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Title: Phenotypic comparison of glucose and cardiac physiology of biomass fuel induced and smoking induced COPD

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Body: There is paucity of knowledge on how physiology of systemic parameters used in predicting metabolic syndrome differs in Biomass-fuel smoke induced COPD (BF-COPD) and smoking- COPD (SM-COPD). Aim: To evaluate and compare glucose and cardiovascular (CVS) physiology of BF-COPD and SM-COPD. Methods: Physician and spirometry diagnosed, age and severity matched, 43 SM-COPD and 23 BF-COPD underwent blood pressure estimation, ECG and glucose tolerance test. Descriptive statistics were used to estimate prevalence rates and parametric test were used to compare the means (SD). Results: In glucose physiology, diabetes (DM) diagnosed in accordance to fasting glucose was 8.7% in BF-COPD versus 2.3% in SM-COPD. DM diagnosed in accordance to post-glucose test was 19.0% in BF-COPD versus 2.5% in SM-COPD. Impaired glucose tolerance (IGT) test was 14.3% in BF-COPD versus 27.5% in SM-COPD. Fasting glucose levels >100mg/dl was 34.8% in BF-COPD versus 23.3% in SM-COPD. In CVS physiology BF-COPD had higher ECG measured mean heart rate (HR) and Qtc interval versus SM-COPD [HR: 85.6(12.1) beats/min vs 78.6(13.5) beats/min, p=0.04; Qtc: 453.6(35.5) vs 418.7(25.3); p<0.001]. There was no difference in mean systolic, diastolic and pulse-pressure, and mean ECG associated PR, RR and QRS intervals (p>0.05). Conclusion: In the preliminary analysis of ongoing study BF-COPD tends to have higher prevalence of DM and glucose component of metabolic syndrome, while, SM-COPD tends to have more IGT, which were greater than what has been reported from India. There were also differences in HR and Qtc interval amongst the COPD phenotypes; however, which could be due to unequal gender distribution.