**ON-LINE DATA REPOSITORY**

**SECTION 1**

**Passive smoking questionnaire**

1. Many people have different approaches to tobacco smoking in their homes. Which is the best description for your home?

a) I never allow smoking in my home

b) Smoking is allowed in certain rooms

c) Smoking is allowed in all rooms

d) Smokers are allowed to smoke outside the home (eg in the back yard)

2. Do you live in the same household with someone who smokes? YES/NO

3. **If yes:** How many people in your household smoke? ____

Relationship: _____

Cigarettes/day: _____/day

Relationship: _____

Cigarettes/day: _____/day

4. How many times per week do visitors smoke INSIDE your home?

<1 1 2 3 4 5 6 7 >7

Number of cigarettes smoked per visit (circle approximately)

1-5 6-10 11-15 16-20 >20

5. How many times per week do visitors smoke OUTSIDE your home?

<1 1 2 3 4 5 6 7 >7

Number of cigarettes smoked per visit (circle approximately)

1-5 6-10 11-15 16-20 >20

6. How much time do you spend in homes/public buildings/cars where other people smoke?

a) Do not visit smoky places

b) Hours per week INDOORS 1-5 6-10 11-15 16-20 >20

c) Hours/week in OUTDOORS 1-5 6-10 11-15 16-20 >20

7. How much smoke do you think you are exposed to in other homes/buildings/cars etc?

a) dense smoke

b) moderately smoky

c) slightly smoky

**SECTION 2**

**National Asthma Council Severity Table[28]**

| **Symptoms/Indicators** | **Mild** | **Moderate** | **Severe** |
|---|---|---|---|
| Wheeze, tightness cough, dyspnoea | Occasional e.g. with viral infection or exercise | Most days | Every day |
| Nocturnal symptoms | Absent | < Once/week | > Once/week |
| Asthma symptoms on wakening | Absent | < Once/week | > Once/week |
| Hospital admission or Emergency department attendance in past year | Absent | Usually not | Usually |
| Previous life-threatening attack | Absent | Usually not | May have a history |
| Bronchodilator use | < Twice/week | Most days | >3-4 day |
| $FEV_1$ (% predicted) | > 80% | 60-80% | < 60% |
| Morning peak flow on waking | > 90% recent best | 80-90% best | < 80% best |

**SECTION 3**

**Clinical characteristics of severe and mild exacerbations**

Severe exacerbations (Table 3A)

35% of never smokers had a severe exacerbation during pregnancy, while 48% of ex-smokers and 52% of current smokers had at least one severe exacerbation during pregnancy (P=0.416, Chi squared test for independence). There were 10 severe exacerbation events in never smokers, 26 in ex-smokers and 23 in current smokers. More than 60% of severe exacerbation events were due to self-reported viral infections. There was no significant difference in the number of events per person in each group (P=0.247, Kruskal Wallis test). As expected, smokers had significantly higher ECO during exacerbation than never or ex-smokers (P=0.0002, Kruskal Wallis test and Dunn's multiple comparisons test).

Mild exacerbations (Table 3B)

46% of never smokers experienced only mild exacerbations during pregnancy, while 44% of ex-smokers and 30% of current smokers experienced only mild exacerbations (P=0.398, Chi square test for independence). There were 32 mild exacerbation events in never smokers, 34 in ex-smokers and 36 in current smokers. Less than half of the events were due to self-reported viral infections. There was no significant difference in the number of events per person in each group. As expected, FENO was significantly lower in current smokers compared to never and ex-smokers (P=0.005, Kruskal-Wallis test and Dunn's multiple comparisons test). ECO was significantly higher in current smokers during mild exacerbation (P<0.0001, Kruskal-Wallis test and Dunn's multiple comparisons test) and was increased by 4.5 ppm over the lowest value during mild exacerbations in current smokers. $FEV_1$/FVC ratio and % predicted $FEV_1$ were significantly lower during mild exacerbation in ex-smokers compared to never smokers (P=0.003 and P=0.033 respectively, ANOVA and Tukey Kramer multiple comparisons test).

**Table 3A: Clinical features of severe asthma exacerbations**

| | NEVER SMOKERS | EX-SMOKERS | CURRENT SMOKERS | P Value |
|---|---|---|---|---|
| Proportion of subjects with severe exacerbations | 9 (35%) | 13 (48%) | 14 (52%) | ns |
| Total events | 10 | 26 | 23 | |
| Events/person | 0 (0, 1) | 0 (0, 1) | 1 (0, 1) | ns |
| *Characteristics of first severe exacerbation* | *N=9* | *N=13* | *N=14* | |
| Gestational age at first event (weeks) | 27 (19, 34) | 20 (15, 30) | 21 (17, 23) | ns |
| Unscheduled Dr Visits, n(%) | 8 (89%) | 9 (69%) | 12 (86%) | ns |
| ED Presentations, n(%) | 0 | 2 (15%) | 1 (7%) | ns |
| Hospital Admissions, n(%) | 1 (11%) | 1 (8%) | 1 (7%) | ns |
| OCS Use, n(%) | 3 (33%) | 3 (23%) | 3 (21%) | ns |
| Triggered by Cold, n (%) | 6 (67%) | 8 (62%) | 8 (57%) | ns |
| Triggered by non-adherence to ICS (%) | 1 (11%) | 0 (0%) | 1 (7%) | ns |
| | N=9 | N=12 | N=13 | |
| ACQ6 at severe exacerbation | 1.83 (1.67, 3.33) | 2.33 (1.5, 3.08) | 2.33 (1.83, 3.17) | ns |
| Increase in ACQ6 (exacerbation) compared to lowest (ΔACQ) | 2 (1, 3) | 1 (0.5, 2.5) | 2 (1, 2) | ns |
| | N=6 | N=8 | N=9 | |
| FENO at severe exacerbation (ppb) | 16.9 (7.1, 20.5) | 27.3 (16.7, 92.7) | 12.3 (8.3, 18.2) | ns |
| Increase in FENO (exacerbation) compared to lowest (Δppb) | 3.5 (0, 8.3) | 10.3 (2.8, 56.8) | 1.7 (0, 5.8) | ns |
| | N=6 | N=10 | N=9 | |

| | | | | |
|---|---|---|---|---|
| ECO at severe exacerbation (ppm) | 1 (1, 1)* | 1 (1, 1)* | 5 (3, 8) | 0.0002 |
| Increase in ECO (exacerbation) compared to lowest (Δppm) | | | 0 (0, 1) | |
| | N=7 | N=10 | N=12 | |
| $FEV_1$/FVC (%) at severe exacerbation | 80.8 (73.6, 89.9) | 80.6 (75.2, 84.5) | 80.5 (74.2, 83.7) | ns |
| | | | | |
| % predicted $FEV_1$ at severe exacerbation | 93.3 (76.3, 101.6) | 85.7 (77.8, 106.2 | 88.6 (77.0, 99.9) | ns |
| % predicted FVC at severe exacerbation | 90.9 (90.5, 100.3) | 100.2 (82.2, 106.3) | 94.1 (90.3, 99.2) | ns |

Values are median (interquartile range) or n(%) of subjects in each group

* Post hoc test significant $p<0.017$ vs Current smokers ;ns: not significant

**Table 3B: Clinical features of mild asthma exacerbations**

| | NEVER SMOKERS | EX-SMOKERS | CURRENT SMOKERS | P Value |
|---|---|---|---|---|
| Proportion of subjects with mild exacerbations only | 12 (46%) | 12 (44%) | 8 (30%) | ns |
| Total events | 32 | 34 | 36 | ns |
| Events/person | 1 (0, 2) | 1 (0, 2) | 1 (0, 2) | ns |
| *Characteristics of first mild exacerbation* | N=19 | N=20 | N=19 | |
| Gestational age at first event (weeks) | 26 (19, 28) | 20 (19, 33) | 30 (19, 36) | ns |
| Increased symptoms, n(%) | 14 (74%) | 11 (55%) | 11 (58%) | ns |
| Increased reliever use, n(%) | 3 (16%) | 4 (21%) | 5 (26%) | ns |
| Increased preventer use, n(%) | 2 (11%) | 4 (20%) | 3 (16%) | ns |
| Use of action plan, n(%) | 0 | 0 | 0 | ns |
| Triggered by Cold, n(%) | 6 (32%) | 6 (30%) | 9 (47%) | ns |
| Triggered by non-adherence to ICS, n(%) | 5 (26%) | 2 (11%) | 1 (5%) | ns |
| | N=19 | N=19 | N=19 | |
| ACQ6 at mild exacerbation | 1.17 (0.67, 2.0) | 1.33 (0.83, 2.0) | 1.83 (1.17, 2.17) | ns |
| | | | | |
| Increase in ACQ6 (exacerbation) compared to lowest (ΔACQ) | 1(1, 1) | 1 (0, 2) | 1 (0, 2.0) | ns |
| | N=11 | N=7 | N=11 | |
| FENO at mild exacerbation (ppb) | 24.8 (11.8, 44.2)* | 16.6 (15.2, 31.7) | 8.2 (6.8, 11.3) | 0.007 |
| Increase in FENO (exacerbation) compared to lowest (Δppb) | 14.3 (2.8, 16.7)* | 2.4 (0, 8.4) | 0 (0, 0.8) | 0.017 |

| | N=11 | N=8 | N=9 | |
|---|---|---|---|---|
| ECO at mild exacerbation (ppm) | 1 (1, 2)* | 1 (1, 1.5)* | 14 (8, 20) | 0.0003 |
| Increase in ECO (exacerbation) compared to lowest (Δppm) | | | 4 (1, 5) | |
| | N=11 | N=9 | N=11 | |
| $FEV_1$/FVC (%) at mild exacerbation | 84.8 (79.3, 90.0) | 78.0 (75.8, 84.7) | 82.9 (76.6, 86.1) | ns |
| % predicted $FEV_1$ at mild exacerbation | 96.0 (90.7, 103.7) | 86.8 (79.1, 98.5) | 90.2 (83.1, 103.4) | ns |
| % predicted FVC at mild exacerbation | 98.6 (95.7, 105.2) | 90.6 (88.1, 113.3) | 102.8 (84.8, 105.5) | ns |

Values are median (interquartile range) or n(%) of subjects in each group

* post hoc test significant $p<0.017$ vs Current smokers; ns: not significant

**Table 3C: Asthma medication use during pregnancy and asthma self management skills.**

| | NEVER SMOKERS | EX-SMOKERS | CURRENT SMOKERS | P value |
|---|---|---|---|---|
| ***Medication use during pregnancy*** | *N=26* | *N=27* | *N=27* | |
| 1st Trimester ICS (ug/day) | 0 (0, 1000) | 0 (0, 378) | 0 (0, 1000) | ns |
| 2nd Trimester ICS (ug/day) | 416 (0, 962) | 426 (0, 1000) | 123 (0, 1445) | ns |
| 3rd Trimester ICS (ug/day) | 652 (0, 1143) | 407 (0, 1202) | 86 (0, 1225) | ns |
| No ICS use in 1st Trimester (%) | 14 (54%) | 15 (56%) | 20 (74%) | ns |
| No ICS use at delivery (%) | 9 (35%) | 13 (48%) | 17 (63%) | ns |
| ***Medication use during exacerbation*** | *N=14* | *N=15* | *N=17* | |
| Beta agonist use (times in last week) | 14 (8, 14) | 14 (3, 21) | 21 (6, 28) | ns |
| ICS Dose (ug/day) in past week | 1300 (0, 2000) | 0 (0, 1000) | 0 (0, 1500) | ns |
| % Missed Doses | 0 (0, 28.5) | 0 (0, 0) | 0 (0, 7.1) | ns |
| Nil ICS at exacerbation (% of subjects) | 4 (33%) | 8 (61.5%) | 12 (66.7%) | ns |
| ***Self management skills at exacerbation*** | *N=12* | *N=11* | *N=14* | |
| Optimal inhaler technique | 6 (50%) | 7 (64%) | 5 (36%) | ns |
| Optimal spacer technique | 4 (537%) | 4 (33%) | 5 (33%) | ns |
| Optimal peak flow technique | 6 (60%) | 10 (84%) | 7 (54%) | |
| Optimal medications knowledge | 6 (54%) | 5 (39%) | 4 (24%) | ns |
| Use of action plan | 5 (63%) | 6 (67%) | 7 (70%) | ns |

Values are median (interquartile range) or n(%) of subjects in each group

**Table 3D. Poisson regression model for severe exacerbations**

| N=40 | Co-efficient (95% CI) | P value |
|---|---|---|
| Ever smoked vs never smoked | 0.93(0.38, 1.48 | 0.001 |
| Age (years) | -0.0002 (-0.04, 0.04) | 0.992 |
| Married | -0.32 (-0.85, 0.21) | 0.239 |
| Body mass index | 0.07 (0.04, 0.10) | <0.0001 |
| Constant | -2.31 (-3.79, -0.83) | 0.002 |

**Table 3E. Regression model for asthma control (ACQ6) during exacerbations**

| N=64 | Coefficient (95%CI) | P value |
|---|---|---|
| Current smoker vs never smoker | 0.17 (0.01, 0.34) | 0.04 |
| Ex-smoker vs never smoker | 0.03 (-0.17, 0.23) | 0.78 |
| Moderate vs mild asthma | 0.19 (0.05, 0.33) | 0.01 |
| Severe vs mild asthma | 0.43 (0.22, 0.64) | <0.01 |
| ICS use | 0.12 (0.01, 0.24) | 0.04 |
| Constant | 1.01 (0.84, 1.18) | <0.01 |