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Title: Relationship between early exposure to tobacco smoke and intima media thickness (IMT) in COPD patients

Dr. Akinori 5426 Ebihara akinoriebihara@hotmail.com MD ¹, Dr. Akihumi 5427 Watanabe [wapochi@yahoo.co.jp](mailto:watapochi@yahoo.co.jp) MD ³, Dr. Asuka 5428 Nagai asuka_nagai@tok.u-tokai.ac.jp MD ¹, Dr. Takayuki 5429 Nakano nakanot@tok.u-tokai.ac.jp MD ², Dr. Tokuzen 5430 Iwamoto mail@iwamotoclinic.com MD ¹ and Prof. Dr Ichiro 5431 Kuwahira kuwahira@tok.u-tokai.ac.jp MD ¹. ¹ Pulmonary Medicine, Tokai University Tokyo Hospital, Tokyo, Japan, 151-0053 ; ² General Thoracic Surgery, Tokai University Tokyo Hospital, Tokyo, Japan, 151-0053 and ³ Medicine, Erimo Town Clinic, Hokkaido, Japan, 058-0204 .

Body: (Background) We have previously reported at the 2011 ERS Annual Congress that early exposure to tobacco smoke significantly increased the prevalence of COPD. As a follow up, we hypothesize that COPD from early exposure to smoke may cause an increase of IMT that correlates with the increase in the prevalence of smoke-related vascular comorbidities. (Methods) We identified potential subjects into three groups:G1) history of COPD and early exposure;G2) history of COPD and non-early exposure;G3) subjects without COPD and analyzed the measurements IMT. IMT were measured using the longitudinal axis of the common carotid arteries from ultrasound. We defined early exposure as when habitual smoking started before age of 20. (Results) A total of 152 subjects (72±10 years old:SD) were enrolled into the study after informed consents were obtained. G1, 2, and 3 consisted of 41 subjects (age 68±9 yrs), 80 subjects (71±11), and 31 subjects (69±10) respectively. Maximum value of IMT in G1 was 1.34±0.12mm,G2 was 1.23±0.13, and G3 was 1.12±0.16. Groups with history of COPD had higher maximum value of IMT when compared with group without COPD. Furthermore, G1 demonstrated higher value when compared with G2, suggesting early exposure to smoke as possible etiology within subjects with COPD. (Conclusion) In subjects with COPD, early exposure promoted atherosclerotic changes, which may increase the likelihood of smoke-related vascular comorbidities such as cardiovascular and cerebrovascular diseases. Further studies are needed to elucidate the precise magnitude of the increase in risk of these comorbidities associated with COPD and early exposure.