

## Irreversible electroporation

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**Lecture :** The majority of patients with pancreatic adenocarcinoma present at a late stage with extensive vascular involvement or metastatic disease. When the celiac axis or superior mesenteric artery are involved by tumor (T4 disease according to TNM classification), prognosis is poor with median survival of only 8-13 months even after chemotherapy and radiation. The anatomical association of pancreatic tumors with the bile duct, portal vein, celiac and superior mesenteric arteries have been a contraindication to thermal ablation, an effective therapy for solid tumors, because of indiscriminate tissue destruction and heat-sink effects. Irreversible electroporation (IRE) generated by a high voltage direct current device means to overcome the limitations of thermal ablation technologies. Studies have demonstrated acceptable morbidity and mortality rates, and favorable survival outcomes for both primary control and margin extension at the time of resection of pancreatic tumors. This presentation will cover: 1) IRE technology; 2) Indications for the treatment of pancreatic cancer with IRE; 3) Standardized technique for IRE; 4) Prospective data for 139 consecutive patients operated with IRE for T4 lesions at a single tertiary center, Columbia University Medical Center, New York, New York. Whether IRE offers an advantage over modern-era chemotherapy and radiotherapy will be arbitrated.