Conclusion: NET-associated proteins are elevated in bronchiectasis sputum and are associated with disease severity, bacterial infection and mortality. Treatment response is linked to successfully reducing NET levels with intravenous antibiotic or macrolide therapies suggesting that NETs may be an important therapeutic target in bronchiectasis.

[110] The characteristics and risk factors of bronchiectasis based on respiratory symptoms among the subjects who performed a medical check-up in a health-screening center

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Background/Aims: Bronchiectasis is a chronic respiratory disease characterized by irreversible bronchial dilatation. The prevalence of bronchiectasis has been reported worldwide, but there is a paucity of data on bronchiectasis regarding respiratory symptoms. This study aimed to investigate bronchiectasis based on respiratory symptoms, with emphasis on asymptomatic bronchiectasis.

Methods: This cross-sectional study analyzed data from participants who underwent chest computed tomography (CT) at a single health-screening center in Korea from 2016 to 2017. Patients with bronchiectasis were identified by radiology specialists with their routine CT reading process. Bronchiectasis subjects were classified as symptomatic bronchiectasis subjects and asymptomatic bronchiectasis subjects. As a control group, non-bronchiectasis were defined as absence of bronchiectasis findings on CT and respiratory symptoms. We evaluated the characteristics and risk factors of asymptomatic bronchiectasis subjects in comparison with those of non-bronchiectasis or symptomatic bronchiectasis subjects.

Results: A total of 27,617 participants who performed chest CT from 2016-2017 were included, with male predominance (63.4%) and a mean age of 58.4 (Standard deviation: 8.9) years. Among the participants, 1,005 subjects were diagnosed with bronchiectasis. Non-bronchiectasis group, asymptomatic bronchiectasis group, and symptomatic bronchiectasis group included 16,143, 566, and 439 subjects, respectively. The prevalence of bronchiectasis was 3,639 per 100,000 subjects, while the prevalence of asymptomatic bronchiectasis was 2,049 per 100,000 subjects. Compared with non-bronchiectasis subjects, the risk factors associated with asymptomatic bronchiectasis included female sex (adjusted odds ratio [aOR], 1.41; 95% confidence intervals [CI], 1.18-1.70; p<0.001), older age (aOR, 1.06; 95% CI, 1.05-1.07; p<0.001), the comorbidity of liver disease (aOR, 1.32; 95% CI, 1.07-1.63; p=0.011) and chronic obstructive pulmonary disease (COPD) (aOR, 4.99; 95% CI, 2.88-8.64; p<0.001), the history of tuberculosis (aOR, 1.98; 95% CI, 1.46-2.68; p<0.001), and lower forced expiratory volume in 1s (FEV1) (aOR, 0.99; 95% CI, 0.983-0.998; p=0.011). Compared with asymptomatic bronchiectasis subjects, the risk factors associated with symptomatic bronchiectasis included female sex (aOR, 1.41; 95% CI, 1.05-1.88; p=0.021), the comorbidity of arthritis (aOR, 1.54; 95% CI, 1.01-2.37; p=0.047), asthma (aOR, 3.87; 95% CI, 1.54-9.71; p=0.004) and allergic rhinitis (aOR, 1.73; 95% CI, 1.24-2.42; p=0.001), the history of tuberculosis (aOR, 1.81; 95% CI, 1.17-2.79; p=0.007), lower FEV1 (aOR, 0.97; 95% CI, 0.96-0.99; p<0.001), and higher C-reactive protein level (aOR, 3.06; 95% CI, 1.48-6.31; p=0.002).

Conclusions: Bronchiectasis, along with asymptomatic bronchiectasis, is not a rare disease in Korea. Individuals with female sex, old age, the comorbidities of liver disease, COPD, the history of tuberculosis, or low FEV1 have higher risk of asymptomatic bronchiectasis. Clinical impact of asymptomatic bronchiectasis should be further explored.

[105] Comparative study of Mycobacterium abscessus infection between cystic fibrosis patients and non cystic fibrosis patients

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Introduction: The aim of this study was to evaluate differences in clinical and radiographic characteristics between cystic fibrosis (CF) patients and non cystic fibrosis patients, all of them presented *Mycobacterium abscessus* infection.

Material and methods: A retrospective study of 42 patients in three referral hospital centers of Madrid between January 2012 and December 2017, divided in two groups: 1) cases 15 (36%) and controls 27 (64%). Demographic data, clinical, microbiological, radiological and therapeutic data were examined in two groups of patients: 1. Cases (CF affected) 2. Controls (Non CF affected).

Results

	CF	NON CF	STATISTICAL SIGNIFICANCE
AGE AVERAGE	27	62	p<0,001
CHARSON INDEX OF COMORBIDITIES	6 ± 0,43	8 ± 1,5	p=0,048
NON SMOKERS	15	17	p=0,007
EX SMOKERS	0	9	p=0,016
ALLERGIC BRONCHOPULMONARY ASPERGILLOSIS	5	0	p=0,004
POSITIVE SAMPLES IN BRONCHOASPIRATE	0	7	p=0,038
TREATED	9	5	p=0,01

Conclusions: Characteristics of groups differ in some aspects:
- There are more comorbidities in non CF group, probably because of their older age. There was higher tobacco use in this group.
- Sputum samples were appropriate in CF patients, therefore it wasn't required turn to bronchoaspirate (BAS) in these patients.
- Number of treated patients because of *Mycobacterium abscessus* is higher in CF, it is probably explained because of basal characteristics of CF.

These autors have no conflict of interest.

[129] Airway Path Tapering and Total Airway Count quantified on CT for Assessment of Bronchiectasis

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Background: Bronchiectasis (BE) is an important feature of a wide range of lung diseases. BE is characterized by irreversible enlargement of the airways, which can be identified and quantified using inspiratory chest CT scans. Important radiological features to diagnose BE on CT are a lack of airway tapering and an abnormally high number of visible airways throughout the lungs on the chest CT. Artificial intelligence-

based algorithms can aid in the detection of abnormal tapering and the quantification of the number of airways on chest CT scans.

Aim: To investigate whether automatically extracted markers of airway tapering and total airway count obtained from inspiratory chest CT scans can be used to diagnose BE.

Methods: LungQ® software (Thirona, Nijmegen, Netherlands) was used to automatically extract the lungs and bronchial tree from chest CT scans. The bronchial tree was subdivided into individual airway branches and generations, and the average inner and outer radiuses of each branch were calculated. Based on the identified branches and their generations, all possible bronchial paths were extracted from the main bronchi all the way up to the most distal visible branch (see *figure 1*). Inter-branch tapering was measured for each bronchial path as the percentage of airway radius decrease per generation. The average airway path tapering (APT) of all individual bronchial paths was taken to provide a patient-level airway tapering marker. The total number of identified airway branches (TAC) was extracted to provide a patient-level marker of the extent of visible airways on CT. TAC was additionally adjusted for total lung volume to enable comparison between adults and children.

Figure 1

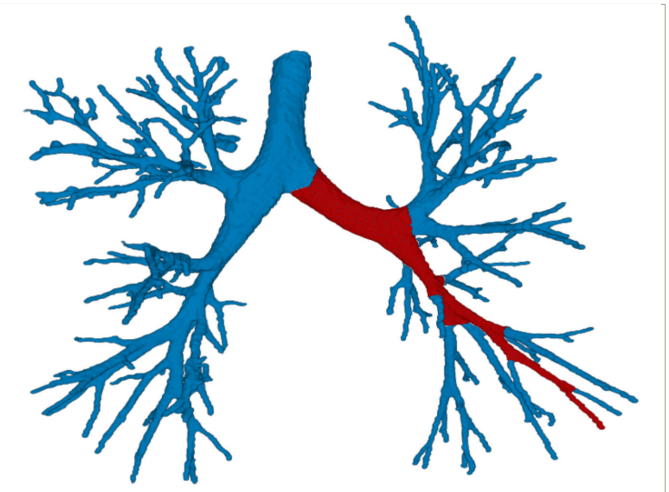

Figure 1 3D rendering of identified airways from CT. An illustration of a single airway path used for calculating APT is indicated in red.

APT and TAC were assessed on a dataset of spirometer-guided inspiratory CTs from 12 Cystic Fibrosis (CF) patients and 12 age- and sex-matched controls (median age 11years). To obtain a reference for adults, forty never-smoking control subjects from the COPDGene study were included in the analysis (median age 59years). All results are presented as mean±std; ANOVA-tests with Bonferroni-corrections were performed to determine statistical significance.

Results: The CF group showed a significantly lower APT relative to the pediatric and adult controls (P<0.01) both when using the inner radius (8.16±2.60% against 11.71±2.02% for pediatric and 10.52±1.11% for adult controls) and the outer radius (8.90±2.30% against 12.60±1.75% for pediatric and 11.69±1.03% for adult controls). No significant differences were found between the control groups (P=0.10 for inner; P=0.20 for outer). (See *figure 2*)

The CF group showed significantly higher TAC (P<0.01) compared to the pediatric controls (434.8±306.4 against 178.5±66.6). The CF group also displayed a significantly higher volume adjusted TAC (126.2±59.7) compared to both control groups (87.3±20.5 for adult controls; 57.3±29.0 for pediatric controls; P<0.01). A small significant difference in volume adjusted TAC was also found between the two control groups (P=0.021). (See *figure 3*)

Figure 2

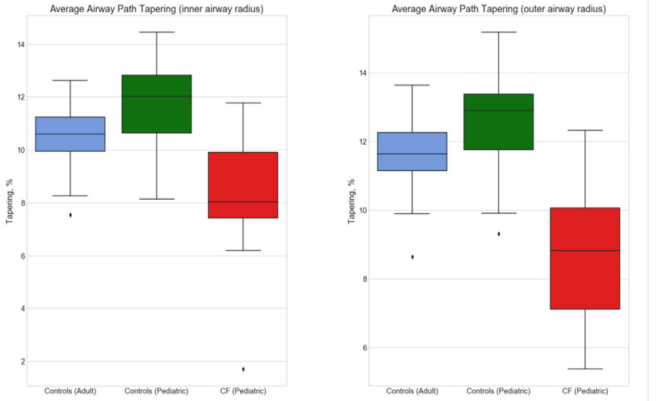

Figure 2 Boxplots showing the APT measurement for adult and pediatric control subjects, and Cystic Fibrosis patients calculated using inner airway radius (left) and outer airway radius (right)

Figure 3

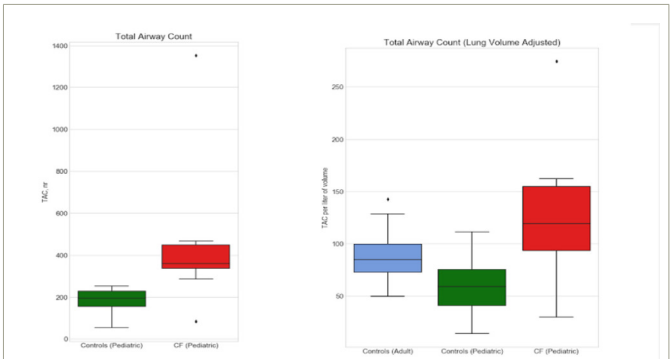

Figure 3 Boxplots showing the TAC measurement for adult and pediatric control subjects, and Cystic Fibrosis patients. On the left TAC not adjusted for lung volume to compare pediatric controls and CF, on the right TAC adjusted for lung volume to enable comparison between pediatric TAC and adults TAC.

Conclusions: APT and TAC measurements showed clear differences between CF and controls. Based on the analysis of this limited number of control subjects, the APT seems to be relatively independent of age. Both APT and TAC could be valuable markers to diagnose and monitor BE.

[13] Acute and sustained IL-17a response in bronchiectasis exacerbations

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Rationale: Bronchiectasis (BE) is a chronic structural disease that courses with exacerbations provoking systemic inflammation of unknown duration. We aimed to evaluate systemic (IL)-17a (an interleukin involved in chronic inflammation) during exacerbations from day 1 to day 60 with regard severity and Pseudomonas aeruginosa infection in comparison with stable patients.

Methods: Prospective observational study performed in exacerbated and stable patients. Proinflammatory cytokine IL-17a concentration was