

# **THE ROLE OF MAGNETIC RESONANCE GUIDED FOCUSED ULTRASOUND (MRgFUS), SAFETY AND EFFICACY IN TREATMENT OF PRIMARY BONE TUMOURS AND METASTATIC BONE DISEASE.**

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## **INTRODUCTION:**

Magnetic resonance guided focused ultrasound (MRgFUS) is a new modality in the management of bone tumours. The safety and efficacy of MRgFUS was assessed in primary (malignant and benign) bone tumours and metastatic bone disease.

The present study was aimed to investigate the safety, efficacy and feasibility of using magnetic resonance guided focused ultrasound (MRgFUS) for the treatment of benign tumours of bone with intent of complete ablation of tumour, for primary malignant bone tumours with intent to get the surgical margin and for metastatic bone disease with intent to get pain relieve after periosteal ablation.

## **METHODS:**

26 patients with biopsy-proven primary malignant bone tumours, metastatic bone disease or benign bone tumours were treated with one session of MRgFUS. Contrast enhanced MRI after the procedure was used to assess and quantify the area of ablation. All the patients under the treatment were followed up for three months to assess for the side effects and pain scores after the treatment. Histopathological assessment for the patients with primary malignant bone tumours was also done.

## **RESULTS:**

Significant volume of ablation was noted on contrast enhanced MRI after the treatment. We were able to ablate the benign tumours of the bone and patients stayed asymptomatic. The

patients with metastatic bone disease were successfully treated with significant decrease in pain scores. We were also able to ablate the sections of primary malignant tumours with significant finding of coagulative necrosis on post procedure MRI. Follow up assessment of pain scores showed significant decrease in VAS pain scores and also decreased reliance on pain medications. Only two patients showed significant side effects after the treatment.

## **CONCLUSION:**

MRgFUS is potentially effective, safe and non-invasive procedure that can be part of the management of primary (malignant and benign) and metastatic bone tumours.