Diabetes mellitus and cardiovascular risk
Epidemiology, etiology and intervention

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Akademisk avhandling

som med vederbörligt tillstånd av Rektor vid Umeå universitet för avläggande av medicine doktorsexamen framläggs till offentligt försvar i Stora Aulan, Sunderby sjukhus, Luleå, fredagen den 18 mars, kl. 12:00.
Avhandlingen kommer att försvaras på svenska.

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Abstract

Background: Previous studies have shown the heavy impact of diabetes mellitus (DM) as a risk factor for cardiovascular disease (CVD). The strength of DM as a risk factor is debated. Altered fibrinolysis is one of the potential mechanisms explaining the heavy cardiovascular burden in diabetes. Hypofibrinolytic changes can be seen in individuals with metabolic syndrome and obesity as well as in patients with manifest diabetes or manifest CHD.

Methods: Papers I and II are population based retrospective studies, which compare time trends in myocardial infarction and stroke morbidity and mortality between patients with or without diabetes. Papers III and IV examines the fibrinolytic system and CVD risk both in patients with or without diabetes. Paper V assesses if intensive insulin treatment can improve fibrinolysis in patients with high CVD risk.

Results: The incidence and mortality from myocardial infarction and stroke have declined in the counties of Västerbotten and Norrbotten. Unfortunately, patients with diabetes and myocardial infarction (MI) in Paper I did not benefit from these favorable trends over study period. Paper II showed that women with diabetes had decreased incidence for stroke but not men with diabetes. Also reduced mortality from stroke was found in all patients except for diabetic women with first ever stroke. Paper III showed a significant association between decreased tPA activity and increased fibrinogen levels in patients with a first MI when patients were examined 3 months after the event. Paper IV showed that in patients with diabetes, tPA-activity significantly predicted the presence of sign(s) of lower extremity arterial disease (LEAD) at the baseline and at the 10-year follow up. Paper V studies the effects of insulin treatment on fibrinolysis. The hypothesis that allocation to insulin treatment would improve the levels of markers of fibrinolysis or VWF compared to standard glucose lowering treatment could not be verified.

Conclusion: Patients with diabetes still have a heavy cardiovascular disease burden with increased risk for MI and stroke compared with individuals with normal glucose metabolism. Patients with diabetes have unfavorable changes in their fibrinolysis and alterations in fibrinolysis can predict future peripheral artery disease. However, intensive insulin therapy did not appear to affect this system to the extent resulting in reduced cardiovascular morbidity.