

Effect of Radiofrequency Ablation (RFA) Dwell Time (+/-) ThermoDox on Safety and Overall Survival (OS) Among 452 Intermediate Solitary Hepatocellular Carcinoma (HCC) Patients Lesion 3-7cm Maximum Diameter: HEAT Study Data

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Purpose

We investigated whether RFA dwell time affects the safety and OS of HCC patients.

Patients and Methods

Lyso-thermosensitive liposomal doxorubicin (LTLTD, ThermoDox®) is administered intravenously. When heated to $\geq 40.0^{\circ}\text{C}$, LTLTD releases a tumor doxorubicin concentration up to 25 times greater than free (non-liposomal) doxorubicin at the same dose. The HEAT Study randomly treated 347 unresectable HCC patients with RFA alone and 354 with RFA plus LTLTD. To simplify analysis, only the 452 patients with a solitary lesion are included in this *post hoc* substudy.

Results

Overall Safety: Few differences in adverse event rates were seen. Neutropenia and leukopenia were more frequent with <45 minutes RFA. ALT and AST abnormalities were more frequent with ≥ 45 minutes RFA.

Solitary 3-5cm Lesion: With RFA monotherapy, median OS was 57.9 months for dwell times <45 minutes (N=62) and 63.0 months for dwell times ≥ 45 minutes (N=122). When RFA was combined with LTLTD, median OS was 55.0 months for dwell times <45 minutes (N=84) and 79.0 months for dwell times ≥ 45 minutes (N=111).

Solitary >5-7cm Lesion: With RFA monotherapy, median OS was 31.3 months for dwell times <45 minutes (N=9) and 45.5 months for dwell times ≥ 45 minutes (N=25). When RFA was combined with LTLTD, median OS was 25.3 months for dwell times <45 minutes (N=12) and had not been reached as of 80.0 months for dwell times ≥ 45 minutes (N=27).

Conclusion

Increasing RFA dwell time to ≥ 45 minutes is associated with a median OS increase of 5.1 months in 3-5cm lesions and 14.2 months in >5-7cm lesions. When combined with LTLTD, increasing RFA dwell time to ≥ 45 minutes is associated with a median OS increase of 24.0 months in 3-5cm lesions and more than twice as much in >5-7cm lesions. A prospective trial, The OPTIMA Study, is currently underway to confirm these findings.

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