

Results: The average patient age, BMI and pre-treatment IPSS were 70 years old (range: 56-84), 30 kg/m² (range:19-55), and 8 (range: 0-21), respectively. Most patients (48/52) had rectal spacers placed prior to SBRT. Data analysis for predictors of intrafraction prostate motion revealed that larger pre-treatment bladder and rectal volumes were associated with more beam offs per fraction ($p = 0.018$ and $p = 0.014$, respectively). In addition, there was a trend for larger bladder volumes to predict greater shifts in the ventral-dorsal direction ($p = 0.052$) and magnitude of the 3D vector ($p = 0.051$). Patients using urinary medications had fewer number of beam offs during their treatment course ($p = 0.038$). Patient age, BMI, baseline IPSS and pre-treatment gas volume did not correlate with prostate motion during treatment.

Conclusion: Our results suggest that patient bladder and rectal volumes at the time of treatment can influence prostate motion during SBRT. We can conclude that rectal emptying prior to treatment is critical for rectal dose avoidance and prostate motion mitigation, however future studies will be needed to determine the optimal bladder volume during prostate SBRT.

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Contemporary Practice Patterns for Intact and Post-Operative Prostate Cancer: Results from a Statewide Collaborative



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Purpose/Objective(s): National guidelines for localized prostate cancer management provide recommendations for staging methods, risk stratification tools, treatment, and follow-up, which include a diverse range of available options. Heterogeneity in treatment could reflect knowledge gaps

in best practices or barriers to delivering guideline-concordant care. We sought to assess the current practice pattern recommendations in the management of prostate cancer across a statewide consortium.

Materials/Methods: Within a statewide radiation oncology quality consortium, we surveyed a diverse group of 30 radiation oncologists practicing in both community and academic centers between July and August of 2018. Case volume, tests ordered for staging and risk stratification, rectal spacer use, brachytherapy utilization, dose and fractionation schemes, pelvic nodal irradiation, androgen-deprivation therapy (including type and duration), active surveillance, and follow-up patterns were assessed. Patients were categorized into very low, low, favorable intermediate, unfavorable intermediate, and high risk groups according to NCCN.

Results: Twenty-two centers participated with 90% completion rate of surveys. The median annual new case volume per physician was 30 (range, 3-125) for intact and 15 (range, 2-100) for post-operative cases. MRI is ordered for 28% of patients, with heterogeneity by physician (range, 0-100%). Thirty-three percent of physicians order genomic testing. Most physicians (76%) use rectal spacers, but usually in <50% of intact cases. Active surveillance is recommended by most (median: 95% and 70% for very low and low risk, respectively), however heterogeneity remains (range, 5%-100% and 0%-100%). Conventional fractionation is the most common treatment regimen. Moderate hypofractionation, SBRT, and brachytherapy were rarely used (median 0%; range, 0-75%). ADT was routinely recommended for 45% of unfavorable intermediate risk patients, and 83% of high risk patients. Pelvic nodal radiation was recommended routinely for 53% and 90% of intermediate and high risk patients, respectively. Intermediate risk patients demonstrated the greatest heterogeneity in treatment with 15 different regimens recommended across the state, roughly twice the number of regimens utilized for other risk groups. Post-operatively, 83% of physicians commonly include pelvic nodes, and ADT is recommended for a minority of cases (median 10%; range, 0-100%).

Conclusion: Nearly all aspects of management for intact and post-operative prostate cancer are remarkably heterogeneous. The use of more cost-effective forms of radiotherapy (e.g. hypofractionation, SBRT, and brachytherapy) have not yet been widely adopted. These results provide support for ongoing quality improvement efforts for men with localized prostate cancer.

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