Session P13 - Genome Variation and Architecture

P13.003.D / D - Association of genomic factors for oral health in the cohort of the Lithuanian Chernobyl catastrophe liquidators

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Disclosures

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Abstract

Introduction. Ionizing radiation (IR) is one of the most significant environmental factors, affecting human health. It has a severe impact not only at high but at mild and/or persistent doses of irradiation. ADAPT (Adaptive genetic mechanisms - a comprehensive study of whole genome variation in the group of the Lithuanian Chernobyl catastrophe liquidators (LCCLs)) research project analyses the unique group of (93) LCCLs, who survived for more than 30 years after the accident. In addition to other multifactorial diseases, affecting cardiovascular (75%), skeletal and connective tissue (71%), gastrointestinal (70%) and other systems, almost half of them (48%) have oral health problems (OHP), such as periodontitis and tooth loss. In this study, we aim to identify genes that are related to the ethiopathogenesis of OHP in the LCCLs. **Materials and Methods.** DNA from 93 LCCLs was extracted from venous blood and microarray genotyping was performed. These individuals were divided by their health status into case (with OHP) and control groups (without OHP). Association analysis was performed using SNPs (909) of the genes involved in tooth health (59 genes). A *chi-square* test was performed using *PLINK*. **Results:** This study identified new associations between (*FGF1, FGF2, FGF7* and *BMP*2) genes to high risk of dental health problems: rs308388 (p=0.003807; OR=2.553), rs34022 (p=0.005236; OR=2.389), rs1696244 (p=0.003016; OR=2.436), rs3178250 (p=0.004969; OR=3.493). **Conclusions.** Our preliminary results identified four new associations that could underlie the pathogenic IR effects on dental health. This project has received funding from the Research Council of Lithuania (LMTLT), agreement No. S-MIP-20-35.