PRELIMINARY RESULTS IN PIVOTAL STUDY ON BIOMARKERS RELATED TO SMOKING HABITS

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Biomarkers are used to assess exposure to tobacco toxins or to predict adverse health outcomes associated with them. Biomarkers include specific chemical components of tobacco or their metabolites, biochemical and/or physiological effects. We compared the levels of various biomarkers in blood and urine samples obtained from three groups of 60 Italian males and females healthy human subjects aged between 23 and 43 years divided as follows: 20 “smokers” (S), 20 “moderate-smokers” (MS), 20 “never-smokers” (NS). S included subjects with a theoretical daily tar intake (the number of smoked cigarettes by declared tar quantity on the pack) greater than 180 mg. MS included subjects with a theoretical daily tar intake less than 60 mg. NS included subjects who have never smoked. Within each group, the ratio of male: female subjects, was between 8:12 and 12:8. Some clinical parameters (complete blood cell count, blood pressure, cardiac frequency, CO in exhaled air) were evaluated, taking into account smoking behaviour and gender. Significant differences in CO in exhaled air and blood carboxyhaemoglobin percentage were observed between the two smoker groups (more evident in women for CO in exhaled air) as well as between smokers and NS. Data indicate that increased CO in exhaled air level and blood carboxyhaemoglobin percentage correlate with theoretical daily tar intake in smokers. No significant differences in cardiac frequency and systolic and diastolic blood pressure mean were observed among the groups. White cells were significant increased in S in comparison with NS, essentially due to S women. Lymphocytes, eosinophils and basophils were increased in S in comparison to NS. Haemoglobin was higher in the groups of smokers; it was increased in S women and in MS men. Our results confirm previous studies showing that smokers have higher white blood cell count and blood haemoglobin levels and that these changes are related to theoretical daily tar intake and partially gender-dependent. Reversibility of these modifications should be studied.