

European Respiratory Society Annual Congress 2012

Abstract Number: 3453

Publication Number: P268

Abstract Group: 1.3. Imaging

Keyword 1: COPD - mechanism **Keyword 2:** Imaging **Keyword 3:** Air pollution

Title: High resolution CT scan (HRCT) thorax differences between biomass-smoke exposure induced COPD (BM COPD) and tobacco-smoking COPD (TS COPD)

Dr. Bill 20146 Brashier bbrashier@crfindia.com MD ¹, Dr. Shilpa 20147 Kajale kajalesshilpa@gmail.com MD ², Dr. Sajid 20148 Tambe sajidtambe123@yahoo.co.in MD ², Dr. Rahul 20149 Kodgule drrahul@crfindia.com MD ¹, Ms. Jyoti 23672 Londhe jyotid@crfindia.com ¹, Prof. Dr Dayanand 20150 Shetty kajalesshilpa@gmail.com MD ², Ms. Sapna 23658 Madas sapna@crfindia.com ¹, Prof. Dr Peter 20158 Barnes p.j.barnes@imperial.ac.uk MD ³ and Dr. Sundeep 20163 Salvi ssalvi@crfindia.com MD ¹. ¹ Pulmonary Research, Chest Research Foundation, Pune, Maharashtra, India, 411040 ; ² Radiology, King Edward Memorial Hospital, Pune, Maharashtra, India, 411040 and ³ Airway Disease, National Heart and Lung Institute (NHLI), Imperial College, London, United Kingdom .

Body: BM COPD accounts for a substantially large proportion of COPD especially in developing countries. However, little is known whether this COPD is different from TS COPD radiologically. Aims: To study and compare the radiological changes in the lung parenchyma between BM COPD and TS COPD. Method: 20 stable BM COPD (M:F 1:19) and 34 stable TS COPD (M:F 34:0) underwent HRCT thorax. Helical HRCT sections were taken from apex to domes of diaphragm at 1mm thickness and 10mm intervals during deep inspiration maneuver. Emphysema was quantified using “Quantification of Emphysema” software and depicted as area less than -950HU, while bronchial wall thickness was defined as presence of >1.5mm thickness. Independent sample t -test was used to compare the two groups of COPD. Results: BM COPD [age: 65yrs (8.5)] subjects showed significantly lesser mean lung volumes (cc) compared to TS COPD [age:63 yrs (5)] [2916 ± 2589 vs 4347 ±4507; p<0.0001] TS COPD subjects had more mean % emphysema compare to BM COPD [13%±11.5% vs 6.42%±6.3%; p=0.022]. 80% of subjects with BM COPD showed presence of pure form of emphysema pattern {either centrilobular (40%) or panlobular (40%)}, whereas there was no distinct pattern seen with TS COPD. There was no significant difference in bronchial wall thickness between the two COPD phenotypes, although TS COPD trended to show greater wall thickness (p=0.09). Conclusions: The BM COPD has lesser lung volumes and emphysema compared to TS COPD. There is predominance of either centriacinar or panacinar in BM COPD. Biomass smoke-induced COPD subjects showed lower lung volumes and lesser mean % emphysema than TS COPD on HRCT imaging.