Radiotherapy Fractionation Schedules Prescribed are Dependent on the Distance a Patient Travels to Receive Treatment

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Abstract

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Purpose: This study assesses whether prescribed radiotherapy (RT) fractionation schedules are dependent on the distance the patient travels to the treatment centre.

Matherials and Methods: All courses of RT for bone metastases from 2007-2011 for patient living in British Columbia were included. Patients were grouped into five categories based on distance from the nearest treatment centre; 0-50, 50-100, 100-200, 200-500 and >500 Km. Associations between distance travelled to treatment centre and the use of single fraction (SF) RT were determined.

Results: From 2007-2011, 8008 patients were treated with 16,277 courses of RT; 51.6% of RT courses were prescribed to male patients. Genitourinary malignancies were observed most frequently (25%). The proportion of patients living within 0-50, 50-100, 100-200, 200-500 or >500 Km of the treatment centre were 69.7, 7.4, 11.0, 7.9 and 4.9%, respectively (p<0.001). There was significant variability in the prescription of SFRT by distance the patients lives from a cancer centre (p<0.001), which was normally distributed with a peak at an intermediate group; patients living within 0-50, 50-100, 100-200, 200-500 or >500 Km of the nearest cancer centre received SFRT 47.0, 52.9, 60.0, 53.3, and 46.0% of the time, respectively.

Conclusions: There is a significant variability in prescription of SFRT based on the distance a patients lives from a cancer centre. Patients living <50Km or >500 Km from the nearest treatment centre were most likely to receive multiple fraction RT (MFRT). The similar use of patients livings >500 Km, to those living <50Km is hypothesized to occur because these patients fly to the cancer centre, and subsequently are willing to stay near the centre for a MFRT course. Conversely, the higher utilization of SFRT for patients living 100-200 Km from a centre is hypothesized to occur because they would commute via car daily, and prefer to have only one treatment over a course. This data suggests that groups looking at the utilization of SFRT for bone metastases should incorporate travel distance into their analysis.