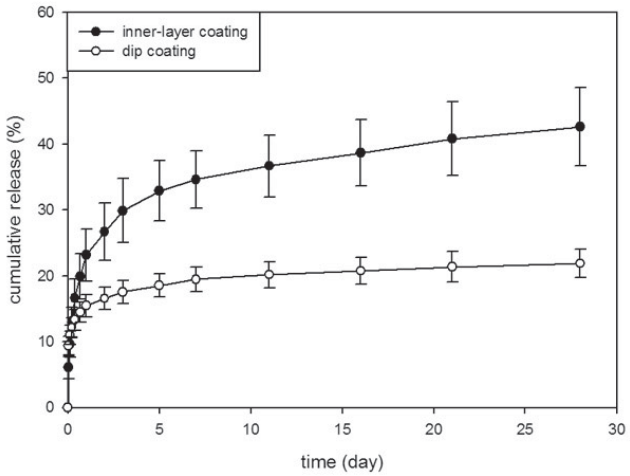
F-PO1567

New Method of Paclitaxel Coating on the Inner Surface of ePTFE Vascular Graft Insu Baek,[1] Cheng Zhe Bai,[1] Jong-sang Park,[1] Dae Joong Kim.[2] *[1]School of Chemistry & Molecular Engineering, Seoul National University, Seoul, Korea; [2]Division of Nephrology, Samsung Medical Center, Seoul, Korea.*

Background: Recently we reported that paclitaxel-coated ePTFE grafts could prevent neointimal hyperplasia and the stenosis of arteriovenous hemodialysis grafts in porcine model. As neointimal hyperplasia is localized within the inner side of vascular and graft lumen, paclitaxel loaded on the outer layer of the vascular graft may suppress the adhesion between the connective tissue and implanted graft. We developed new coating method to load drug only inside of the graft. This ePTFE graft may hold desirable adhesion properties to surrounding tissue and inhibition of venous neointimal hyperplasia, with reduced side effect of paclitaxel.

Method: Dry paclitaxel was dissolved in acetone water mixed solution which was flowed through the graft using a peristaltic pump. Graft was wrapped by Teflon in order to examine the outside leakage of paclitaxel. Paclitaxel amount of graft inner layer and outer leakage were measured by high performance liquid chromatography (HPLC).

Result: No outer leakage of paclitaxel coating solution with various ratios (acetone: water = 7:3, 8:2, 9:1) was observed. At appropriate coating condition, paclitaxel was evenly coated on the inner layer of graft with 0.22ug/mm^2 dose. Scanning electron microscopy (SEM) images showed that graft surface was not changed significantly after paclitaxel coating. Paclitaxel was released from the inner layer of graft with small initial burst compared with paclitaxel-coated graft made by dip coating method for 5 hours. At 28 day of in vitro release, cumulative release of paclitaxel inner-coated graft was larger than that of dip coated graft.



Conclusion: We devised a new method of paclitaxel coating only on the inner layer of ePTFE graft, which may prevent graft stenosis without other unwanted effect of paclitaxel.

Disclosure of Financial Relationships: nothing to disclose

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Time- and Concentration-Dependent Effects of Recombinant Human Elastase (PRT-201) on the Elastin Content of Human Upper Extremity Veins Treated Ex Vivo Steven K. Burke,[1] Karen Macdonald,[2] David Bunton,[2] Barry Starcher,[3] Bee C. Ding,[1] F. Nicholas Franano.[1] *[1]Proteon Therapeutics, Waltham, MA; [2]Biopta, Glasgow, United Kingdom; [3]University of Texas, Tyler, TX.*

Vascular tissue contains abundant elastin that contributes to vessel compliance. PRT-201 is a recombinant human type I pancreatic elastase that has been shown to cleave elastin fibers resulting in increased vessel lumen diameter in animals. The purpose of this ex vivo study was to determine the elastin content of veins commonly used in hemodialysis access surgery and establish the relative sensitivity of these veins to elastin removal by PRT-201. Human upper arm basilic (BV), upper arm cephalic (UAC) and lower arm cephalic (LAC) veins were dissected post mortem from both right and left arms of 3 donors and then cut into rings approximately 2 mm in length. Rings were incubated in the absence or presence of PRT-201 at 37°C. Elastin content was estimated by quantifying desmosine, a protein cross-link unique to elastin. At baseline, elastin content was greatest in BV and least in LAC rings. In all vein ring types, PRT-201 removed elastin in a time- and concentration-dependent manner.

Average Desmosine (pM/mg total protein)

Time at 0.5 mg/mL	BV	UAC	LAC
0 min	3761±2631	2445±1937	1626±581
5 min	3340±2381	1286±1016	2004±1141
15 min	2673±2157	1146±1012	1282±814
30 min	2258±1778	607±479	608±321
60 min	1667±1312	597±689	800±655
Conc. for 15 min			
0.1 mg/mL	3338±2575	2001±1547	1413±610
0.5 mg/mL	2673±2157	1146±1012	1282±814
1.0 mg/mL	2629±2471	725±780	638±336
2.0 mg/mL	1860±1201	482±529	731±620

+/- SD

Despite differences in baseline elastin content, elastin removal was obtained in all vein rings types albeit at shorter times and lower concentrations in the cephalic veins rings relative to the basilic vein rings. Clinical trials are exploring the immediate dilation effects of various PRT-201 doses applied over 10 minutes on AVF and AVG outflow vein diameters at the time of surgery.

Disclosure of Financial Relationships: employer: Proteon.

F-PO1569

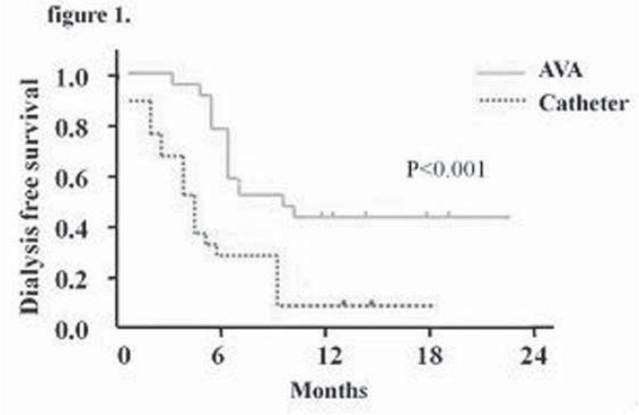
Arteriovenous Access (AVA) Creation Delayed Time To Initiate Chronic Hemodialysis (CHD) Jin Uk Jeong,[1] Soon Bae Kim,[1] Jung-Sik Park,[1] Tae Won Kwon.[2] *[1]Internal Medicine, Asan Medical Center, Seoul, Korea; [2]Vascular Surgery, Asan Medical Center, Korea.*

Propose; This study was performed to evaluate whether AVA creation before hemodialysis is associated with time to initiate CHD.

Method; This was a retrospective, case-control study comparing 40 patients who made AVA than 2 months before CHD (AVA group) with age, sex, underlying disease, and rate of decline on estimated GFR (eGFR) before AVA creation matched 40 control patients who initiated CHD through temporary catheter (catheter group). The eGFR was obtained with MDRD equation. Zero point (Z Point) was defined as the date of AVA creation in the AVA group or the date of same eGFR on the plot with that of matched AVA patient in the catheter group. Time-to-dialysis was defined as the time from Z point to the date of initiating dialysis. Differences in survival curves were compared using the log-rank test. A Cox proportional hazards model was used to identify independent predictors. The rate of change of eGFR(ml/min) per month(ΔeGFR) before and after Z point were also measured.

Results; There were no significant differences in baseline characteristics between the two groups.The eGFR at Z Point in AVA group was11.9±3.3ml/min/1.73m^2 and 11.9±3.2 in catheter group. The eGFR at time of dialysis were 6.2±2.1 in AVF group and 5.9±2.1 in catheter group. Mean dialysis free time was significantly longer in AVA group(13.1±8.4months) than catheter group(5.8±4.5 months).

figure 1.



Multivariate proportional Cox hazard modeling showed that AVA group and Z-point eGFR were independent predictors. ΔeGFR before Z point were not significantly different between 2 groups.However comparing ΔeGFR after Z Point, ΔeGFR was significantly decreased in AVF group (-0.74 VS -0.07, P<0.01) while no significant difference was observed in catheter group.

Conclusion;

AVA creation might delay time to initiate CHD and retard the rate of decline of GFR.

Disclosure of Financial Relationships: nothing to disclose

F-PO1570

Improved Patient Satisfaction and Performance with Blunt Buttonhole Needling Technique for Arterio-Venous Fistulae Kate Shaw,[1] Janice Ward,[2] Andrew Davenport.[3] *[1]Barnet Renal Unit, Royal Free Hospital, London, United Kingdom; [2]Barnet Renal Unit, Royal Free Hospital, London, United Kingdom; [3]UCL Centre for Nephrology, Royal Free Hospital, London, United Kingdom.*

Introduction: Traditionally native arteriovenous fistulae (AVF) have been needled using sharp pointed bevelled needles in a rope ladder or area puncture fashion. However, the recent introduction of blunt needles has allowed buttonhole cannulation, using exactly