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Control/Tracking Number: 2015-A-28-OEPH

**Activity:** Abstract

Current Date/Time: 2/18/2015 6:11:24 AM

The Metabolic Syndrome and Cancer Project (Me-Can): results on incident risks of main cancer types

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## Abstract Text:

## Background:

Little has been reported about the joint influence of metabolic factors on the risk of various types of cancer. The aim of this study was to evaluate the association between metabolic syndrome and the most common types of cancer. Methods:

Data on body mass index, blood pressure and plasma levels of glucose, total cholesterol and triglycerides from seven European cohorts were analysed. Altogether the project contained 564,596 men and women with a mean age of 44 years available for analyses. The metabolic factors were weighted equally into a standardised metabolic risk score (MRS) with a mean of 0 and a standard deviation (SD) of 1. Cancer risks (HRs) were estimated by Cox regression with age as the timescale and relevant adjustments, including smoking status. Results:

During a mean follow-up of 12 years, 21,593 men and 14,348 women were diagnosed with cancer. MRS was linearly and positively associated with incident cancer in total and at sites (p < 0.05). In men, risk per SD of MRS was increased by 43% (95% confidence interval (CI) 27 to 61) for renal cell cancer, 43% (CI 16 to 76) for liver cancer, 29% (CI 20 to 38) for colon cancer, 27% (CI 5 to 54) for oesophageal cancer, 20% (CI 9 to 31) for rectal cancer, 19% (CI 4 to 37) for leukaemia, 15% (CI 1 to 30) for oral cancer, and 10% (CI 2 to 19) for bladder cancer. In women, risk increases per SD of MRS were 56% (CI 42 to 70) for endometrial cancer, 53% (CI 29 to 81) for pancreatic cancer, 40% (CI 16 to 67) for renal cell cancer, 27% (CI 9 to 47) for cervical cancer and 17% (CI 3 to 32) for rectal cancer.

## Conclusion:

This largest study to date, regarding the influence of combined metabolic factors on risk of separate cancers, showed increased risks for several cancers, including some relatively common types with rather large risks, in particular renal cell and endometrial cancer.

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## Abstract Information (Complete):

Abstract Information: Nein

**Topic (Complete)**: 09 Gesundheitsprobleme / Epidemiologie **Bevorzugte Präsentationsformsform (Complete)**: Vortrag

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