EFFICACY AND THE SAFETY OF ENDOSCOPIC ULTRASOUND GUIDED RADIOFREQUENCY ABLATION OF PANCREATIC TUMORS: A SYSTEMATIC REVIEW AND META-ANALYSIS

INTRODUCTION: Radiofrequency ablation (RFA) is well-established therapy for the treatment of solid organ tumor. We aimed to determine the efficacy of endoscopic ultrasound guided RFA (EUS-RFA) in management of pancreatic tumors.

METHODS: Studies were selected from PubMed search as of October 2020. The primary outcomes were technical success rate (TSR) and clinical success rate (CSR) of EUS-RFA, while secondary outcome was adverse events rate (AER). The TSR was defined as successful placement of probe within the tumor and ability to perform ablation. CSR was defined as symptomatic improvement and/or any reduction in tumor size following EUS-RFA.

RESULTS: 12 studies including 114 patients (50% (57) females) were included. Common tumors were locally advanced pancreatic ductal adenocarcinoma 38.3%, neuroendocrine 32%, cystic neoplasm 14.8% located predominantly in pancreatic head 45.7%. The average number of ablation sessions per patient was 1.4 based on the total of 115 EUS-RFA sessions performed in 84 neoplastic lesions. The pooled TSR of EUS-RFA calculated from the total number of procedures was 99.2% [95% CI = 0.90-0.98, I^2 = 0%]. The pooled CSR calculated from the total number of pancreatic lesions was 91.9% [95% CI = 0.77-0.92, I^2 = 0%]. The pooled AER was 24.6% [95% CI = 0.17-0.39, I^2 = 30%].

CONCLUSIONS: EUS-RFA is a promising modality with a high efficacy in the management of pancreatic tumors that may be alternative to surgical resection in selected patients. However, large clinical trials are needed to identify overall survival benefits of EUS-RFA in different stages of pancreatic cancer.