

AbstractID: 13818 Title: Comparison of RTOG 0618, 0813, 0915, and Accuray STARS SBRT lung protocols

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Purpose:

Recently several stereotactic body radiation therapy (SBRT) lung protocols have been developed. To gain insight into the dose tolerance limits and the fractionation schemes, this study is a comparison of the RTOG 0618, 0813, 0915, and Accuray STARS SBRT lung protocols.

Method and Materials:

To make a fair, unbiased comparison, all selected patients were evaluated according to all six protocol regimens. The DVH Evaluator software tool, which can evaluate a treatment plan according to all selected protocols, was used.

Results:

When comparing the various dose schemas and normal tissue tolerance limits utilized in currently available protocols, the Accuray STARS protocol incorporates radiobiologically higher dose tolerance limits. There is some discordance in the use of radiobiological equivalent doses as demonstrated with spinal cord limits heavily dependent upon fractionation schema and lung dose limits very similar to standard fractionated target doses. When we compare and contrast the various protocols RTOG 0618 incorporates the highest effective dose, yet some normal tissue tolerance targets are more strict than in other similar trials. Comparative analysis of included patients illustrates that three patients would have received treatment in full compliance with three of six protocols. Another patient was noted to exceed the spinal cord tolerance only for the single fraction arm of RTOG 0915 and skin limit for RTOG 0618, while meeting the esophageal dose limits in three of six protocols.

Conclusion:

This opens a dialogue regarding SBRT dose limits for the potential delivery of higher effective target doses utilizing the available ranges of acceptable normal tissue tolerance levels for the development of individualized treatment maximizing the risk-benefit ratio of normal tissue to target dose delivery in an attempt to provide improved outcome for patients.

Conflict of Interest:

None