EFFECT OF SMOKING ON VITAMIN D AND 1,25-DIHYDROXYCHOLECALCIFEROL IN PATIENTS OF THE LUDWIGSHAFEN RISK AND CARDIOVASCULAR HEALTH STUDY

G. Delgado[1], R. Siekmeier[2], L.Tietze[3], S. Pilz[4], W. März[1,5,6], M. E. Kleber[1,7]

[1] Medical Clinic V, Mannheim Medical Faculty, University of Heidelberg, Germany;

[2] Drug Regulatory Affairs, Pharmaceutical Institute, University Bonn, Gerhard-Domagk-Str. 3,53121 Bonn, Germany;

[3] Department of Throacic Surgery, University of Freiburg, Germany;

[4] Division of Endocrinology and Metabolism, Department of Internal Medicine, Medical University of Graz;

[5] Clinical Institute of Medical and Chemical Laboratory Diagnostics, Medical University Graz, Graz, Austria;

[6] Synlab Academy, Synlab Holding Deutschland GmbH, Mannheim, Germany;

[7] Institute for Nutrition, University of Jena, Germany

R. Siekmeier: Ruediger.Siekmeier@bfarm.de>

INTRODUCTION: Recently lower vitamin D (25OHD) in active smokers (S) was reported We analyzed 25OHD and its active metabolite dihydroxycholecalciferol (1,25OHD) in S and life-time nonsmokers (NS) of the LURIC study and investigated their association with incident chronic obstructive pulmonary disease (COPD). MATERIALS AND METHODS: 25OHD and 1,25OHD were measured in 3316 LURIC patients Smoking status was assessed by questionnaire and measurement of plasma cotinine. Incident COPD was assessed by a follow-up questionnaire. RESULTS: 777 patients were S and 1178 NS. From 1123 patients returning the questionnaire 9 S and 13 NS reported an incident COPD. Concentrations of 25OHD were similar in S and NS whereas 1,25OHD was lower in S (33.7 (14.1) vs. 35.2 (14.1) ng/L, p=0.022) and correlated to cotinine concentration (r_S=0.120). After adjustment for age, sex, eGFR and the season of blood sampling the estimated marginal means (95%CI) of 1,25OHD were 32.5(31.5-33.5) ng/L and 36.0(35.2-36.8) ng/L for S and NS, respectively. 25OHD was associated with incident COPD in S with an odds ratio (95%CI) of 0.937(0.888-0.989). CONCLUSIONS Reduced concentrations of 1,25OHD but not 25OHD in S indicate a potential effect of smoking on vitamin D metabolism possibly followed by consecutive effects