Stereotactic Body Radiation Therapy (SBRT) for Treatment of Lung Cancer

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Abstract

This project explains stereotactic body radiation therapy (SBRT) and its role in treating lung cancers. Different types of SBRT treatment, statistics, toxicity, success rates, and data from studies are discussed. More than half of all cancer patients experience lung metastasis, many of these cases being inoperable. SBRT provides a noninvasive alternative to surgery as well as high rates of local tumor control and minimal toxicity. SBRT is a form of external beam radiation therapy that delivers a hypofractionated dose directly to the cancerous target volume. Two common types of SBRT utilized to treat lung cancer are intensity modulated radiation therapy (IMRT) and volumetric modulated arc therapy (VMAT). Patients with lung metastasis have demonstrated very low toxicity from SBRT, with most patients reporting below stage 3. 10-15% of early stage non-small cell lung cancer cases treated with SBRT result in local recurrence. Salvage SBRT treatment of the lungs has shown to be mostly successful with an overall survival rate of 68%. Due to the amount of SBRT treatment cases resulting in local recurrence resulting in the need for salvage SBRT treatment, there is a need for continued research to reduce the statistic.

Keywords: Radiation Therapy, Stereotactic Body Radiation Therapy, Lung Cancer, Lung Metastasis, Intensity Modulated Radiation Therapy, Volumetric Modulated Arc Therapy, Salvage SBRT