

Non-Thermal Irreparable Electroporation

Treatment protocol and Trials

Prostate NTIRE Protocol

Irreversible Electroporation (IRE): Standardization of Terminology and Reporting Criteria for Analysis and Comparison

Johann J. Wendler, Katharina Fischbach, Jens Ricke, Julian Jürgens, Frank Fischbach, Jens Köllermann, Markus Porsch, Daniel Baumunk, Martin Schostak, Uwe-Bernd Liehr, and Maciej Pech, *Pol J Radiol.* 2016; 81: 54–64.

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interventional oncology Amy R. Deipolyi, Alexander Golberg, Martin L. Yarmush, Ronald S. Arellano, and Rahmi Oklu

Prostate NTIRE Trials.

Onik G, Rubinsky B. *Irreversible electroporation: First patient experience focal therapy of prostate cancer.* In: Nagel J, ed. *Irreversible Electroporation.* Berlin: Springer Berlin Heidelberg, 2010: 235–247.

Tsivian M, Polascik TJ. *Bilateral focal ablation of prostate tissue using low-energy direct current (LEDC): A preclinical canine study.* *BJU Int* 2013; 112:526–530.

Valerio M, Stricker PD, Ahmed HU, et al. *Initial assessment of safety and clinical feasibility of irreversible electroporation in the focal treatment of prostate cancer.* *Prostate Cancer Prostatic Dis* 2014; 17:343–347.

van den Bos W, de Bruin DM, Veelo D, et al. *Quality of life and safety outcomes following irreversible electroporation treatment for prostate cancer: Results from a phase I-II study.* *J Cancer Sci Ther* 2015; 7:312–321.

van den Bos W, Jurhill RR, de Bruin DM, et al. *Histopathological outcomes after irreversible electroporation for prostate cancer: Results of an ablate and resect study.* *J Urol* 2016; 196:552–559.

van den Bos W, de Bruin DM, Jurhill RR, et al. *The correlation between the electrode configuration and histopathology of irreversible electroporation ablations in prostate cancer patients.* *World J Urol* 2016; 34:657–664.

van den Bos W, Scheltema MJ, Siriwardana AR, et al. *Focal irreversible electroporation as primary treatment for localized prostate cancer.* *BJU Int* 2018; 121:716–724.

Guenther E, Klein N, Zapf S, et al. *Prostate cancer treatment with irreversible electroporation (IRE): Safety, efficacy and clinical experience in 471 treatments*. PLoS One 2019;14: 0215093.

Pancreas NTIRE Trials.

Martin RCG, Scoggins CR, Egnatashvili V, et al. *Arterial and venous resection for pancreatic adenocarcinoma: operative and long-term outcomes*. Arch Surg 2009;144: 154–159.

Charpentier KP, Wolf F, Noble L, et al. *Irreversible electroporation of the pancreas in swine: A pilot study*. HPB (Oxford) 2010; 12:348–351.

Martin RCG, McFarland K, Ellis S, et al. *Irreversible electroporation therapy in the management of locally advanced pancreatic adenocarcinoma*. J Am Coll Surg 2012; 215:361–369.

Martin RCG, McFarland K, Ellis S, Velanovich V. *Irreversible electroporation therapy in the management of locally advanced pancreatic adenocarcinoma*. J Am Coll Surg. 2012; 215:361–369.

Narayanan G, Hosein PJ, Arora G, et al. *Percutaneous irreversible electroporation for downstaging and control of unresectable pancreatic adenocarcinoma*. J Vasc Interv Radiol 2012; 23: 1613–1621.

Martin RCG, McFarland K, Ellis S, et al. *Irreversible electroporation in locally advanced pancreatic cancer: Potential improved overall survival*. Ann Surg Oncol 2013; 20:443–449.

Martin RCG, Kwon D, Chalikonda S, et al. *Treatment of 200 locally advanced (Stage III) pancreatic adenocarcinoma patients with irreversible electroporation safety and efficacy*. Ann Surg 2015; 262:486–492.

Pandya GJ, Shelat VG. *Radiofrequency ablation of pancreatic ductal adenocarcinoma: The past, the present and the future*. World J Gastrointest Oncol 2015; 7:6–11.

Akinwande O, Ahmad SS, Van Meter T, et al. *CT Findings of patients treated with irreversible electroporation for locally advanced pancreatic cancer*. J Oncol 2015; 2015:1–8.

Mansson C, Brahmstaedt R, Nilsson A, et al. *Percutaneous irreversible electroporation for treatment of locally advanced pancreatic cancer following chemotherapy or radiochemotherapy*. Eur J Surg Oncol 2016; 42:1401–1406.

Belfiore G, Belfiore MP, Reginelli A, et al. *Concurrent chemotherapy alone versus irreversible electroporation followed by chemotherapy on survival in patients with locally advanced pancreatic cancer*. Med Oncol 2017; 34–38.

Howlander N, Noone A, Krapcho M, et al. *SEER Cancer Statistics Review, 1975–2016*. Bethesda: SEER, 2018.

Leen E, Picard J, Stebbing J, et al. *Percutaneous irreversible electroporation with systemic treatment for locally advanced pancreatic adenocarcinoma*. J Gastrointest Oncol 2018; 9:275–281.

Paiella S, De Pastena M, D’Onofrio M, et al. *Palliative therapy in pancreatic cancer—Interventional treatment with radiofrequency ablation/irreversible electroporation*. Transl Gastroenterol Hepatol 2018; 3: 80.

Flak RV, Stender MT, Jensen TM, et al. *Treatment of locally advanced pancreatic cancer with irreversible electroporation—A Danish single center study of safety and feasibility*. Scand J Gastroenterol 2019; 54:252–258.

Liver NIRE Trials

Kingham TP, Karkar AM, D’Angelica MI, et al. *Ablation of perivascular hepatic malignant tumors with irreversible electroporation*. J Am Coll Surg. 2012; 215:379–387.

Cannon R, Ellis S, Hayes D, Narayanan G, Martin RC., *2nd Safety and early efficacy of irreversible electroporation for hepatic tumors in proximity to vital structures*. J Surg Oncol. 2013; 107:544–549.

L D Oliver AM PhD
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