

Trans-Arterial Chemotherapy for Treatment of Locally Advanced Pancreatic Cancer: Treatment Factors Impacting Survival

H. Charles Li – RenovoRx

Alex S. Tsobanoudis, Jiali Li, Alexander Rosemurgy, J. Augusto Bastidas, Emmanuel Zervos, Steven Goldin, Peter Muscarella II, Charles Nutting, Barish Edil, Reza Malek, Ramtin Agah

Disclosures

- This study was funded by RenovoRx (Los Altos, CA)

LAPC Background and Current Treatments

- By the end of 2020, pancreatic cancer is expected to be 2nd most deadly cancer
- While surgical resection is the best course, due to location of pancreas, tumors in the pancreas are hard to detect until locally advanced and unresectable
- Current standard treatment for locally advanced unresectable pancreatic cancer is systemic chemo
 - Pancreatic tumors are avascular and surrounded by dense matrix, hence systemic chemo not efficacious
 - Median OS is generally 12 to 15 months

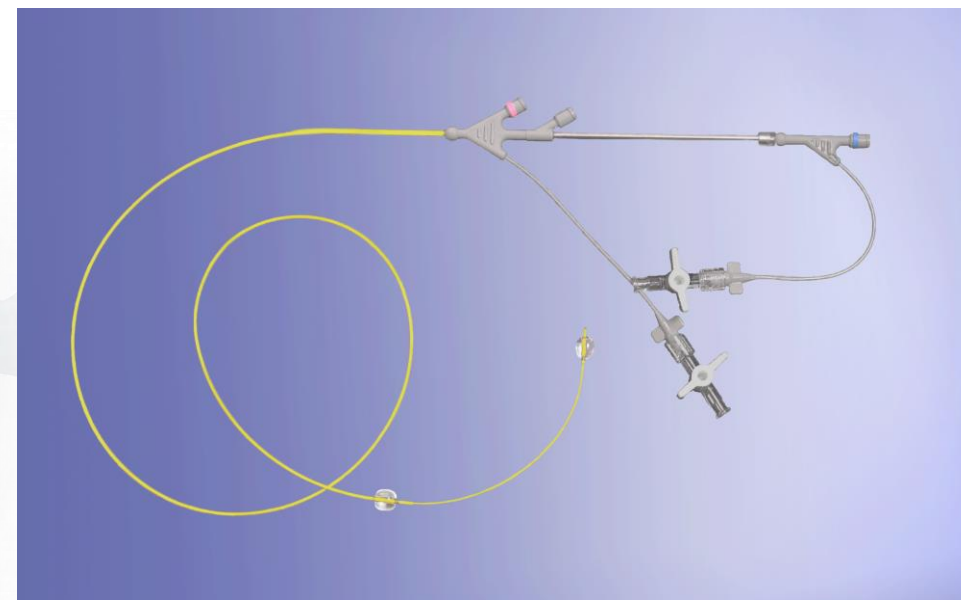
LAPC Background and Current Treatments

- Trans-Arterial Micro Perfusion (TAMP) is a new technique being used to deliver gemcitabine locally to pancreatic adenocarcinoma in patients that are not candidates for curative resection
- The technique involves occluding the vessel adjacent to the tumor, using a dual balloon catheter, then infusing the drug between the balloons to create a pressure gradient resulting in diffusion of the drug across the arterial wall into the surrounding tissue – including the tumor

RenovoRx is developing therapies for localized treatment of solid cancer tumors to **Increase Survival & Improve Quality of Life**

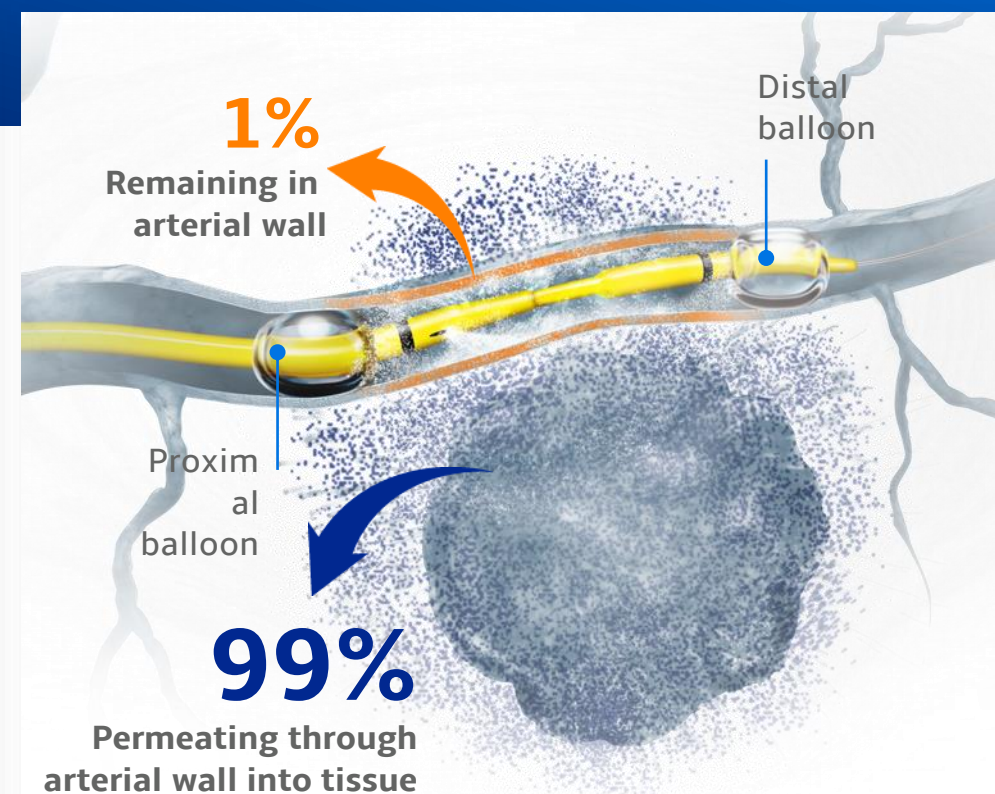
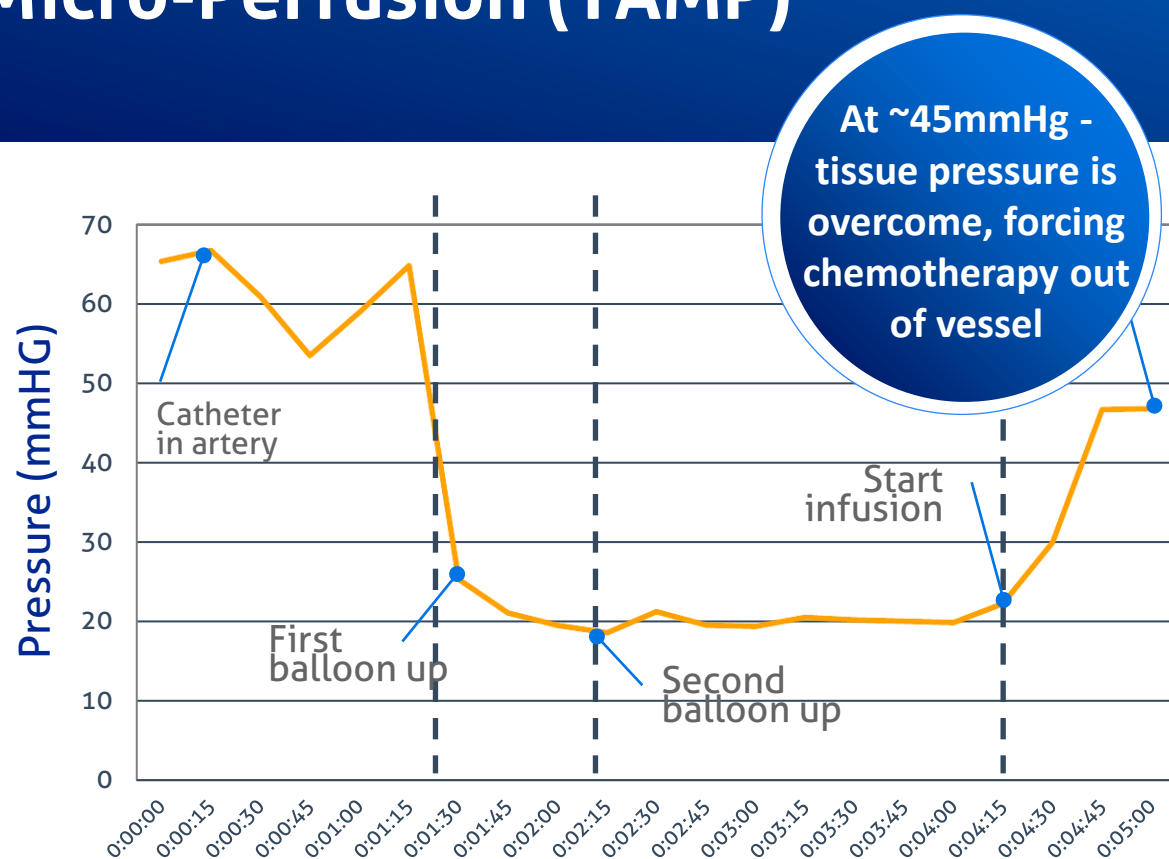
RX The RenovoCath™ System

Trans-Arterial Micro-Perfusion (TAMP) isolates the anatomy and micro-perfuses targeted tissue with (Intra-Arterial gemcitabine)



Mechanism: pressure mediated Trans-Arterial Micro-Perfusion (TAMP)

Gemcitabine distribution



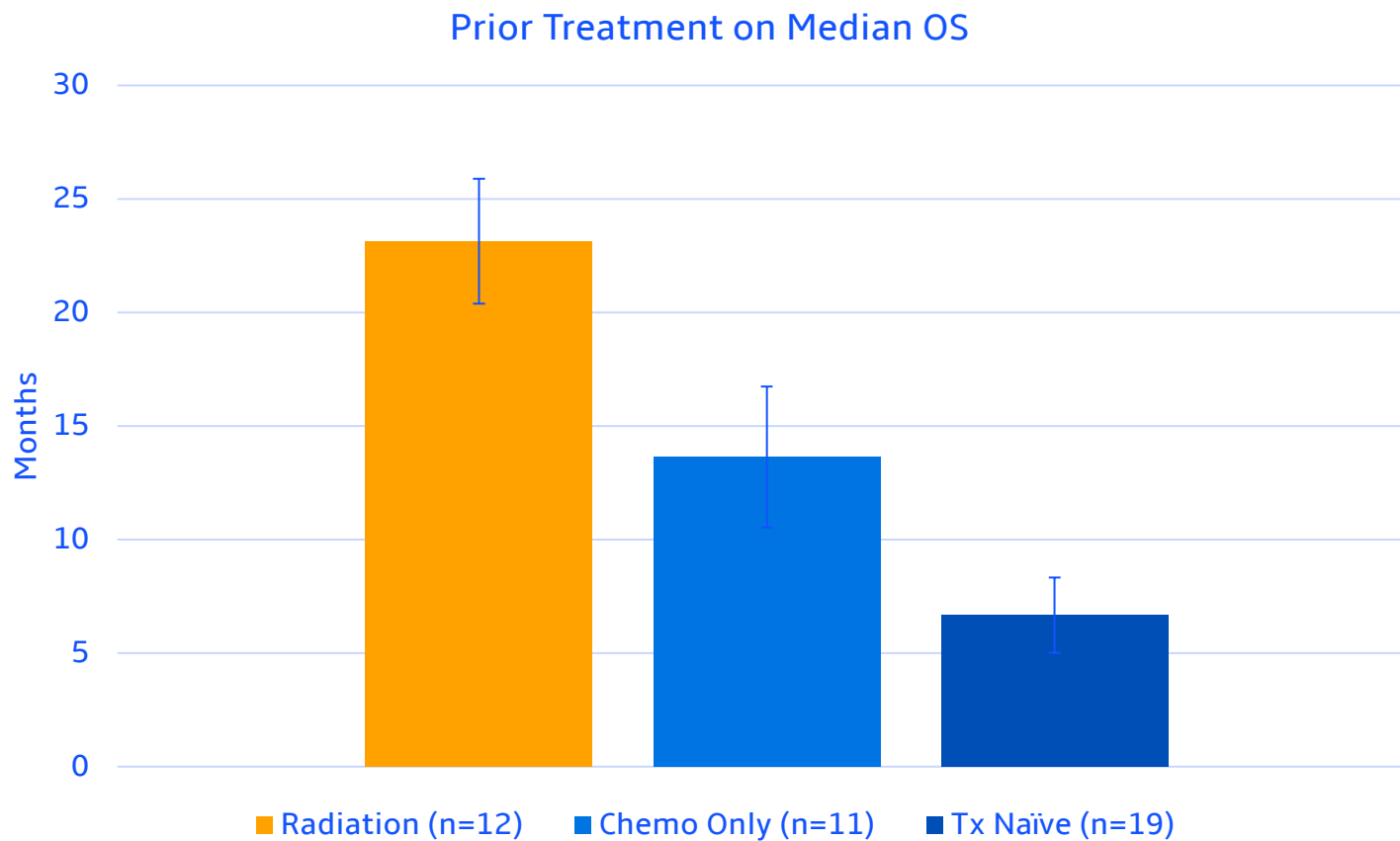
Methods

- Eight US sites enrolled 43 patients receiving over 190 total IA treatments using RenovoCath, as part of a Phase I/II safety and follow-up registry studies. Nineteen patients were treatment naïve, 11 patients had prior chemotherapy, and 12 had prior chemoradiation, with 1 patient having had prior whipple procedure.
- Treatment involved isolating portion of artery abutting pancreatic tumor and infusing gemcitabine over 20 minutes.
- Most received full dose (1000mg/m²) and was well tolerated
- Treatment arteries included SMA, celiac, common hepatic, and splenic, or a combination

Methods

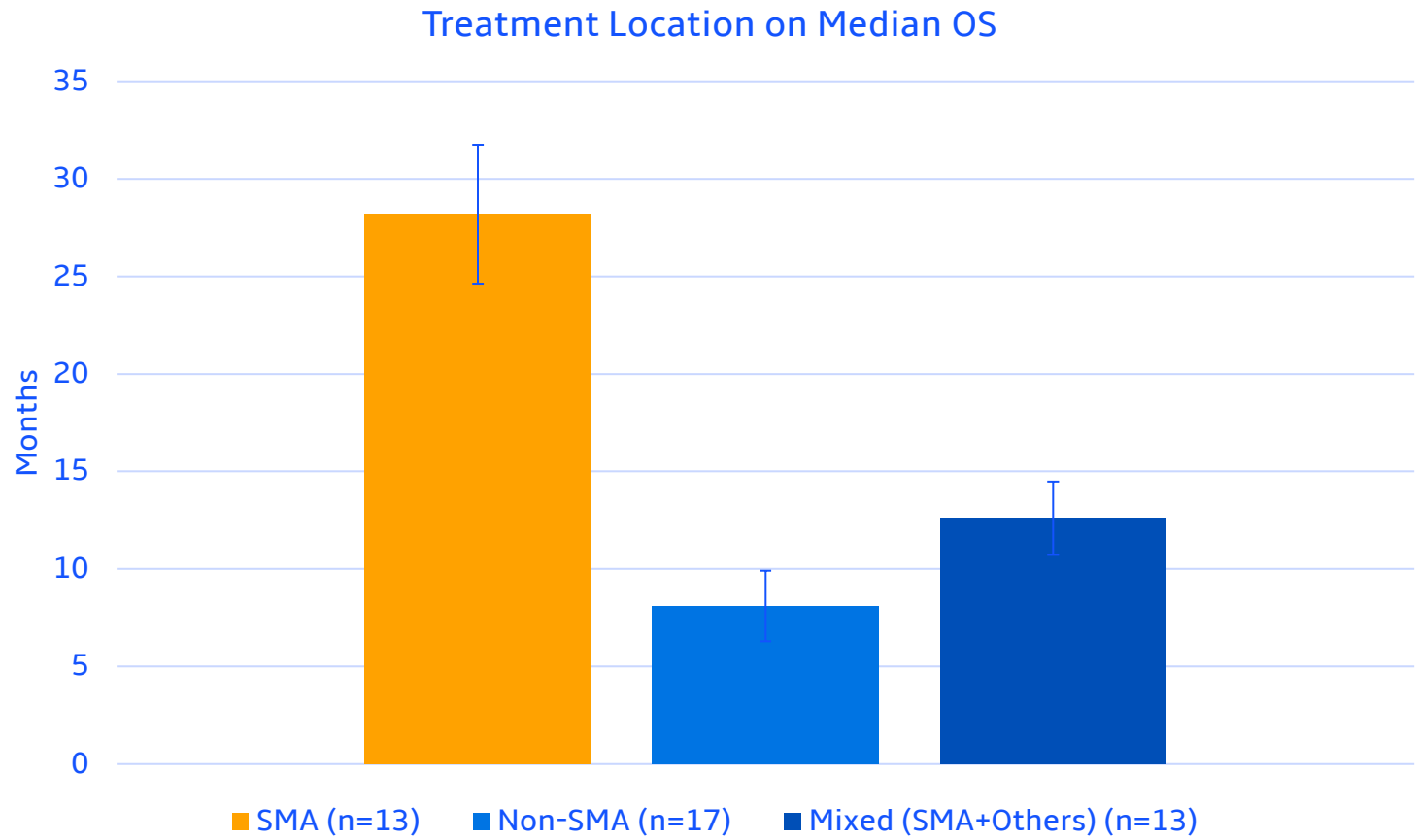
- We analyzed these data in 43 patients in 2 studies that received up to 190 TAMP treatments
- The following variables showed correlation for improved survival in multivariate analysis:
 - Prior treatment (radiation, chemotherapy, or treatment naïve)
 - Location of treatment
 - Number of treatments

Results – Prior Treatment



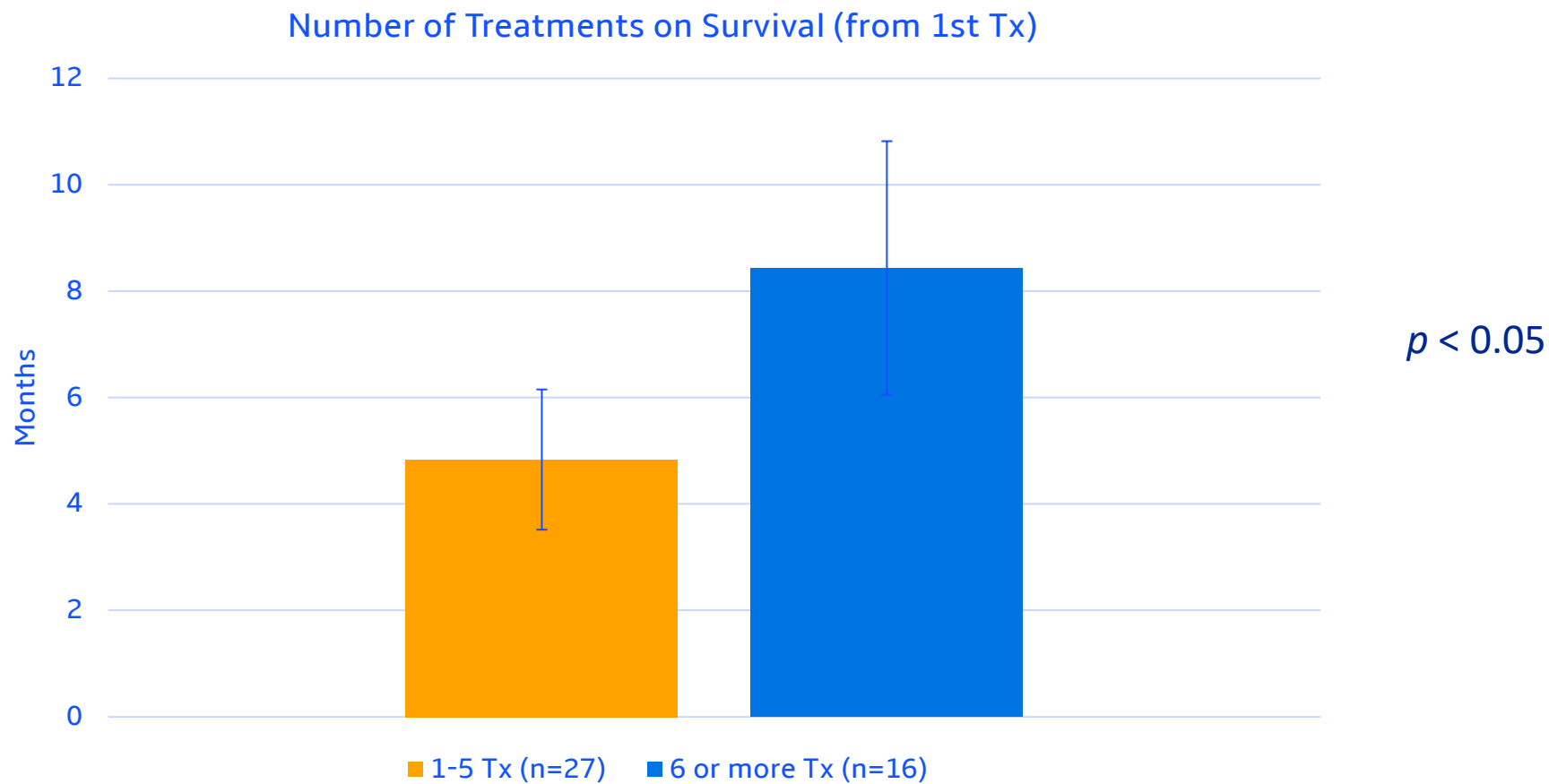
$p < 0.01$

Results – Treatment Location



$p < 0.01$

Results – Number of Treatments

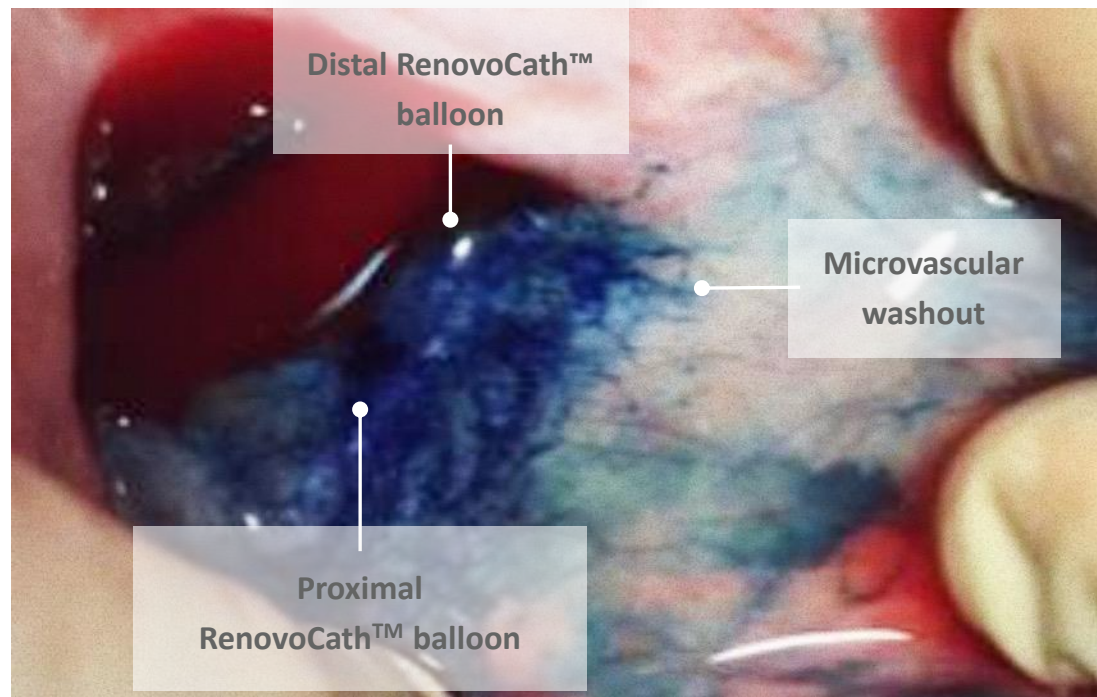


Summary/Conclusion

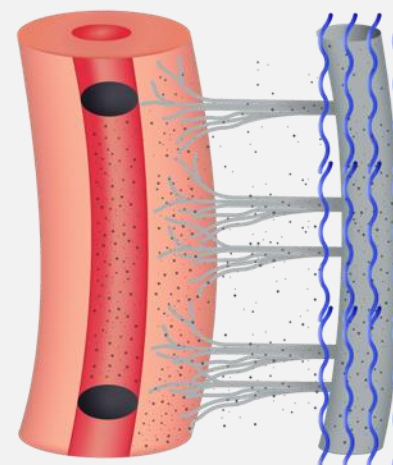
- Intra-arterial gemcitabine/TAMP is safe and efficacious
- Increased number of treatment shows greater survival benefits
 - Patients had varying number of treatments, ranging from 1 to 14
- Patients receiving radiotherapy prior to direct, intra-arterial gemcitabine infusion were shown to have better survival than patients receiving prior systemic chemo or no prior treatments.
 - Radiation damages and eliminates microvasculature around the tumor, allowing targeted, local chemotherapy to more directly reach the tumor, as opposed to washing out in the vasculature.

Mechanism : Trans-Arterial Micro-Perfusion (TAMP) combined with radiation

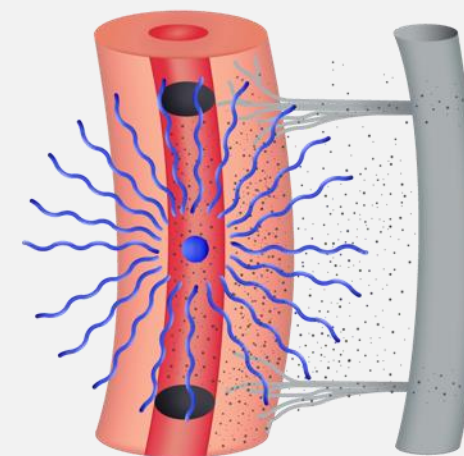
Radiation reduces venous outflow by decreasing the microvasculature



Native vasculature and IA chemo lead to **Micro-vascular washout**



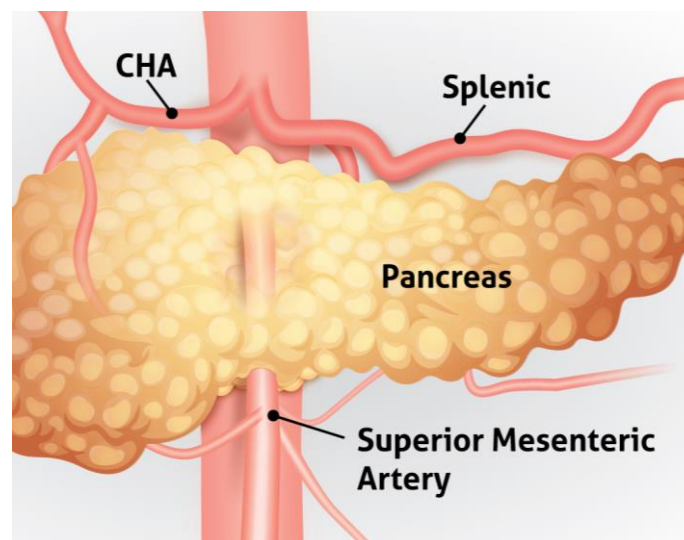
Irradiated vasculature and IA chemo lead to **Diffusion**



Summary/Conclusion

- Using the RenovoCath via the SMA showed increased benefit compared to treatment in other arteries.
 - Despite avascular tumor, the SMA is the largest and closest artery supplying the pancreas.

SMA is surrounded by pancreatic tissue = better tissue penetration



Summary/Conclusion

- Current Phase III trial on-going to compare intra-arterial gemcitabine (TAMP) vs. SOC gemcitabine and nab-paclitaxel (systemic IV)