- 1.52	.633
Age	1.03	1.01- 1.05	.003*
Sex	.87	.58- 1.29	.486
Race (White)	.67	.43- 1.07	.091
Depression	.89	.61- 1.32	.575
Cancer	1.74	1.12- 2.73	.015*
Hypertension	.97	.63- 1.50	.894
Obesity	.93	.56- 1.55	.790
Clinical Visits	1.04	1.01- 1.06	.002*
Constant	.03		.000

CONCLUSIONS

Despite increased rates of smoking cessation medication prescriptions, most individuals with diabetes did not quit smoking. Clinical visit frequency was the strongest predictor of both receiving prescriptions and of cessation. Neither Type 2 diabetes nor prescriptions of smoking cessation medications were predictive of quitting smoking. Future research should continue to determine factors that facilitate cessation among individuals with diabetes to augment public health efforts in smoking cessation and diabetes management.

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