Editorial

# Healthy lifestyle for patients with high genetic cardiac risk – does it matter?

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It is often assumed, that genetic predispositions determine the life courses and cannot or only to a minor degree be influenced. Though genetic risk mapping and clinical health promotion seem very far apart, it would, however, be interesting to evaluate a possible effect of healthy lifestyles among persons identified with high genetic risk for non-communicable diseases (NCD).

This is exactly what Khera and colleagues have done. In November 2016, they published a study investigating a possible association between healthy lifestyle and reduced risk of coronary artery events among participants with a high genetic risk (1).

## The human genome and polygenetic risk

The global Human Genome Project was planned more than thirty years ago (2) and has now worked for more than a decade to determine the DNA sequence of the total genome (3). In 2004, over 99% of total genome was published (4), but studies of DNA variation continue in the International HapMap Project, with the goal of identifying patterns of single-nucleotide polymorphism (SNP) groups. The polygenic risk score of coronary artery disease, used in the study of Khera and co-workers, is based on up to fifty of those SNPs (1).

## Healthy lifestyle

Risky lifestyle can be characterised in many different ways. An easy-to-use way is the validated HPH-DATA Model with nine questions for documentation of the five main risk-factors; daily smoking, risky alcohol use, overweight/obesity, malnutrition and insufficient physical activity (5). Khera and colleagues used another categorisation, where a favourable lifestyle was defined by at least three of four healthy lifestyles (no current smoking, no obesity, regular physical and healthy diet) and no healthy lifestyles as unfavourable.

## Risk reduction

The study by Khera and colleagues is based on observations with data from over 50,000 participants collected in four prospective studies, and the study confirms that both lifestyle and genes are independently associated with coronary artery disease. However, the good news is that favourable lifestyle is related to an almost 50% lower relative risk for participants with high genetic risk compared to unfavourable lifestyle.

## Perspectives

It is positive if high genetic risk is not as predictable for health as assumed. If lifestyle intervention also reduces the risk for NCD for persons with high genetic risk, the consequences are tremendous for the individual them-selves, their families as well as for the society at large. However, an effect of lifestyle intervention among high genetic risk persons has not been shown yet. This requires intervention studies in randomized designs, in addition to the observational data by Khera and colleagues. Such studies should be performed ASAP.

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