Background Radiofrequency ablation (RFA) is one of the curative therapies for HCC patients. However, post-RFA local recurrence is a major factor limiting the outcome. The aim of this study was to evaluate the recurrent rate and analyse the risk factors for local recurrence of percutaneous Radiofrequency Ablation using Cool-tip electrode for the treatment of HCC.

Methods A prospective study involved 82 cirrhotic HCC patients (mean tumour size: 3.2±1.1 mm) underwent percutaneous Radiofrequency Ablation using Cool-tip RF electrode (COOL-TIP E SERIES, COVIDIEN) at the 108 Hospital, from September 2012 to November 2017. We use single gauge, cluster, or multiple electrodes with an exposed needle tip of variable length (2, 3, or 4 cm). The rate of recurrence was recorded, and the prognostic factors for the tumour local recurrence were determined.

Results There were 37/75 of patients presented recurrence after achieved complete response, including local recurrence in 11/75 (14.7%) new nodule recurrence in 16/75 (21.3%) and both local and new nodule recurrence in 7/75 (9.3%). The mean time of recurrence was 23 months (12-45 months). Tumour size (3 cm-5 cm), tumour location (close to vascular), size of ablative margin (<0.5 cm), and high serum AFP level had a significant adverse prognostic factor for local tumour recurrence.

Conclusions Although RFA using Cool-tip is an effective treatment for local tumour control in HCC patients, the long term result depends on some prognostic factors before treatment.