



**Karolinska
Institutet**

Institutionen för Medicinsk Epidemiologi och Biostatistik

Cancer and Calcium - Epidemiological studies of Cancer Incidence and Survival

AKADEMISK AVHANDLING

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ABSTRACT

Studies have shown that there could be an association between dietary calcium and cancer, and more specifically it has been suggested that serum calcium is involved in the etiology of cancers of the prostate. In order to explore this association we performed epidemiological studies of the association between pre-diagnostic serum calcium and prostate cancer incidence and survival. We also studied temporal trends in the survival in Hodgkin's Lymphoma in order to evaluate the advances in treatment routines.

In our relative survival analysis of Hodgkin's Lymphoma we could see that those diagnosed in the later periods of time had considerably higher 1-, 5- and 10-year survival. This improvement in survival was especially prominent for those aged 51-65 years. Despite this, the long-term survival is still low in the older age groups. We conclude that the recent improvements in treatment strategies in Hodgkin's Lymphoma have considerably improved survival in all ages. However, age is still an important factor indicating the need of further progress in diagnosis and treatment of older patients.

The key aim of this thesis was to study whether serum calcium is involved in the etiology and prognosis of cancers of the prostate. In our studies we did not find serum calcium to be associated with incidence of prostate cancer, incidence of fatal prostate cancer, prostate cancer-specific mortality, nor relative survival in prostate cancer. We did however find a small but significant association with incidence of prostate cancer in a stratified analysis of those men who entered the cohort at a young age, and with a high body mass index. In a descriptive analysis of the variance of serum calcium in correlation with other factors, we found that serum calcium was significantly associated with age, season of screening and estrogen related factors.

We conclude that though we did not find any association between prediagnostic serum calcium and prostate cancer in our study at large, our stratified analyses together with the descriptive analysis of variance makes it plausible that the association between calcium and cancer found in other studies, partly could be confounded by a mediating, if not causative factor, involving the mechanisms of calcium homeostasis, such as; sun exposure, vitamin D level, level of sex hormones, body constitution, or insulin levels. Further studies of this mechanism in general, and its association with prostate cancer risk specifically, would be of interest when further exploring the association between cancer and calcium.

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