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**LOW LEISURE-TIME PHYSICAL ACTIVITY AND HOMA-IR INSULIN RESISTANCE
PREDICT CORONARY HEART DISEASE IN MEN WITH NO HISTORY OF DIABETES**

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Objectives

The role of insulin resistance as a cardiovascular risk factor is controversial. We studied the role of HOMA-IR insulin resistance as an independent risk factor for coronary heart disease (CHD) mortality among men with no history of diabetes. We also studied the effect of leisure-time physical activity on CHD mortality.

Methods

The prospective study was based on 2448 middle-aged men (42 to 60 years) without type 2 diabetes at baseline. Fasting serum insulin levels and homeostasis model assessment for insulin resistance (HOMA-IR) were determined. During an average follow-up period of 20.0 years, 273 men died due to CHD.

Results

In a multivariate model, men with insulin levels of 13.1-55.7 $\mu\text{mol/L}$ (highest quartile) the hazard ratio (HR) for CHD mortality was 1.59 fold (95% CI 1.09-2.32, $p=0.016$) as compared to men with the lowest level of insulin (<2.9 -7.3 $\mu\text{mol/L}$), after adjustment for age, body mass index, systolic blood pressure, serum LDL-cholesterol, smoking history of CHD, alcohol consumption, blood leucocytes and plasma fibrinogen as compared to the lowest quartile. The respective HR among men of over >3.07 to 15.25 % (highest quartile) of HOMA-IR had a 1.69 fold (95% CI 1.15-2.48, $p=0.008$) risk for CHD mortality. In a subgroup analysis of 1208 men with leisure-time physical activity (<82.4 kcal/day, median $<50\%$) in the highest quartile of HOMA-IR (>3.07) had CHD mortality (HR 1.73, 95% CI 1.06-2.80, $p=0.027$) when adjusted for potential cofounders as compared to men with >82.4 /kcal/day of leisure time physical activity.

Conclusions

Insulin resistance when measured as HOMA-IR is associated with CHD mortality in men with no history of diabetes independent of other risk factors. The risk was increased in men with a sedentary life style with little leisure-time physical activity.