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Molecular and psychosocial risk factors for cardiovascular disease

AKADEMISK AVHANDLING
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av

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Abstract

Cardiovascular disease (CVD) is the leading cause of mortality globally, and a major contributor to disability. There exist several well-established CVD risk factors, many of which are used in clinical practice. Nonetheless, these risk factors do not fully explain why certain individuals develop CVD. Several additional risk factors for CVD have been proposed which deserve to be examined further in prospective studies. Therefore, the overall aim of this thesis was to gain a comprehensive understanding of the epidemiology of well-established and promising risk factors for CVD.

In study I, we estimated the additive and non-additive genetic components contributing to variation in established CVD biomarkers. We could show that all of the traits were to some extent influenced by genetics, and that many of them were under the influence of non-additive genetic effects.

In study II, we examined how variation in anti-PC levels and Lp-PLA_2 activity is explained by genetic and environmental effects and how these effects are shared with other established CVD biomarkers. Both of these traits were found to be affected by genetic and environmental effects, Lp-PLA_2 activity was moderately correlated with several of the other biomarkers while anti-PC appeared to be regulated independently of more established CVD biomarkers.

In study III, we investigated whether clinical depression and use of antidepressants are associated with CVD outcome. Further, we examined if the associations were more specific for CHD or ischemic stroke. Depression was found to be a possible risk factor for the development of CVD, more specifically stroke.

In study IV, we investigated if individuals with any record of clinical depression or self-reported depressive symptoms had an increased risk for incident stroke after adjusting for a range of stroke risk factors. The association between depression and stroke could not be accounted for by traditional stroke risk factors.

In conclusion, CVD is a highly complex disorder affected by a multitude of risk factors, which in themselves are influenced by both our genetic make-up and environmental exposure. Although there exist well-established CVD risk factors useful in CVD risk assessment, novel CVD risk factors should be more thoroughly investigated in future studies. Such studies might not only add information that would be useful in CVD risk stratification, they could also enhance our biological understanding of this complex disorder.

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