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EXHALED NITRIC OXIDE AS A BIOMARKER IN DIFFERENT COPD PHENOTYPES

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Objective: Objectives:
There are some evidence concerning Fractional exhaled Nitric Oxide (FeNO) in relation to COPD that highlights the potential role of FeNO as biomarker in monitoring the stability of COPD. It is known that patients with frequent exacerbations (FE) phenotype have more rapid decline of lung function, worse quality of life and higher mortality rates compared to patients with infrequent exacerbations (IFE). Given the importance of these events, it is important to identify patients at risk for exacerbations. Our objective was to investigate if there is a difference in FeNO values between COPD patients stratified into FE and IFE phenotype.

Methods:
A total of 39 patients with COPD were divided into two groups, patients with frequent exacerbations and patients with infrequent exacerbations. Both groups were subjected to FeNO measurement, pulmonary function tests and routine blood test.

Results:
FE group consisted of 21 patients, 85.7% male with mean age 66.52 (51±83) years. 33.3% were current smokers and mean pack-years was 42.14 (12±100). In IFE group were 18 patients, 72.2% male, mean age 67.67 (53±88) years. 27.8% were current smokers and mean pack-years was 27.44 (11±46).
There was no significant difference in FeNO values between FE and IFE group (U=129.5, p<0.094) as well as between current and ex-smokers in FE (U=58, p=0.535) and IFE group (U=52, p=0.059).
The FE group had lower mean FEV1 (38.17 vs 54.47%, p=0,001), PEF (41.93 vs 69.87%,p=0,001) and DLCO (49.41 vs 65.87%, p=0,008) compared with the IFE group. CRP was higher in FE group (U=137, p=0.042).
There was no observable correlation between FeNO and frequent exacerbations phenotype as well as infrequent exacerbations phenotype. (p=0.094)

Conclusion:
Since frequent exacerbations phenotype accounts for worse prognosis, early detection of this group of patients is pivotal. According to our results, FeNO has shown to be inapplicable as a biomarker in detecting frequent exacerbations phenotype patients. While FeNO measurement has been standardized, there is currently no reference guideline for appropriate use and interpretation of FeNO in patients with established COPD.