

Publication

The adverse impact of obesity on heart rate variability is modified by a NFE2L2 gene variant : the SAPALDIA cohort

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)**ID** 3748674**Author(s)** Adam, Martin; Imboden, Medea; Schaffner, Emmanuel; Boes, Eva; Kronenberg, Florian; Pons, Marco; Bettschart, Robert; Barthelemy, Jean-Claude; Schindler, Christian; Probst-Hensch, Nicole**Author(s) at UniBasel** [Adam, Martin](#) ; [Imboden, Medea](#) ; [Schaffner, Emmanuel](#) ; [Schindler, Christian](#) ; [Probst Hensch, Nicole](#) ;**Year** 2017**Title** The adverse impact of obesity on heart rate variability is modified by a NFE2L2 gene variant : the SAPALDIA cohort**Journal** International journal of cardiology**Volume** 228**Pages / Article-Number** 341-346

Overweight has been associated with an increase in inflammatory markers and with an imbalance in the autonomic nervous system, such as a decrease in heart rate variability (HRV). In this study we aimed to investigate the modifying effect of a genetic variation in a major anti-inflammatory marker gene, NFE2L2, on the relationship between overweight and HRV.; We analyzed participants of the SAPALDIA cohort aged 50years and older, twice in 2002/2003 (N=1472) and 2010/2011 (N=1235). We included persons with valid genotype data, who underwent ambulatory 24-h electrocardiogram monitoring, and reported on medical history and lifestyle. The association between HRV and BMI, measured as standard deviation of normal-to-normal intervals (SDNN) by BMI and the modifying effect of the cardiovascular health-related NFE2L2 gene variant rs2364723 were tested, applying multivariable mixed linear regression models.; We found study participants with overweight (BMI>25) over two follow-up surveys 10years apart to have a negative association between SDNN, calculated as geometric means, with BMI. The examined NFE2L2 variant sustainably modified (pinteraction=0.014) the found inverse association between a BMI increment and SDNN, causing a stronger decrement in SDNN for participants with the CC genotype (-20.7%; 95%-confidence interval: -12.33 to -28.28) compared with participants carrying the GC (-7.43; 95%CI: -3.56 to -11.15) or GG (-11.26%; 95%CI: -7.68 to -14.7) genotype, estimated for the difference from the 90(th) to the 10(th) percentile of BMI by the NFE2L2 variant.; Our results are consistent with the hypothesis that overweight decreases heart rate variability through inflammatory processes.

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