P022 Risk of second malignancies and survival differences by treatment pattern in prostate cancer: A population-based study

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Introduction & Objectives: Surgery, radiotherapy or a combination of both is the most common treatment for non-metastatic prostate cancer. Radiotherapy (RT) is known to have less quality of life issues (such as sexual function or urinary continence) compared to surgery (SG), but the risk of developing a second malignancy (SM) has been found to be higher. In Europe, several population-based cancer registries (CRs) gather data on the first course of treatment and stage, which can be used to assess care treatment patterns at population level. This analysis reports on prostate cancer treatment in non-metastatic prostate cancer in Europe and the associated risk of SM development and survival differences.

Materials & Methods: Data from 20 CRs (from 13 countries) contributing to the European Cancer Information System which submitted treatment information were analysed, selecting patients diagnosed between 1984 and 2014 with prostate cancer as first tumour. To limit effects of comorbidity in treatment patterns, patients aged more than 70 years and those with stage IV or unknown were not included in the study. The proportion of cases by treatment type was calculated for SG alone, RT alone and SG+RT. Cox proportional hazards regression adjusted by age, stage, treatment was applied in order to assess the risk of SM. Relative survival (RS) was calculated for the three groups.

Results: We analysed 188,523 cases aged 45-70 years at incidence (median age 64 years). Of those, 57% received SG alone, 19% RT alone, 8% SG+RT; most of the rest received no anti-cancer treatment. Compared to SG alone, patients with RT alone and SG+RT had significantly higher risk of developing SM (respectively 23% and 36%). As expected, SM risk was strongly associated with age. Patients aged 60-64 and 65-70 had 28% and 72% higher risk than patients aged 45-59 years (reference). Stage III patients had a 27% increased risk of SM compared to stage I patients. There was a 55% increase of SM risk in patients receiving systemic therapy compared to those who did not. Lung, colon and bladder cancers were the most common SM developed. 10 years RS was higher than 100% for patients receiving SG alone, indicating a lower mortality than in matched individuals with the same age and residence area from the general, cancer free population. 10 years RS was 91% for RT alone patients and 88% for SG+RT patients. All results were significant at $p<0.05$.

Conclusions: An increased risk of developing a SM was found in SG+RT and RT alone prostate cancer patients, compared to SG alone patients. Survival was worse for patients with SG+RT and RT alone than for those with SG alone. The choice of treatments with higher SM risk and lower survival could be explained by a better quality of life as compared with SG alone. Population based CRs could be a powerful tool to assist clinical research and monitor treatment patterns and effects in the population.