

ORAL SESSION

ORAL SESSION 2B: AGEING

Design and method: A sample of 521 subjects both genders, 253 centenarians (100.26 ± 1.98 years), and 268 controls (67.5 ± 13.25 years) subdivided into low (LCR, n = 107) and high (HCR, n = 161) CVR were included. Hypertension, diabetes, obesity (BMI, Kg.m⁻²) and impaired kidney function, were defined according to standard criteria. CVR was calculated using Q risk 2–2016. DNA extraction was performed from the buccal epithelium sample using CitogeneâBuccal Kit, genotyping through iPlex-MassARRAYâ, read by MALDI-TOF mass spectrometry and analyzed by EARTDECODEâ. Statistics were done throughout MDR and SPSS softwares. Significance defined as P-value <0.05.

Results: The variables that most were with the risk of not achieving exceptional longevity, OR (95% CI), were: BMI 1.558 (1.445–1.680), hypertension 2.358 (1.565–3.553), smoking-habits 4.528 (2.579–7.949), diabetes 5.553 (2.889–10.675), hypercholesterolemia 1.016 (1.010–1.022) and regular consumption of red meat 22.363 (13.987–35.755). There were differences in frequencies genotypic between centenarians and controls in ACE I/D, rs4646994 (p = 0.001) and NOS3 GT, rs1799983 (p < 0.0001) polymorphisms, being ACE DD and NOS3 GG genotypes more frequent in centenarians than in controls. No significant differences were observed concerning: AGT-rs699; AGT-rs4762; AGR1-rs5182; GRK4-rs2960306; GRK4-rs1024323; SLC12A3-rs13306673. There is a close genotype interaction between ACE and NOS3 each other and with hypertension, hypercholesterolemia, smoking and red meat intake. There is a predominance of Q risk marker (mainly environmental-related) associated with longevity in interaction to ACE I/D and NOS3.

Conclusions: In longevity pathway, even there is a gene-gene interaction particularly regarding ACE and NOS3, there is also increasing interaction between genes related to CVR, with the predominantly environmental factors that form the basis of Q risk determination. Underlie factors may modify gene expression modulated by the genotype and influence aging process.

GENETIC AND ENVIRONMENT INTERACTIONS CONTRIBUTE TO LONGEVITY: A CASE-CONTROL STUDY WITH CENTENARIANS

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Objective: Environmental or genetic factors, together with the interaction between them, may explain the increasing population of centenarians. This research aimed to understand these interactions that underlie centenarian's phenotypes, namely gene-gene and gene-environment, particularly in relation to cardiovascular risk (CVR).