Virtual Visits Versus In-Person Visits and Appointment No-Show Rates

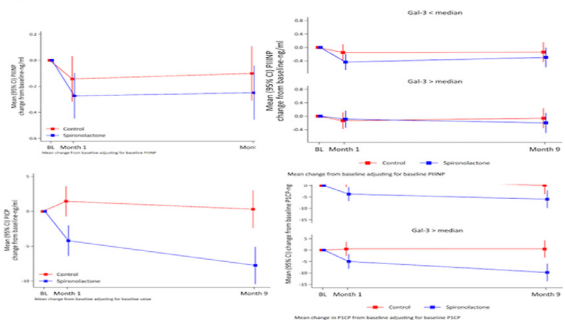
Eiran Z. Gorodeski, Laurie Ann Moennich, Haris Riaz, W.H. Wilson Tang; Cleveland Clinic, Cleveland, OH

Introduction: Published guidelines recommend that patients being discharged home after hospitalization for HF should be offered a 7 to 14 day post-discharge outpatient clinic visit as a way to increase engagement with care and reduce risk of poor outcomes (ACCF/AHA Class IIa recommendation). At our institution no-show rates for the 7-day post-discharge outpatient visit in this population are as high as 76%, suggesting poor engagement. A reason that patients may not show up for in-person visits may be related to the complexity, inconvenience, or difficulty of getting to the appointment. Virtual visits, secure telemedicine videoconferencing between a clinician and a patient at home using any available consumer device with audiovisual capabilities, are available for use via our institution. We hypothesized that substituting in-person visits with virtual visits may increase patient engagement with medical care therefore reducing no-show rates. **Methods:** Virtual Visits in Heart Failure Care Transitions (VIV-HF) is a randomized clinical trial (ClinicalTrials.gov Identifier: NCT03675828) comparing 7-day post-discharge virtual visits to in-person outpatient clinic visits among patients hospitalized for HF. The primary outcome is appointment no-show rates. The secondary outcomes are a composite and individual components of unscheduled all-cause first occurrence of hospital readmission, emergency department visit, or death, in the first 45 days after hospital discharge. We estimated that the no-show rate in the in-person arm would be 76% based on our historical experience, and 51% in the virtual visit arm. Based on this we estimated that we would need to follow approximately 108 patients to provide the study with a power of 80% to detect a difference of 25% between the study groups, at an overall two-sided alpha level of 0.05. **Results:** As of the date of this submission July 1, 2019, we have enrolled 100 patients (93% of goal). We anticipate finishing recruitment and ascertainment of the primary end-point by mid-August 2019. **Conclusions:** ViV-HF is testing the hypothesis that substituting in-person visits with virtual visits may increase patient engagement with medical care therefore reducing appointment no-show rates. Results will be presented as a late breaking clinical trial at the Heart Failure Society of America Annual Scientific Meeting in Philadelphia, in September 2019.

Homage Proof of Concept Trial of Spironolactone for the Prevention of Heart Failure

Faiez Zannad[1], Joao Pedro Ferreira[1], John Cleland[2]; [1]CIC-P Nancy, Vandoeuvre-les-Nancy, France; [2]Univeristy of Glasgow, Glasgow, United Kingdom

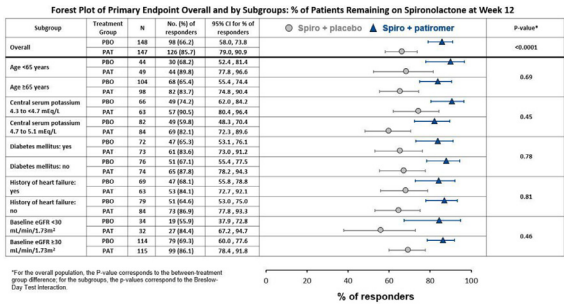
Introduction: In patients at risk of developing heart failure (HF), targeting cardiac fibrosis might be a major determinant of slowing the progression HF. **Hypothesis:** HOMAGE (Heart OMics in AGEing) investigated whether a 9-month exposure to spironolactone can favourably alter markers of progression to HF. **Methods:** In this proof-of-concept, multicentre, randomized, open-label with blinded evaluation design (PROBE) trial, we compared the effect of spironolactone 25-50 mg/day to standard care in patients aged 60 or more, at risk of developing HF (coronary artery disease and/or diabetes and/or hypertension, and NT-pro BNP 125 to 1,000 ng/L or BNP 35 to 280 ng/L, and no HF history, signs or symptoms. Patients were assessed at baseline, 1, 3 and 9 months for changes in peptides Procollagen Type III N-Terminal Peptide (PIIINP) and Carboxy-Terminal Propeptide of Type 1 Procollagen (P1CP) (primary endpoint). Secondary end-points include changes in cardiac dimensions and function, functional capacity, NTproBNP and multi-omics biomarker profiles (Olink proteomics, miRNA, MS metabolomics and transcriptomics). Whether the effect can be predicted by the baseline bioprofiles was assessed using interaction analysis. **Results:** A total of 527 patients were randomised, 265 to spironolactone and 262 to usual care. The treatment groups were well balanced (aged 73 years, 26% female, 40% diabetes 71% history of myocardial infarction, blood pressure 140/78 mmHg, eGFR 72 ml/min, LVEF 63%, the left atrial volume (LAV) 60 ml, LV mass 180g, median PIIINP 4 (3-5) ng/mL, PICP 80 (65-97) ng/mL, and Galectin-3 16 (13-20) ng/mL. Spironolactone did not significantly affect the PIIINP levels: -0.15 (-0.44, 0.15), p=0.32 but PICP was significantly reduced by spironolactone: -8.1 (-11.9, -4.3), p=0.001, increased LVEF +1.2 (0.2, 2.2), p=0.022, reduced LAV -2.5 (-4.5, -0.6), p=0.010, and tended to reduce LVM -4.1 (-8.6, 0.4), p=0.076. Detailed analyses of the other endpoints, and of prediction of changes using baseline bioprofiles, will be presented at the time of the meeting. **Conclusions:** In patients at risk of developing HF, mineralocorticoid receptor antagonist therapy produces changes in circulating levels of PICP and in echocardiographic parameters, potentially contributing to preventing progression to HF. Other results, including whether multi-omics bioprofiles may predict response and could help selecting patients in a future MRA HF-prevention trial will be presented. (NCT02556450, EUFP7 HOMAGE ID: 305507).



Patiromer vs. Placebo to Enable Spironolactone in Patients with Resistant Hypertension and Chronic Kidney Disease (AMBER): Results in Prespecified Subgroups

Bryan Williams[1], Rajiv Agarwal[2], Patrick Rossignol[3], Gail Ackourey[4], Dahlia Garza[4], Martha R. Mayo[4], Suzette Warren[4], Jia Ma[4], William B. White[5]; [1]University College London, London, United Kingdom; [2]Indiana University School of Medicine, Indianapolis, IL; [3]University of Lorraine and FCRIN INI-CRCT, Nancy, France; [4]Relypsa, Inc., Redwood City, CA; [5]University of Connecticut School of Medicine, Farmington, CT

Introduction: Spironolactone (SPIRO) is effective at reducing blood pressure (BP) in patients (pts) with uncontrolled resistant hypertension (RHTN); however, its use in pts with chronic kidney disease (CKD) may be limited by hyperkalemia. **Hypothesis:** Results of AMBER showed that patiromer (PAT) enabled more persistent use of SPIRO in pts with advanced CKD and RHTN. We hypothesize that PAT will also enable more persistent SPIRO use in clinically relevant prespecified subgroups. **Methods:** This multicenter, randomized, double-blind, placebo (PBO)-controlled study recruited outpatients with CKD (estimated GFR 25-≤45 mL/min/1.73 m^2) and uncontrolled RHTN. Pts were randomly assigned (1:1) to receive either PBO or PAT, and SPIRO 25 mg once daily, with dose titrations permitted after 1 wk (PAT) and 3 wks (SPIRO). The primary (between-group difference at wk 12 in the proportion of pts on SPIRO) and secondary (between-group least squares mean [LSM] difference in unattended systolic automated office BP [AOBP] to wk 12) endpoints were assessed in prespecified subgroups, including by age (<65 vs ≥65 yr), eGFR (<30 vs ≥30 mL/min/1.73m^2), presence of diabetes, and history of heart failure. **Results:** 295 pts were randomized to SPIRO plus either PBO (n=148) or PAT (n=147). In the overall population, baseline mean (SD) systolic BP (mmHg) was 144.9 (7.0) and 143.3 (6.5) and mean (SD) serum potassium (mEq/L) was 4.69 (0.37) and 4.74 (0.36), for the PBO and PAT groups, respectively. Consistent with results seen in the overall population, there was ~20% difference between PAT and PBO in the % of pts remaining on SPIRO at wk 12 across subgroups, with no interaction between subgroups (Figure). Overall, systolic AOBP decreased from baseline by 10.8 mmHg (95% CI: -13.2, -8.3) for PBO and by 11.7 (95% CI: -14.1, -9.3) for PAT (both p<0.0001); difference between groups was -1.0 mmHg (95% CI: -4.4, 2.4), p=0.58. In the prespecified subgroups AOBP results were consistent with those in the overall population, with P=NS for all interaction tests. Adverse events, mostly mild or moderate in severity, occurred in 53% of PBO- and 56% of PAT-treated pts overall. **Conclusion:** PAT enabled more persistent use of SPIRO in pts with advanced CKD and RHTN across all prespecified subgroups, including by age, baseline eGFR, and presence/history of diabetes and heart failure.

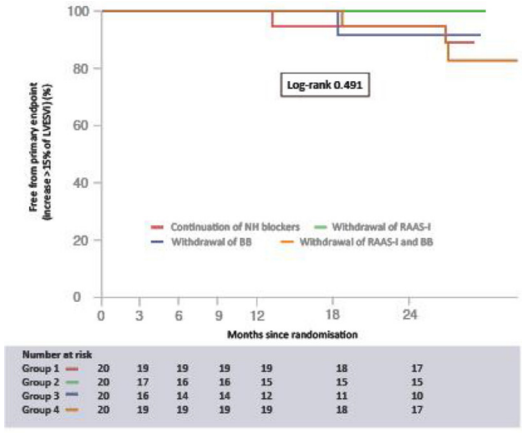


Feasibility of Neurohumoral Blocker Withdrawal in Patients Optimally Responding to Cardiac Resynchronization Therapy: An Open-label, Double Randomized Controlled Pilot Trial

Petra Nijst[1], Pieter Martens[2], Matthias Dupont[2], Gabor Vörös[3], Rik Willems[3], W.H. Wilson Tang[4], Wilfried Mullens[2]; [1]Ziekenhuis Oost Limburg/ UHasselt, Maasmechelen, Belgium; [2]Ziekenhuis Oost Limburg/ UHasselt, Genk, Belgium; [3]University Hospitals Leuven Gasthuisberg, Leuven, Belgium; [4]Cleveland Clinic Foundation, Cleveland, OH

Background: It remains unclear if medical therapy remains necessary in HF patients with myocardial recovery after CRT in whom conduction delay is thought to be the main driver. **Methods:** This was a prospective multicenter, open-label, double randomized pilot trial to investigate the safety of neurohumoral (NH) blocker withdrawal in HF patients with recovered ejection fraction (HFrecEF) after CRT. Subjects were randomized to systematic withdrawal of RAAS inhibitors and beta blockers (BB) versus continuation of treatment. The primary endpoint was a recurrence of negative remodeling defined by an increase in left ventricular end systolic volume index (LVESVi) of more than 15% at 24 months. The secondary endpoint is a composite safety endpoint of all-cause mortality, HF related hospitalizations and incidence of sustained ventricular arrhythmias at 24 months. The primary analysis was by intention to treat. *Results*: Between September 24, 2014, and February 15, 2017, 80 subjects were consecutively enrolled and randomized between 4 groups (continuation of NH blocker therapy (n=20), withdrawal of RAAS inhibitors (n=20), withdrawal of BB (n=20) and withdrawal of RAAS inhibitors and BB (n=20)). Of the 80 subjects, 6 (7.5%) met the primary endpoint of recurrence of negative remodeling based on an increase of >15% in LVESVi. The secondary endpoint occurred in 4 subjects (5%)

within 24 months. There was no difference between the 4 groups regarding the primary (log rank p=0.497) and secondary endpoint (log rank p=0.507) (Figure 1). There were no hospital admissions due to HF or cardiac deaths during this time period in any subject. However, re-initiation of therapy occurred in 16 (20%) subjects due to hypertension or supraventricular arrhythmias. **Conclusion:** Compared to continuation, withdrawal of NH blockers in patients with myocardial recovery after CRT is not associated with a recurrence of LV dilatation or HF after 2 years. However, the feasibility of NH blocker withdrawal is hampered because of hypertension and supraventricular arrhythmias.



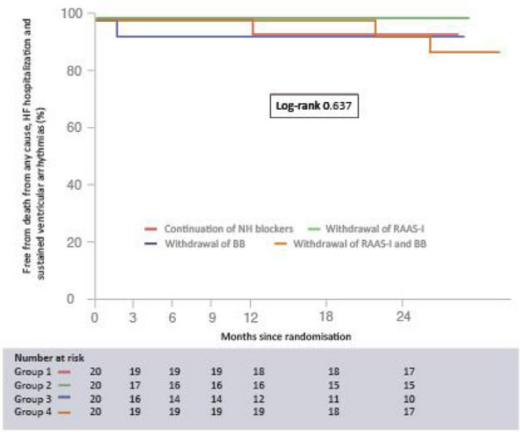


Table: Baseline characteristics

	Continuation of neurohumoral blocker group	Withdrawal of RAAS inhibitors group	Withdrawal of BB group	Withdrawal of RAAS inhibitors and BB group	p
n	20	20	20	20	
Demographics					
- Median age (years)	70(67;77)	69(59;74)	70(66;75)	68(61;75)	0.459
- Male gender (%)	65	60	35	35	0.101
Previous history					
- Time between inclusion and initial HF diagnosis (months)	64(39;79)	38(18;81)	57(23;88)	54(36;82)	0.460
- LVEF at moment of implantation (%)	30(25;35)	25(21;30)	29(21;35)	30(25;35)	0.419
- QRS width at moment of implantation	170(156;180)	157(150;171)	158(146;163)	158(144;176)	0.226
- History of AF (%)	40	35	25	10	**0.039**
- History of sustained VT (%)	0	5	5	0	0.428
- History of hypertension (%)	25	45	50	25	0.239
- History of Diabetes (%)	15	15	30	5	0.207
- Defibrillator (%)	35	50	50	40	0.735
Medications at enrollment					
- ACE-inhibitor or ARB (%)	90	100	85	100	0.343
o <50% target dose	5	10	10	20	
o ≥50% target dose	85	90	75	80	
- Beta-blocker	95	85	100	100	0.217
o <50% target dose	5	15	15	25	
o ≥50% target dose	90	70	85	75	
- Mineralocorticoidreceptor Antagonist (%)	65	65	65	80	0.645
Loop diuretic (%)	10	10	20	10	0.789
Clinical characteristics at enrollment					
- BSA (m^2)	1.9(1.7;2.1)	1.9(1.7;2.1)	1.8(1.6;2.0)	1.7(1.6;1.9)	0.307
- QRS width (msec)	140(129;150)	138(112;158)	138(122;160)	142(121;148)	0.749
- Heart rate (bpm)	63(60;69)	65(57;74)	67(59;74)	64(60;70)	0.657
- SBP (mmHg)	130(111;133)	121(109;130)	118(110;130)	132(110;140)	0.124
- DBP (mmHg)	71(63;83)	73(62;80)	67(60;77)	72(63;79)	0.434
- NT-proBNP (ng/L)	335(105;766)	184(121;291)	229(165;506)	169(124;399)	0.285
- eGFR (ml/min/1.73m2)	67(57;81)	71(59;80)	61(55;73)	68(51;82)	0.560
Echocardiographic variables at enrollment					
- LVEF (%)	55(53;59)	57(53;61)	59(53;63)	56(53;59)	0.720
- LVEDVi (ml/m^2)	43(39;51)	44(34;49)	40(33;50)	40(36;47)	0.590
- LVESVi (ml/m^2)	19(17;25)	17(13;22)	15(13;22)	18(14;20)	0.325