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# Socioeconomic factors and the influence of comorbidity in the management and survival in lung and prostate cancer

**AKADEMISK AVHANDLING**

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## ABSTRACT

### **Socioeconomic factors and the influence of comorbidity in the management and survival in lung and prostate cancer**

**Aim:** The presence of co-existing disease is common in cancer patients, and for many cancer forms outcomes are associated with socioeconomic status. The present thesis aimed to explore possible associations between socioeconomic status and comorbidity on the one hand, and clinical management and survival on the other hand, in patients diagnosed with lung and prostate cancer.

**Methods:** In study I, 3,370 patients diagnosed with non-small cell lung cancer between 1996 and 2004 were identified in the Regional Lung Cancer Register in central Sweden with additional information obtained from other population based registers. Study II encompassed 15,518 patients diagnosed with lung cancer identified in the Thames Cancer Register in South East England between 2006 and 2008. A total of 17,899 high risk prostate cancer patients (Study III) and all 77,536 men diagnosed with prostate cancer (Study IV) between 1997 and 2006 were identified in PCBaSE Sweden, a database of prostate cancer patients based on the National Prostate Cancer Register of Sweden with additional information retrieved from other population based registers. Level of education, a deprivation index, and a socioeconomic index based on occupation were used as the main indicators of socioeconomic status. Comorbidity burden was assessed using the Charlson comorbidity index. Binary logistic regression and time to event analyses were used to address associations between socioeconomic status, comorbidity, management and survival.

**Results:** We observed social differences in time between referral and date of diagnosis and in diagnostic intensity in lung cancer patients in Sweden. No social differences in stage at diagnosis were observed in Sweden or in South East England. In both regions the most privileged lung cancer patients were more likely to receive treatment with curative intent and had a better survival, foremost in early stage disease. We observed socioeconomic disparities the management of high risk prostate cancer. The likelihood to undergo a bone scan, receive curative treatment, and undergo radical prostatectomy was higher in patients with high socioeconomic status, a group that experienced a lower mortality. Prostate cancer patients with severe comorbidity received curative treatment less often, had a higher all-cause and competing cause mortality, but not higher prostate cancer specific mortality. However, in analyses given no death from other causes, men with severe comorbidity had a higher prostate cancer specific mortality.

**Conclusions:** Taken together, the results of the present thesis show that socioeconomic status influences not only clinical management, but also survival in patients diagnosed with lung cancer both in central Sweden and South East England, as well as in Swedish patients with high risk prostate cancer. Comorbidity burden influenced both treatment decisions and mortality in prostate cancer patients. The pattern of care and survival observed in the most privileged groups demonstrates what is achievable and should represent a minimum standard for all cancer patients.