

# Active and passive smoking by CF patients in Belgium: a multicenter study project

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# Mucoviscidose (cf)

- La maladie génétique la plus fréquente dans les pays occidentaux (autosomique récessive) :
  - Atteinte pulmonaire; digestive; métabolique (diabète)
- En Belgique, 50 naissances/an; 5% population hétérozygotes.
- 8 Centres de référence pour la mucoviscidose

# Background

- In Belgium, 32% adolescents smoke at 17 y, and 44% adults aged 18-24 (IPSOS, 2008)
- Smoking by healthy adolescents is associated with
  - chronic cough, wheezing,
  - decreased physical growth (height and weight), depression
- In vitro and in vivo studies suggest that
  - cigarette smoke decreases gene and protein expression, and function of CFTR,
  - in vivo nasal potential difference of cigarette smokers suggests a pattern similar to CFTR deficiency
- Little is known about effects of active smoking on CF
- No epidemiological data on smoking by CF.

# Background(2)

- Active smoking associated with
  - <cilia movements, mucus clearance
  - >AW inflammation in asthma and COPD
  - Accelerated <PFT in asthma and COPD
  - >risk bacterial infection
  - <caloric intake, <appetite
  - <weight, height, BMI in adolescents
  - Aggravation type I diabetes

# Background (3)

- In utero smoking associated with 4x> risk for infant LRI; structural changes AW
- Smoking is more prevalent among families with low SES; poverty is related to increased morbidity and mortality in CF
- Smoking cessation strategies are increasingly efficient.

# Smoking and chronic disease in adolescents: CF

- 3 studies
  - Age at first cigarette: 13-14 y vs 11-12y non-CF
  - Prevalence: 21%; 12%; 8%
- Active smoking dose-dependant associated with
  - $<$ FEV1 4%/10 cigarettes
  - Frequency of infective exacerbations
  - $>$ n IV days
  - Growth suppression
- Beliefs and patient education  
(Verma, 2001; Smyth, 2001; Britto 1998)

# Passive smoking and CF

- American study 2000 -2006 (Collaco, JAMA, 2008)
- Retrospective data on 812 CF patients
  - 23% with ETS exposure
  - 16.5% with in utero exposure
- CF phenotype (FEV1 CF percentile): ETS assoc. w/
  - ↻ ↘ Cross sect. max FEV1CF percentile
  - ↻ ↘ Longit.aver. FEV1CF perc; est.FEV1perc 20
- Genetic factors
  - Specific genotypes > reduction in FEV1 w/ETS

# Objectives

- **Primary**
  - Identify active and passive smokers in the Belgian CF population followed at reference centers.
- **Secondary**
  - Investigate physical, psychological and behavioural dependence of active CF smokers, and of smoking parents of CF patients.
  - Compare data of smoking CF patients with those of non smoking patients matched for age, sex, centre, CFTR genotype and need for insulin available from the register.
    - » hospital stays, FEV1(% predicted), pseudomonas prevalence, weight and height Z score,



# Methodology

Urinary cotinine in all CF patients

>100 mcg/ml

<100 mcg/ml

Optional

Meeting w/study nurse

Smoking questionnaire

CO expired air

CF data

Psychosocial data

Information, motivational interview and links about smoking cessation

Follow up call after 6 months

CF data from non smoking controls matched for centre, age and sex : Belgian CF Registry

# Résultats partiels à St-Luc

Patients cotinine > 100 mcg/ml	Patients avec cotinine < 100 mcg/ml
N=7 (5.4%)	N=123
100 % M; 0%F	53%M; 47%F
23 A ± 5 A	
6/7 (85%) hospitalisés 2010	26/123 (21%; 39% des adultes) hospitalisés en 2010

# Résultats partiels à St-Luc

- Cotinine urinaire (mcg/ml)
  - $654,8 \pm 410$
- Cotinine/créatinine (mcg/ml)
  - $459.2 \pm 318$

# Outcome

- Prevalence of active and passive smoking among the Belgian CF population. First study of smoking prevalence in a CF population at a national level.
- Characteristics of smoking in CF patients and families; of the disease's evolution with reference to active and passive smoking.
- Adapt smoking cessation strategies to the reality of CF patients and families.
- Motivation and/or initiation of smoking cessation by patients and parents. Referral to local smoking cessation facilities.