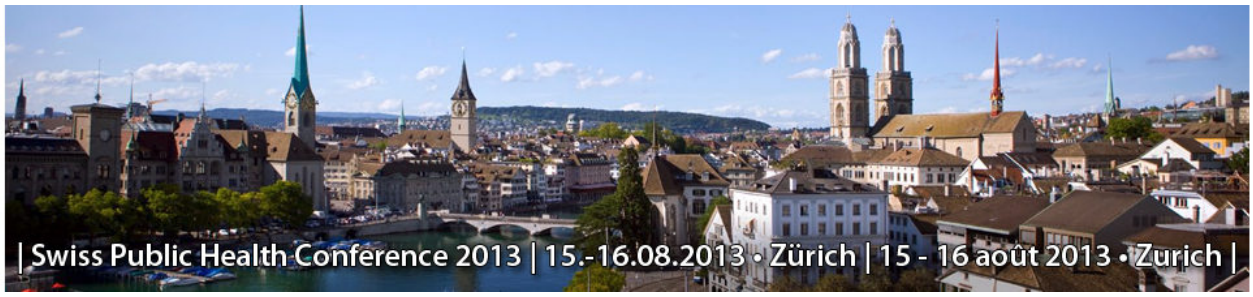

P01: HERITABILITY OF BLOOD PRESSURE IN THE SWISS POPULATION: THE FAMILY-BASED SKIPOGH STUDY

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Objective: Blood pressure is known to aggregate in families. Yet, heritability estimates are population-specific and no Swiss data have been published so far. Moreover, little is known on the heritability of the white-coat effect. We investigated the heritability of various blood pressure (BP) traits in a Swiss population-based sample.

Methods: SKIPOGH (Swiss Kidney Project on Genes in Hypertension) is a family-based multi-centre (Lausanne, Bern, Geneva) cross-sectional study that examines the role of genes in determining BP levels. Office and 24-hour ambulatory BP were measured using validated devices (A&D UM-101 and Diasys Integra). We estimated the heritability of systolic BP (SBP), diastolic BP (DBP), heart rate (HR), pulse pressure (PP), proportional white-coat effect (i.e. [office BP-mean ambulatory daytime BP]/mean ambulatory daytime BP), and nocturnal BP dipping (difference between mean ambulatory daytime and night-time BP) using a maximum likelihood method implemented in the SAGE software. Analyses were adjusted for age, sex, body mass index (BMI), and study centre. Analyses involving PP were additionally adjusted for DBP.

Results: The 517 men and 579 women included in this analysis had a mean (±SD) age of 46.8 (17.8) and 47.8 (17.1) years and a mean BMI of 26.0 (4.2) and 24.2 (4.6) kg/m^2, respectively. Heritability estimates (±SE) for office SBP, DBP, HR, and PP were 0.20±0.07, 0.20±0.07, 0.39±0.08, and 0.16±0.07 (all P<0.01). Heritability estimates for 24-hour ambulatory SBP, DBP, HR, and PP were, respectively, 0.39±0.07, 0.30±.08, 0.19±0.09, and 0.25±0.08 (all P<0.05). The heritability of the white-coat effect was 0.29±0.07 for SBP and 0.31±0.07 for DBP (both P<0.001). The heritability of nocturnal BP dipping was 0.15±0.08 for SBP and 0.22±0.07 for DBP (both P<0.05).

Conclusions: We found that the white-coat effect is significantly heritable. Our findings show that BP traits are moderately heritable in a multi-centric study in Switzerland, in line with previous population-based studies, justifying the ongoing search for genetic determinants in this field.

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