has the potential to reduce demand by 4,600 pmp. A potential reduction in modelled demand of 8,800 pmp arises from these three studies alone. Across the total population of England, this translates to approximately 479,600 fractions per year.

Conclusion: The current clinical indications and trials for hypofractionation have the potential to reduce the evidence-based estimates of demand of radiotherapy sufficiently to be achievable with a modest increase of the current levels of equipment in England. While the presented calculations are for England as a whole, the Malthus program offers the facility to calculate the changes in modelled demand at a regional level within England, enabling a more precise calculation for treatment centres and their local catchment.

References:


SP-0334

Cancer plans in Europe and radiotherapy needs assessment: can we dance a tango?

T. Albreht

European countries have a several decade long history of planning for cancer services and cancer care. The World Health Organization (WHO), whose focus was on middle-income countries, had launched the original initiative. WHO at that time at the beginning of the 1980s also proposed the first comprehensive definition of National Cancer Control Programmes (NCCP): “A national cancer control programme is a public health programme designed to reduce the number of cancer cases and deaths and improve quality of life of cancer patients, through the systematic and equitable implementation of evidence-based strategies for prevention, early detection, diagnosis, treatment, and palliation, making the best use of available resources.” Cancer control programmes bear different names - cancer plans, cancer control programmes, cancer strategies, etc. They may be national or regional, but in either case they are closely related with the decision-making authorities. They depend on the appropriate allocation of resources and on the legal enactment of regulation of cancer care delivery and all of its services and activities. The rapid growth in cancer incidence coupled with exorbitantly rising costs brought the reflection on the planning of cancer care and its services to the European Union’s table. As a result of the conclusions of the Slovenia’s Presidency to the Council of the European Union, an initiative called European Partnership for Action Against Cancer (EPAAC) was born and launched by Commissioner Dalli in September 2009. At the same time the European Commission called upon Member States (MS) to develop and adopt national cancer plans (NCPs) or strategies by 2013. In the Joint Action (JA) EPAAC, which acted as the practical implementation of the partnership, the status of the national cancer plan development was revised through a comprehensive survey in all MSs, Norway and Iceland. What should be practical consequences of an NCP in principle they should be the following: Mapping all the processes belonging to the comprehensive control and management of canceridentifying priorities in cancer careDefining clear patient pathways and assuring the necessary resources for themSecuring sufficient financial resources through the implementation of both guidelines and patient pathways/Introducing new programmes - therapeutic and screening, treatment approaches and new concepts, such as survivorship. Raising awareness of the different elements in

SP-0333

Evaluation of radiotherapy utilisation in Belgium: patterns and possible causes of suboptimal use

E. Van Eycken, H. De Schutter, K. Stellamans, M. Rosskamp, Y. Lievens

Belgian Cancer Registry, Brussels, Belgium

Using the evidence-based decision analytic model developed by the Collaboration for Cancer Outcomes, Research and Evaluation (CCORE) (1), the ESTRO-HERO project (2,3), calculated that 53.2% of incident cancer patients in Belgium would require external beam radiotherapy during the course of their disease. In order to find out what is the actual utilization of radiotherapy in Belgium and how it compares with this calculated optimal utilization proportion (OUP), a population consisting of 112,235 patients with a unique invasive cancer diagnosis in the years 2009 and 2010 was evaluated. Tumour categories were defined according to the CCORE methodology. For each cancer, the data set consisted of the incidence date, topography, histology, TNM stage and the treatment recommendations formulated during the multidisciplinary team meetings (MDT), the latter giving an indication on the pattern of radiotherapy prescription in Belgium. Data on reimbursement for external beam radiotherapy, obtained through linkage with the administrative database from the Health Insurance Companies covering a time period up till 3 years after the year of incidence, provided insight in the actual utilization. Besides overall analyses at the Belgian population level, variability of actual and optimal utilization amongst cancer types was assessed.

For the Belgian cancer population diagnosed in 2009-2010, the actual use of radiotherapy was 35.1%. About 3 in 4 of these patients received radiotherapy within the first 9 months after diagnosis, providing an estimate of those irradiated in the context of the primary treatment strategy. The global result was in line with the percentage of prescribed or recommended radiotherapy series (35.0%) during the MDT.

Radiotherapy uptake varied with primary tumour site. Most of the cancers in Belgium have a lower actual utilization than predicted with the exception of leukaemia, ovarian, thyroid, testicular, colon and liver cancer. Most pronounced differences between optimal and actual utilization were found in less typical radiotherapy indications such as in bladder, brain, lymphoma, myeloma, pancreas and stomach cancer. For more common radiotherapy indications such as breast, head and neck and rectal cancer, the underutilization is about 10-15% while in lung, oesophagus and prostate cancer, the underuse was more pronounced resulting in only about 55-60% of the patients requiring radiotherapy being actually treated.

These data, derived at the unique patient-level, illustrate that even in a country that is well-resourced in terms of radiotherapy staffing and infrastructure, a clear discrepancy can be observed between the optimal and actual radiotherapy delivery. Potential reasons for this may include physician and patient preferences favouring non-radiotherapy regimens in case of competing treatment modalities (e.g. in prostate cancer), deviation from guidelines (e.g. due to comorbidity or low performance status), an overestimation of the real needs by the evidence-based model and an underestimation of the actual utilisation due to available nomenclature data being limited to 3 years after incidence. These reasons all deserve further evaluation and they must be carefully taken into account when forecasting and planning radiotherapy staffing and infrastructure.
Debate: Maximising tumour control: crank up the volume or turn off the switches?

OC-0339
More acute proctitis symptoms with hypofractionation (3.4 Gy) than 2 Gy fractions
W. Heemskerk1, L. Incroci2, C. Vens1, M. Witte1, S. Aluwini3, F. Pos3
1Netherlands Cancer Institute, Dept of Radiation Oncology, Amsterdam, The Netherlands
2Erasmus MC Cancer Institute, Dept of Radiation Oncology, Rotterdam, The Netherlands
3Netherlands Cancer Institute, Division of Biological Stress Response, Amsterdam, The Netherlands

Purpose or Objective: Several clinical studies investigated hypofractionation schedules with fractions ≥ 3 Gy in prostate cancer. Recovery from rectal radiation damage has been reported to depend on weekly dose rates, implying that acute rectal toxicity is regarded as little fractionation sensitive. A phase 3 randomized trial, with dose delivery of ≈10 Gy/week in both arms, recently reported a significantly higher peak incidence of RTQ grade ≥ 2 gastrointestinal (GI) toxicity in the 3.4 Gy vs the 2 Gy fractions arm. Here, we further analyzed the acute proctitis symptoms of the two schedules with 3.4 Gy or 2Gy fractions delivered with image-guided (IG)-IMRT, and compared it with the incidence of patients receiving 2 Gy fractions delivered with a 3D conformal technique (3DCRT).

Material and Methods: We selected patients treated with IG-IMRT (planning margins 5-8 mm) from a randomized trial for localized prostate cancer, with patients in the Hypofractionation arm (HF, n=303) receiving 3 fractions per week of 3.4 Gy with intervals, during 6.5 weeks. Patients in the standard arm (SF, n=298) received 5 fractions of 2 Gy per week with 24h intervals, for 8 weeks. A third historical group (3DCRT) contained patients from a previous trial (n=522) treated with 2 Gy/fraction (7-8 weeks), planning margins of 10 mm, and a three-field 3D-conformal technique. Prospectively collected patient-reported symptoms were available for week 4 and week 6. Peak incidences (maximum week 4 & 6) were compared between the groups (chisquare test).

Results: We found a significantly increased risk for acute rectal bleeding in the HF group (15.1% versus 7.6% for SF, Table 1, Figure 1), which implies a relative risk of 2.0. Increased risks for HF vs SF (p<0.05) were also found for mucus loss, loose stools, and increased stool frequency. Figure 1 shows the incidences for bleeding and mucus loss (with 1 SE). The increased risks for bleeding in the HF schedule were comparable with the observed risks in the historical 3DCRT cohort. Risks for other toxicities with HF were somewhat lower than for 3DCRT, with no significant differences except for stools (HF 34.7% vs 3DCRT 42.9%, p=0.02). Incidence of diarrhea exceeded that of the 3DCRT schedule, but not significantly (p=0.1).

Conclusion: We observed significantly more acute proctitis symptoms in the HF group. These data might point to an underestimated fractionation sensitivity of acute rectal tissue. Our findings suggest that the repair capacity between two fractions was less effective when 3.4 Gy was delivered every other day, compared to daily 2 Gy fractions. The increased damage by hypofractionation is in the same order as the reduction in damage previously achieved with the introduction of IG-IMRT.