

STEREOTACTIC CARDIAC RADIOTHERAPY FOR REFRACTORY VENTRICULAR TACHYCARDIA: A METAANALYSIS

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BACKGROUND

Stereotactic body cardiac radiotherapy (SBRT) is a paradigm changing treatment option for refractory ventricular tachycardia (VT) in patients with structural heart disease. We sought to review the effectiveness of SBRT reported in literature.

METHODS

We performed a comprehensive literature search to find all studies on cardiac SBRT for VT. Treatment efficacy was evaluated as the rate ratio of VT episodes and ICD shocks per patient-month post-SBRT (after 6-week blanking) and during 3-12 months pre-SBRT, with patients serving as their own controls.

RESULTS

We included 6 series on cardiac SBRT (follow-up ranging 6-28 months) with 52 patients providing outcome data. There was significant heterogeneity in results from different studies. The rate ratio of VT episodes post- vs. pre-SBRT was 0.08 (95% CI 0.03-0.23, $p < 0.0001$), and after removing two outlier studies 0.15 (0.09-0.24, $p < 0.0001$). The rate ratio of ICD shocks (from 5 series) was 0.31 (0.08, 1.21, $p = 0.09$), after removing 2 outlier studies 0.27 (0.14, 0.53, $p = 0.0001$). The pooled Kaplan-Meier 1- and 2-year overall patient survival was 76% and 67% respectively (See Figures 1 and 2).

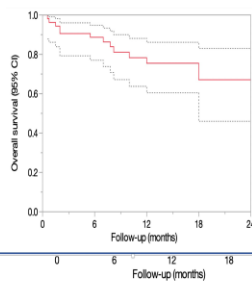
CONCLUSION

Cardiac SBRT is an effective treatment modality in patients with VT refractory to medical therapy and catheter ablation. There is heterogeneity in results from different studies, that could be related to differences in patient selection and treatment techniques. The overall patient survival compares favorably to data from catheter ablation trials.

- In patients with VT refractory to medical therapy and catheter ablation, cardiac SBRT significantly reduces the rate of VT episodes and ICD shocks.
- In this population, the overall survival was 76% at 1 year and 67% at 2 year.

Figure 1.

Survival plot. Kaplan-Meier overall patient survival post-SBRT



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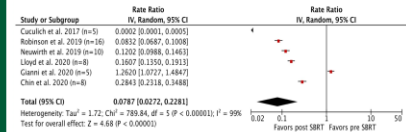


DISCUSSION

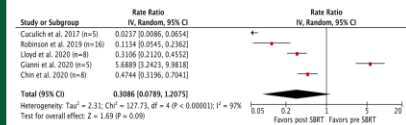
- Prior studies on efficacy and safety of SBRT for refractory VT have been limited to single-center, small-sized studies with variable results.
- Difference in methodology and outcome measures makes it difficult to draw robust conclusions about outcomes from SBRT.
- Our analysis attempts to address this study variability by systematically analyzing the commonly reported efficacy outcomes from these studies.
- Although, our results affirm the promise of SBRT as additive therapy for refractory VT, comparative controlled studies are needed to confirm and add to these findings.

Figure 2

Forest plot 1. Rate ratio of VT episodes per patient-month (post- vs. pre-SBRT)



Forest plot 2. Rate ratio of ICD shocks per patient-month (post- vs. pre-SBRT)



DISCLOSURE INFORMATION

All authors have no disclosures to report.