Smoking Asthmatics: Who are they?

Sadowski LS[1], Kumar R[2], Shannon JJ[1], Shalowitz MU[3], Weiss KB[3] and Moy J[1].

[1]John H. Stroger, Jr. Hospital of Cook County; [2] Children's Memorial Hospital, Chicago; [3] Northwestern University Feinberg School of Medicine

Abstract

Rationale: Cigarette smoke is an important trigger for worsening asthma. Smoking is also related to other negative health behaviors and psychological comorbidities. We sought to determine the sociodemographic and psychosocial characteristics associated with current smoking in a community cohort of adults with asthma.
Methods: Baseline sample of the Chicago Initiative to Raise Asthma Health Equity cohort of adults 18-40 years of age with diagnosed asthma. Sociodemographic and psychosocial characteristics, asthma symptoms, asthma-related health service use and smoking habits were assessed at baseline in-person interviews.
Results: Overall 29% of the 348 adult asthmatics report current smoking. Among non-smokers, 1/4 report living in homes where others smoke. Compared to non-smokers, current smokers: 1) come from low income households; 2) have not graduated from highschool; 3) use less inhaled corticosteroids; 4) had 1 more night per week of asthma symptoms; 5) screen + for depression; and 6) have 2 more non-urgent asthma-related clinic visits in past 12 months. Mean saliva cotinine levels range from 32 ng/ml for non-smokers without household smoke exposure, to 368 ng/ml for current smokers. Characteristics not independently associated with smoking include: gender, age, race-ethnicity, stress, and urgent asthma-related health service use.
Conclusions: In our cohort sample of adult asthmatics, we found many who smoke (29%) and an additional 25% live with household members who smoke. Despite similar patterns of visits to urgent medical sites, asthmatic smokers visit their providers for regular asthma care, on average, two more visits in the past year than non-smokers. These additional encounters provide an opportunity for smoking cessation as well as improving selfcare management.

Background and Objectives

- Smoking is trigger for worsening asthma, its' magnitude in asthmatic adults is unknown
- Characteristics of smokers in general include: gender, age, race/ethnicity, income, education, stress, and negative mood: ♀-depression; ♂-restlessness

Objectives: In a diverse urban young adult asthmatic community sample…..

1. to determine the socio-demographic and psychosocial characteristics of adults with asthma who smoke;
2. to compare the characteristics of smokers identified using self report v. cotinine levels;
3. to compare the characteristics of asthmatic adults who smoke to smokers in general.

Setting, Design & Eligibility

Setting and Design:

- Population based, cross-sectional survey, Face to face interviews
- Population proportionate sampling of Chicago schools to identify children and their family members with asthma

Eligibility Criteria:

- Age: 18-40 years, English language
- Physician-diagnosed asthma requiring MDI use >8 weeks (past 12 m)
- Agree to periodic interviews over 2 years

Methods: Measures & Analysis

- Sociodemographic Characteristics: Gender, Age, Education, Household Income
- Psychosocial Characteristics:
  - Symptoms of Depression (CES-D measure, 20 items, screen + = cutpoint of ≥ 16)
  - Negative Stress: CRYSIS - 60 items Total # negative stressors past 6 mos
  - Stress: Perceived Stress Scale – 5 items Total # stresses (0-5)
- Inhaled corticosteroid use in past 14 days

Outcome Measure – current smoking

- Self report current = every day or some days
- Saliva cotinine levels (ng/ml) using ELISA, current smoker = ≥ 100 ng/ml non-smoker = < 10 ng/ml (missing values: no specimen n=62, 23 excluded values 10 to 100)

Analysis Strategy

- Logistic Regression models for two current smoking outcomes
- All significantly associated characteristics (p<.2) entered into LR model

Sample Characteristics

Demographic and Clinical Characteristics	N (%)
Gender: Female	276 (78)
Age: years, median (range)	32 (18-41)
Race/Eth: African-American	198 (56)
Hispanic	99 (28)
Other	55 (16)
Education: < High School grad	60 (17)
High School graduate +	292 (83)
Household Annual Income: < $30K	176 (50)
≥ $30K	163 (46)
Atopy: RAST+ to dust or roach	180 (51)
FEV_1%pred,pre-bronchodilator <80%	106 (30)
≥ 80%	208 (59)
Inhaled corticosteroid use, 14 d	178 (50)

Smoking and Asthma Severity	N (%)
Cotinine level, saliva, ng/ml, mean (range .03-800, median=2.5)	127.2
Current Smoker (cotinine ≥100 ng/ml)	80 (30)
Current Smoker (self-report)	103 (29)
Inhaled corticosteroids use, 14 d	178 (50)
Asthma health service use past yr	
Hospitalized with asthma	46 (13)
Emergency room visit, asthma	143 (41)
Same day urgent care, asthma	135 (38)

Results: Characteristics of Asthmatics who Smoke

Characteristics*	Currently Smoke Self Report Yes n=103	Currently Smoke Self Report No n=248	Smoke, saliva Cotinine, ng/ml Yes n=80	Smoke, saliva Cotinine, ng/ml No n=188
Education: < High School graduate	**31%**	**11%**	**30%**	**10%**
Household Income: < 30K	**67%**	**46%**	**65%**	**42%**
Depression Screen +	**58%**	**40%**	**54%**	**41%**
Total # of negative stressors	**9.1**	**6.3**	**9.0**	**6.5**
Inhaled steroid use, no use in past 14 days	**61%**	**45%**	**61%**	**42%**

*Table includes those factors significantly associated with smoking (p<.05),
Note: Stress from PSS p=0.1, all other demographic variables p>0.2.

Independent Characteristics of Smoking Asthmatic Adults Using Logistic Regression

Independent Characteristics*	Current smoker self report Odd's Ratio (p value)	Current smoker cotinine Odd's Ratio (p value)
Education	**3.3 (<.001)**	**3.4 (.001)**
ICS use	**1.9 (.01)**	**2.0 (.02)**
Negative Stresses	**1.1 (<.001)**	**1.1 (<.001)**

*Referent groups: Educ: HS grad+, ICS use: yes
Note: Income, Stress (PSS) and Depression symptoms did not retain significance

Conclusions

In our community sample of young, diverse, urban adults with asthma we found:

1. Asthmatic adults who smoke are : 1) less likely to graduate from high school; 2) less likely to use inhaled corticosteroids (past two weeks); and 3) report more negative stressors than non-smokers.
2. Characteristics associated with current smoking did not differ between models using smoking measured using self report compared to saliva cotinine levels. We did not observe under-reporting of current smoking in our sample.
3. Consistent with the general smoking literature, we found adult asthmatics who smoke are more likely to have less formal education and report more negative stress. Contrary to the general smoking literature, we did not find an independent association between smoking and gender, age, race/ethnicity, household income or depression.

Chicago Initiative to Raise Health Equity (CHIRAH)
***Funding*: NHLBI 1 U01 HL072496-05**