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Early experience of a commercial available robot (Maxio) for CT-guided radiofrequency ablation of liver tumours

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Abstract:

Purpose: To assess the accuracy of needle placement, radiation dose and performance level during robotic-assisted radiofrequency ablation (RFA) of liver tumours using a CT-guidance robotic system.

Methods and Materials: 30 patients were treated with RFA with the assistance of a robotic system (Maxio, Perfint Healthcare, USA). All the procedures were performed under general anaesthesia. Following baseline CT scans, the lesions were identified. The treatment was planned on the Maxio workstation. The accuracy of needle placement, number of readjustments and total radiation dose to each patient were recorded. The performance level was documented for each procedure on a five-point scale (5-1: excellent-poor). The radiation doses and readjustments were compared against 30 RFA patients treated without robotic assistance.

Results: RFA was successfully completed in all the patients. All the lesions were targeted successfully with the guidance of robot. Performance levels were all 5 except in one patient (4). The total radiation dose (CTDIvol) of the robotic-assisted RFA was 517.9+-320.2 mGy, whereas the conventional RFA was 832.2+-642.8 (p<0.05). The fluoroscopic dose (DLP) for the robotic and non-robotic assisted RFA were 355.1+-215.9 mGy.cm and 597.1+-437.6 mGy.cm, respectively (p<0.05). There were no immediate complications noted in either group.

Conclusion: Robotic-assisted RFA improves the accuracy of needle placement, reduce number of needle passes, and significantly reduce the total radiation dose to the patients.

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Author Disclosure Information: **B.J. Abdullah:** Equipment Support Recipient; Perfint. Investigator; Publication. Speaker; workshop. **C.H. Yeong:** None. **K. Goh:** None. **B. Yoong:** None. **G. Ho:** None. **A. Kulkarni:** None.

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Areas of Interest: Interventional non-vascular

Areas of Interest: Liver

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Imaging Technique: CT

Imaging Technique: Percutaneous

Procedure: Ablation procedures

Procedure: Technology assessment

Procedure: Instrumentation

Special Focus: Cancer

Special Focus: Metastases

Status: Complete

Questions?

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