

Comparison of Microwave and Radiofrequency Ablation in The Treatment of Pulmonary Metastasis of Colorectal Cancer

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Abstract: Background/aim: Radiofrequency ablation (RFA) for colorectal cancer pulmonary metastases (CRCPuIM) has been shown to be safe. Microwave ablation (MWA) has emerged in the treatment for CRCPuIM. However, short to long-term efficacy of both modalities have yet to be understood.

Patients and methods: This is a retrospective study of 203 patients who received RFA and MWA from 2000-2018 at a major tertiary hospital in Australia.

Results: A total of 161 patients underwent RFA and 42 MWA. Median ablation size and time was 4 (range=3-5 cm) vs. 3.5 cm (range=3-4 cm; $p=0.0395$) and 49 (range=26-65 min) vs. 8 min (5-13 min) in the RFA and MWA groups, respectively ($p<0.001$). The complication rate was 112 (55%) and 40 (74%) in the RFA and MWA group, respectively ($p=0.011$). Life-threatening pulmonary haemorrhage occurred in 1 (0.5%) and 4 (7.4%) patients in the RFA and MWA group, respectively ($p=0.007$). Local recurrences detected after discharge were similar in both groups [28% ($p<0.001$)]. However, the MWA group demonstrated higher survival rate and less recurrence rate than RFA in the first 24 months of follow up.

Conclusion: RFA and MWA are competitive treatment methods for CRCPuIM. Although MWA has significantly higher complication rate than RFA, it can be performed in a much shorter time and lead to a shorter length of hospital stay.

Keywords: Microwave ablation; colorectal cancer; pulmonary metastasis; radiofrequency ablation.