

## Serum Essential Elements and Survival after Cancer Diagnosis

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### Abstract:

In a prospective study, we measured the associations between three serum elements (Se, Zn and Cu) and the prognosis of 1475 patients with four different types of cancer (breast, prostate, lung and larynx) from University Hospitals in Szczecin, Poland. The elements were measured in serum taken after diagnosis and prior to treatment. Patients were followed from the date of diagnosis until death from any cause or until the last follow-up date (mean years of follow-up: 6.0-9.8 years, according to site). Kaplan-Meier curves were constructed for all cancers combined and for each cancer separately. Age-adjusted hazard ratios (HRs) were estimated using Cox regression. The outcome was all-cause mortality. A Se level in the highest quartile was also associated with a reduced mortality (HR = 0.66; 95%CI 0.49-0.88;  $p = 0.005$ ) in all-cause mortality for all cancers combined. Zn level in the highest quartile was also associated with reduced mortality (HR = 0.55; 95%CI 0.41-0.75;  $p = 0.0001$ ). In contrast, a Cu level in the highest quartile was associated with an increase in mortality (HR = 1.91; 95%CI 1.56-2.08;  $p = 0.0001$ ). Three serum elements-selenium, zinc and copper-are associated with the prognosis of different types of cancer.