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Objectives: Determine if the mutation and complications could be risk factors for atelectasis and assessment of exacerbations.
Methods: Retrospective study in 14 Spanish monographic units of CF and Jena University Hospital. Including CF patients who have suffered atelectasis (case group) and a control group. *Variables:* mutations, comorbidities, pulmonary complications and exacerbations.
Results: 110 patients. 62.7% women. No demographic differences between groups: sex, weight, height and age.

- **Mutations:** heterozygous F508del (60% cases, 52.7% controls). No differences between groups.
- **Comorbidities:** No differences in pancreatic insufficiency and CFRD.
- **Pulmonary complications:** No differences in hemoptysis, embolization, pneumothorax and chronic bronchial infection in the last year.
  - ABPA–>more associated in the group with atelectasis (p = 0.001).
- Exacerbations:
  - Comparison mild-moderate and severe in the last year between groups–> higher average number of severe exacerbations in cases (1.09 ± 1.43) versus controls (0.31 ± 0.77) (p = 0.001).
  - Relationship between the number of exacerbations in the last year and in the year prior to atelectasis (p = 0.026,coefficient 0.309) and in the year after it (p = 0.001,coefficient 0.455), as well as between the number of exacerbations in the year before and after atelectasis (p < 0.001, coefficient 0.477).
  - *No radiological improvement:* greater average number of exacerbations in the year after atelectasis (4.67 ± 3.51) than those who improved (2.68 ± 2.32) (p = 0.037).
  - *No clinical improvement:* higher average number of exacerbations in the following year (4.73 ± 3.39) than those who improved (2.92 ± 2.76) (p = 0.035).

Conclusions: - ABPA as a possible risk factor for the appearance of atelectasis
- Significant increase in exacerbations:
  1. severe in the last year between groups,
  2. between the year before and after the atelectasis with respect to the last year,
  3. between the year before and after the atelectasis,
  4. no clinical-radiological improvement.

P177
The pharmacokinetics of dornase alpha in children and adolescents with cystic fibrosis

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Objective: Optimisation of Dornase alpha therapy for cystic fibrosis (CF) in paediatric practice.
Material and methods: The level of nuclease activity was measured in 35 patients after inhalation of Dornase alpha.
Results: An increase in the level of nuclease activity of blood plasma after inhalation of Dornase alpha by patients with CF was obtained. High variability was observed in the dynamics of changes in the level of nuclease activity during therapy with the inhaled drug Dornase alpha. Depending on the period of reaching the peak level of nuclease activity after inhalation of the drug (Tmax), the patients were divided into 4 groups: Tmax 1.5 hours (1 group), Tmax 3.0 hours (2 group), Tmax 4.5 hours (3 group), Tmax 6.0 hours (4 group). The change in the area under the curve (AUC) "nuclease activity-time" (ng*hour/ml) in 88.59% of cases and the PK parameter — peak nuclease activity (Cmax, ng/ml) in 89.17% is determined by the parameter - BMI (p < 0.0001). Higher AUC values nuclease activity-time (ng*hour/ml) were obtained in girls. Significantly lower values AUC "nuclease activity-time" (ng*hour/ml) and peak levels of nuclease activity were found in patients who received inhaled glucocorticosteroids (ICS) in therapy (p < 0.05).
Conclusion: The level of nuclease activity during inhalation of Dornase alfa in patients with CF depends on gender, BMI and ICS therapy, which should be taken into account when prescribing this drug. The inhalation time can be selected according to the possibilities of the patient's daily routine. Further study of PK Dornase alpha will help in choosing the optimal dosage regimen taking into account the use of other inhaled drugs and in the development of more effective kinesitherapy regimens. Also, the data obtained will help determine the possibilities of using this drug from the point of view of other links in the pathogenesis of CF associated with free DNA.

P178
Lung transplantation and mortality in patients with cystic fibrosis under oxygen therapy

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Objectives: There are few studies about survival in patients with Cystic Fibrosis (CF) under oxygen therapy (OT). Considering its clinical meaning and impact on patients' lifestyle, we aimed to determine how OT is associated with known prognostic factors and with lung transplantation (LTx) and death (D).
Methods: We considered patients ≤50 years registered in the ECFSPR from 2008 to 2017. An illness-death multi-state model was fitted, denoting LTx as intermediate state. Cox's proportional hazard models were fitted using age as time scale and left truncation corresponding to age at entry into ECFSPR. Models were used to estimate transition intensities and OT hazard ratio (HR), adjusted for known prognostic factors (age, sex, insulin, *Pseudomonas aeruginosa* (Pa), *Burkholderia cepacia* (BC), BMI and FEV_1% predicted).
Results: 58576 patients were included in the analysis and 7627 (13%) had OT during the follow-up. 27587 (47.6%) were females, 35784 (61.1%) were <18 yrs old, 5228 (10.6%) had FEV_1 <40%predicted, 5185 (9.5%) were underweight (BMI z score <−2), 6386 (10.9%) used insulin, 14037 (26.9%) had Pa, 1236 (2.4%) had BC.
During the follow-up, 2509 patients had LTx and 3091 patients died: 2338 before and 753 after LTx.
From the multi-state model, patients in OT have higher probability of having LTx (HR = 12.9, 95% CI: 11.6–14.4). The HR of death for patients in OT is 7.8 (95% CI: 6.9–8.7) before LTX, while it is 1.4 (95% CI: 1.2–1.7) after LTx.
Conclusions: The need for oxygen therapy represents a turning point in patients' life, decreasing their chances of survival, with implications in the post LTX period yet. Undoubtedly OT should be considered as a marker of CF disease severity, and patients with a supplemental oxygen requirement should have prompt and fully clinical reassessment. Preventing respiratory failure with oxygen requirement remains one of the main goals of CF care.

P179
A personalised internet-supported exercise and nutrition program increases Resolvin-D1 plasma levels

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Objectives: There is established evidence that poor nutrition status and low activity levels are accompanied by high inflammation burden and rapid decline of lung function. Altered production of pro-resolving lipid mediators, as Resolvin-D1 (RvD1), play a key role in chronic inflammation of CF pathogenesis.