PSA progression: 11.3 months). All but one patient remain alive (1 year survival: 88.9%). No grade 3+ acute toxicities were observed and no grade 3+ late toxicities have been reported to date. Vessels were the OAR most often within the reRT PTV, but were not dose limiting. Small bowel, colon and sacral plexus were within the PTV in 7, 5 and 7 cases respectively and were potentially dose limiting. Cumulatively, allowing for potential positional change between RT courses, 'worst case' calculated doses to small bowel, colon and sacral plexus were up to 111, 107 and 123Gy (EDQ2, α/ß=3Gy), respectively (Table 2).

Table 1. Baseline characteristics

Characteristic	Subgroup	n (%)	
Totals			
	Patients	20 (100)	
	Lesions	30 (100)	
Age (median and range)			
	66.5 years	56.0-78.8 years	
Primary cancer			
	Prostate	16 (80)	
	Rectal	4 (20)	
Previous radiotherapy			
	Prostate alone	2 (10)	76Gy in 37 fractions (fr)
	HDR brachytherapy and external beam	3 (15)	15Gy in 1 fr HDR + 37.5Gy in 15 fr (n=2) 17Gy in 2 fr HDR + 35.8Gy in 13 fr (n=1)
	Prostate and pelvis	1 (5)	74Gy in 37 fr
	Prostate bed	10 (50)	52.5-55Gy in 20 fr
	Pelvis (rectal primary)	4 (20)	45Gy in 25 fr (n=1) 45Gy in 25 fr + 6.4Gy in 3 fr boost (n=1) 25Gy in 5 fr (n=1)
Previous pelvic surgery			
	Yes	14 (70)	
	No	6 (30)	
No. re-irradiated lesions			
	1	13 (65)	
	2	4 (20)	
	3	3 (15)	
Site re-irradiated			
	Pelvic node	27 (90)	
	Pelvic bone	3 (10)	
Re-irradiation GTV volume (median and range)			
	1.2 cm^3	0.2-27.0 cm^3	
Re-irradiation dose			
	25Gy in 5 fr	2 (6.7)	
	27Gy in 5 fr	1 (3.3)	
	30Gy in 5 fr	27 (90)	

Table 2. 'Worst case' estimates of cumulative doses

Organ at Risk	Calculated cumulative EQD2 (Gy, α/β=3Gy) Median (range)
Vessels	71.6 (49.8-128.0)
Small Bowel	89.4 (20.1-110.8)
Colon	54.4 (39.5-107.1)
Sacral Plexus	56.6 (44.1-123.4)

Conclusion

SABR reRT appears well tolerated and effective in controlling oligometastatic pelvic disease. Cumulative doses and positional changes in OARs between courses should be considered. SABR reRT requires further evaluation in prospective trials to guide future delivery.

PV-0475 Stereotactic Body Radiation Therapy For Painful Spinal Metastases - Results Of A Phase 2 Study

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Purpose or Objective

Stereotactic body radiation therapy (SBRT) for painful spinal metastases has the potential to improve and extend pain relief, but prospective data on pain response are lacking. This prospective phase II trial addressed the question of overall (complete and partial) pain response after hypo-fractionated SBRT for painful, mechanically stable, previously un-irradiated spinal metastases?

Material and Methods

From 2012 to 2015, 54 patients were treated and analyzed in a prospective, multicenter, non-randomized, single arm phase 2 study (NCT01594892). Inclusion criteria were ≤2 distinct, non-contiguous, painful, mechanically stable, un-irradiated spinal metastases from a solid tumor, Karnofsky performance status ≥60. Patients with long (Mizumoto score ≤4) or intermediate (Mizumoto score 5-9) overall survival expectancy were treated with hypo-fractionated SBRT of 48.5 Gy in 10 fractions or 35 Gy in 5 fractions, respectively. The primary outcome was overall (complete and partial) pain response measured with the International Consensus Guidelines at 3 months after SBRT; the secondary outcome was local control, survival, toxicity and quality-of-life measured with the Euro-quality-of-life Five Dimensions Questionnaire (EQ-5D-5L).

Results

Of 54 patients (30 [56%] male; median [range] age 64 [25-84] years; 60 lesions) 30 (56%) patients were treated with 10-fraction SBRT and 24 (44%) with 5-fraction SBRT. Pain response at 3-months was evaluated in 42 patients (47 lesions). Overall pain response was observed in 41 lesions (87%) and pain response remained stable for at least 12 months. Mean (standard deviation) maximum pain scores on Visual Analogue Score significantly improved from baseline 6.1 (2.5) to 2.0 (2.3) at 3 months post-treatment (P<.001). EQ-5D-5L quality-of-life dimensions (self-reported mobility, usual activities and pain/depression) significantly improved from baseline to 3 months post-treatment. After a median follow-up of 12 months, the 12-month overall survival and local control rates were 61.4% (95% CI, 48-74.8%) and 85.9% (95% CI, 76.7-95 %), respectively. Grade 3 toxicity was limited to acute pain in 1 patient (2%). No patient experienced radiation-induced myelopathy. Six (11%) and 8 (15%) patients developed progressive or new vertebral compression fractures (VCF), respectively, but stabilization (n=1) and decompression (n=1) surgery was only required in two patients.

Conclusion

SBRT for painful vertebral metastases achieved rapid, deep and long-term overall pain response, high local metastasis control and improved quality-of-life and may become a primary treatment in selected patients with longer survival expectancy.

PV-0476 Equivalent cancer-specific survival following surgical resection or SABR for stage I lung cancer

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Purpose or Objective

Surgery is the standard of care for early stage lung cancer. Stereotactic ablative radiotherapy (SABR) is a low

morbidity option in a population whose physiological reserve is often limited. The role of SABR is, however, not yet well defined. Randomised studies have failed to recruit and retrospective analyses are confounded by significant co-morbidity and frailty. This study aims to compare the cancer-specific survival outcomes for varying treatment strategies in a cohort of patients treated for presumed early stage NSCLC acknowledging the competing risk of death due to co-morbidity.

Material and Methods

All patients treated for presumed stage I lung cancer between January 2008 and May 2013 in a large UK centre were identified retrospectively. Treatment received, baseline characteristics, survival, recurrence and cause of death information were collected. Multi-variable Fine and Gray competing risks models adjusted for stage, age, performance status, sex and treatment were used to assess cancer-specific survival, whilst acknowledging deaths due to other causes. Cox proportional hazards models were built for comparison. Stacked cumulative incidence plots provide a visual representation of cause-specific mortality.

Results

The study cohort consisted of 468 individuals. 316 (67.5%) underwent surgical resection, 99 (21.2%) received SABR and 53 (11.3 %) conventionally fractionated radiotherapy. SABR was associated with inferior overall survival in Cox proportional hazards multi-variable models compared to surgery despite adjustment for baseline co-variables (SABR HR 1.840, 95% CI 1.317-2.570, p< 0.001). On competing risks analysis SABR and surgery were associated with equivalent cancer-specific survival (Sub-distribution hazard for SABR 1.030, 95%CI 0.585-1.814, p=0.919). This finding was mirrored on multi-variable Cox proportional hazards modelling of cancer-specific survival (SABR HR 1.271, 95% CI 0.744-2.170, p=0.380). The hazard ratio for SABR increased when outcomes beyond 90 days post treatment were considered (SABR HR on Cox modelling 1.607, 95% CI 0.931-2.772, p=0.088) although this was not significant. Figures 1 and 2 show the cumulative incidence of death due to varying causes following surgery and SABR respectively.

Fig.1

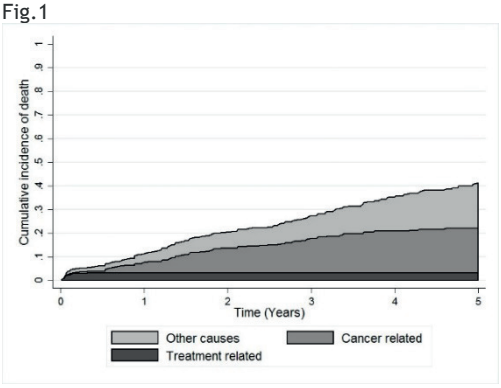
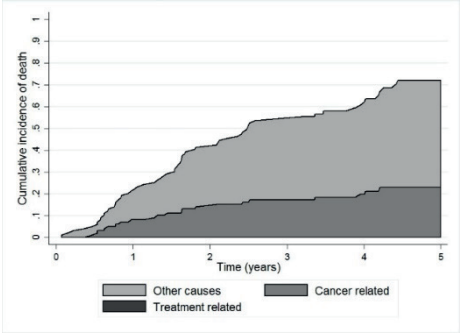


Fig.2



Conclusion

In this cohort, SABR was associated with equivalent cancer-specific survival to surgery on both Fine and Gray and Cox modelling. The possible time-dependence of this result is of interest and if replicated on Fine and Gray modelling in a larger cohort may suggest that case selection is critical; early treatment related mortality following surgery cancelling out any potential benefits in those at even moderate risk of surgical mortality. Further work is required. Whilst randomised data would be optimal a pragmatic approach, increasing the size of the investigated cohort and considering survival, quality of life and cost-effectiveness outcomes would provide valuable information to support clinical decision making.

Symposium: Enhancing radiation oncology outcomes through patient involvement

SP-0477 Patients as partners - advocacy, innovation and clinical trials

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Abstract text

The expectations and rights of 'consumers' (patients) within healthcare systems and services are being more explicitly articulated as time goes on. The patient experience and satisfaction with their care are recognised as significant indicators of service quality, and rightly so. Similarly, explicit focus on patient-centred care, patient safety and the inclusion of patients within healthcare innovation is highlighted within modern health professional training programs and quality improvement programs. Further, in the area of research the value of including patient reported outcome measures (PROMs) in clinical trials has gained increasing focus over recent years and nowhere is this more evident than in the case of cancer studies. It is well recognised that trade-offs between 'hard' cancer endpoints such as survival, and quality-of-life or symptoms often varies between individuals. Patient preferences in decision-making are often personal and a movement away from a paternalistic approach in clinical care to shared decision-making is becoming the norm within radiation oncology. In all these ways, our patients are moving more towards having a partnership role as key members of the decision-making, management, quality improvement and research teams within which we work. In addition, they have a powerful voice in advocating for our specialty and for cancer patients' support and information needs. This talk will explore the concept of patients as our teachers and inspiration in relation to what really matters to them and the research questions we need to ask. Alliances between radiation oncology professionals and patients represent a potentially under-tapped, yet very powerful, advocacy and research resource.

SP-0478 The impact of patient values on treatment techniques and decisions in radiation oncology

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Abstract text

Nowadays, the need to involve cancer patients in treatment decision-making and to assess patients´ values in preference-sensitive decision situations becomes more and more recognized, especially when the expected benefit is marginal, a treatment carries significant risks or side effects, or decision makers disagree in their valuation of treatment outcomes. Involving cancer