Purpose or Objective: Although intensity modulated radiotherapy (IMRT) permits the delivery of a highly conformal dose to target volumes while sparing dose to identified organs at risk, it results in a higher whole body integral dose due to irradiation of a larger volume of tissue at lower doses. A randomized clinical trial in head and neck cancer comparing IMRT with 3-D conformal radiotherapy, demonstrated higher acute fatigue in the IMRT cohort, raising the possibility of an association with higher integral dose. We hypothesized that a higher integral whole body dose is associated with worsening fatigue and an adverse functional outcome in patients with localized prostate cancer treated with intensity modulated external beam radiotherapy.

Material and Methods: 26 patients with localized adenocarcinoma of prostate treated with intensity modulated external beam radiotherapy were included in this analysis. The integral dose was calculated as the product of mean body dose and body volume and the study cohort was dichotomized using the median integral dose as the cut-off value. The fatigue, physical functioning and role functioning domains of the EORTC QLQ-C30 questionnaire prior to radiotherapy and upon completion of radiotherapy were assessed. The outcome measure was defined as worsening in any of these three domains.

Results: The median integral dose was 119.7 litre-Gy (range 90.5 - 168.1). In the whole population 17/26 (65%) had worsening of fatigue, physical or role functioning. A significantly higher proportion of patients with an integral dose above median had worsening fatigue, physical and role functioning compared with patients with an integral dose below median. (6/13 versus 11/13; z test for proportions p<0.04).

Conclusion: To our knowledge, this is the first study linking acute worsening of fatigue and functional outcome with whole body integral dose. Further validation in a larger cohort and in different tumour sites is necessary and the relationship between integral dose and toxicity merits further investigation.

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Intestinal toxicity from WPRT delivered with IMRT is negligible. A multicentric observational trial.
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Purpose or Objective: To prospectively evaluate acute intestinal toxicity (AIT) from RT including whole-pelvis irradiation (WPRT) for prostate cancer by means of a validated questionnaire (IBDQ, Intestinal Bowel Disease Questionnaire), and to investigate the intestinal symptoms that most affect patient quality of life (QoL).

Results: Overall, self-perceived intestinal toxicity from WPRT was mild: mean scores for bowel symptoms at baseline, RT mid-point and end were in fact 6.59, 6.09, 5.90 (repeated measures Anova, p<0.0001), for emotional health 5.94, 5.79, 5.69 (0.0003), for social function 6.20, 5.83, 5.65 (p<0.0001) and for systemic symptoms 5.95, 5.55, 5.40 (p<0.0001), respectively. For the evaluation of acute toxicity, the worst variation (delta) between baseline and RT mid-point or end was considered. With respect to the bowel symptoms, the median score decrease (worsening) was 2 points for only one item (frequent bowel movements), 1 point for loose bowel movements, gas passage, abdominal bloating and urge to defecate, and 0 for abdominal pains and cramps, rectal bleeding, accidental soiling and nausea. Nevertheless, abdominal pain and urge to defecate were the two items with higher predictive power (AUC 72-79% at ROC curve analysis) with respect to a worsening of ≥1 point (25th percentile) of either emotional or systemic or social domains, as well as gas passage, urge to defecate and nausea (AUC 72-73%) for emotional.

Conclusion: The self assessed AIT from WPRT delivered by means of modern IMRT technique is negligible. Abdominal pain and urge to defecate are the 2 symptoms mostly correlated with a worsening of patient’s QoL.