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## CT/MR图像融合评价肝癌消融的安全边界

### CT/MR image fusion in evaluating ablative margin after radiofrequency ablation of hepatocellular carcinoma

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中文关键词: [肝肿瘤](#) [体层摄影术](#) [X线计算机](#) [磁共振成像](#) [消融技术](#)

英文关键词: [Liver neoplasms](#) [Tomography, X-ray computed](#) [Magnetic resonance imaging](#) [Ablation techniques](#)

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中文摘要:

目的 探讨CT/MR图像融合评价肝癌消融安全边界(AM)的可行性。方法 选取消融术后1个月增强CT/MR提示肿瘤消融完全的肝癌患者39例共44个病灶,利用图像融合系统,在术前CT/MR图像上勾勒肿瘤及AM的范围,与术后CT/MR图像进行对位融合,根据消融灶覆盖肿瘤和AM情况,分为达到AM组和未达AM组。随访术后局部肿瘤进展(LTP)发生情况,比较两组LTP发生率的差异。结果 对43个病灶完成图像融合,成功率97.73%(43/44),图像融合时间4~11 min,平均(7.0±2.0)min;融合图像评估AM用时5~10 min,平均(7.1±1.3)min。43个病灶中,24个消融后达到AM,随访未出现LTP;19个未达AM,随访中4例出现LTP;达到AM组术后LTP发生率明显低于未达到AM组( $P=0.031$ )。结论 CT/MR图像融合能较准确地评价肝癌AM,消融术后未达AM者易发生LTP。

英文摘要:

**Objective** To observe the feasibility of CT/MR image fusion for evaluating ablative margin (AM) after radiofrequency ablation (RFA) of hepatocellular carcinoma(HCC). **Methods** Forty-four HCC lesions in 39 patients received RFA and then were diagnosed as completely ablated by CT/MR 1 month later. Using image fusion system, the tumor and AM were outlined in CT/MR images before RFA. Positioning integration of CT/MR image was done before ablation and 1 month after ablation. Fusion images were divided into reached AM group and not reached AM group according to whether the ablative zone could cover the area of index tumor and AM or not. By follow-up, the local tumor progression (LTP) could be monitored and the incidence rate of LTP between the two groups were compared. **Results** Image fusion was performed successfully for 43 lesions (43/44, 97.73%). The average fusion time was 4-11 min (min in average). Evaluation time was 5-10 min (min in average). AM was reached in 24 lesions, among which no LTP occurred during following-up. AM was not reached in 19 lesions, LTP occurred in 4 of them during following-up. The incidence rate of LTP in reached AM group was lower than that of not reached AM group ( $P=0.031$ ). **Conclusion** CT/MR image fusion can accurately evaluate AM of HCC after RFA, and lesions not reached AM after RFA are likely to develop LTP.

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