

Abstract sessies Online NVVC Najaarscongres
Donderdag 5 en vrijdag 6 november 2020

Sessie 3 Heart failure

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Guidance for Professionals in Recognizing and Directing Palliative Care Needs in Chronic Heart Failure: A Mixed-method Study to Develop a Tool

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Purpose:

Healthcare professionals experience difficulties in timely recognizing and directing palliative care needs of their patients with chronic heart failure (CHF). The aim of this study was to develop a comprehensive tool to enable healthcare professionals in timely recognizing and directing palliative care needs in CHF.

Methods:

A four-stage mixed method study was performed. Stage 1: Identification of needs and questions of patients and families; Stage 2: Prioritization and refinement of the needs and questions; Stage 3a: Testing and online feedback on version 1; Stage 3b: Selecting and refining care recommendations; Stage 4: Testing and review of version 2. Iterative reviews followed each step in the development process to ensure a wide range of stakeholder input. In total, 16 patients, 12 family members, and 54 healthcare professionals (HCPs) participated.

Results:

A comprehensive set of thirteen palliative care needs was identified, redefined and tested. The resulting tool, called I-HARP (Identification of patients with HeARt failure with PC needs) contains an introduction prompt with open questions to start the conversation, thirteen closed screening questions with additional in-depth questions, and recommendations on actions for identified needs.

Conclusion:

I-HARP contains an evidence-based set of questions and palliative CHF care suggestions for HCPs in the Netherlands. The resulting tool, approved by healthcare professionals, patients and family members, is a promising guidance for HCP to timely recognize and direct palliative care needs in CHF.

Keywords:

heart failure, palliative care needs, tool

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Clinical Value of Tubular Maximum Phosphate Reabsorption Capacity, a Functional Proximal Tubular Parameter in Heart Failure

Presenting author: J.E. Emmens

Department: Cardiology

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Purpose:

Proximal tubular function plays a key role in sodium handling. Tubular maximum phosphate reabsorption capacity (TmP/GFR) has been proposed as a marker of proximal tubular function. We therefore studied the clinical value of TmP/GFR in patients with heart failure.

Methods:

We established TmP/GFR (Bijvoet-formula) in 2,085 heart failure patients from BIOSTAT-CHF

and studied its association with worsening renal function (>25% eGFR decrease), development of tubular damage (plasma Neutrophil Gelatinase-Associated Lipocalin doubling between baseline–9 months), and clinical outcomes.

Results:

Low TmP/GFR (<0.80 mmol/L) was observed in 1,392 (67%) patients. Patients with lower TmP/GFR had more advanced heart failure, lower eGFR, and signs of increased tubular damage. Main determinants of lower TmP/GFR were higher fractional urea excretion and urea ($P < 0.001$). In hierarchical cluster analysis, TmP/GFR was positioned with fractional sodium excretion. Reduced TmP/GFR was independently associated with increased risk of development of tubular damage (OR 2.20[1.05–4.66], $P = 0.038$ per log decrease), but not with a decrease in eGFR ($P = 0.064$). Lower TmP/GFR was associated with increased risk of allcause

mortality (HR 3.05[1.52–6.13], $P = 0.002$), heart failure hospitalization (HR 2.17[1.05–4.50], $P = 0.036$), and the combined endpoint (HR 1.83[1.04–3.22], $P = 0.035$; HRs per log decrease) after adjustment for outcome-specific BIOSTAT risk models, serum phosphate, and eGFR.

Conclusion:

Lower TmP/GFR is associated with more severe heart failure, lower eGFR, and increased levels of markers of tubular damage and function. TmP/GFR furthermore predicts the development of tubular damage and poor outcome. TmP/GFR might be a suitable, clinically relevant, novel proximal tubular parameter in heart failure, potentially enabling detection of early kidney injury.

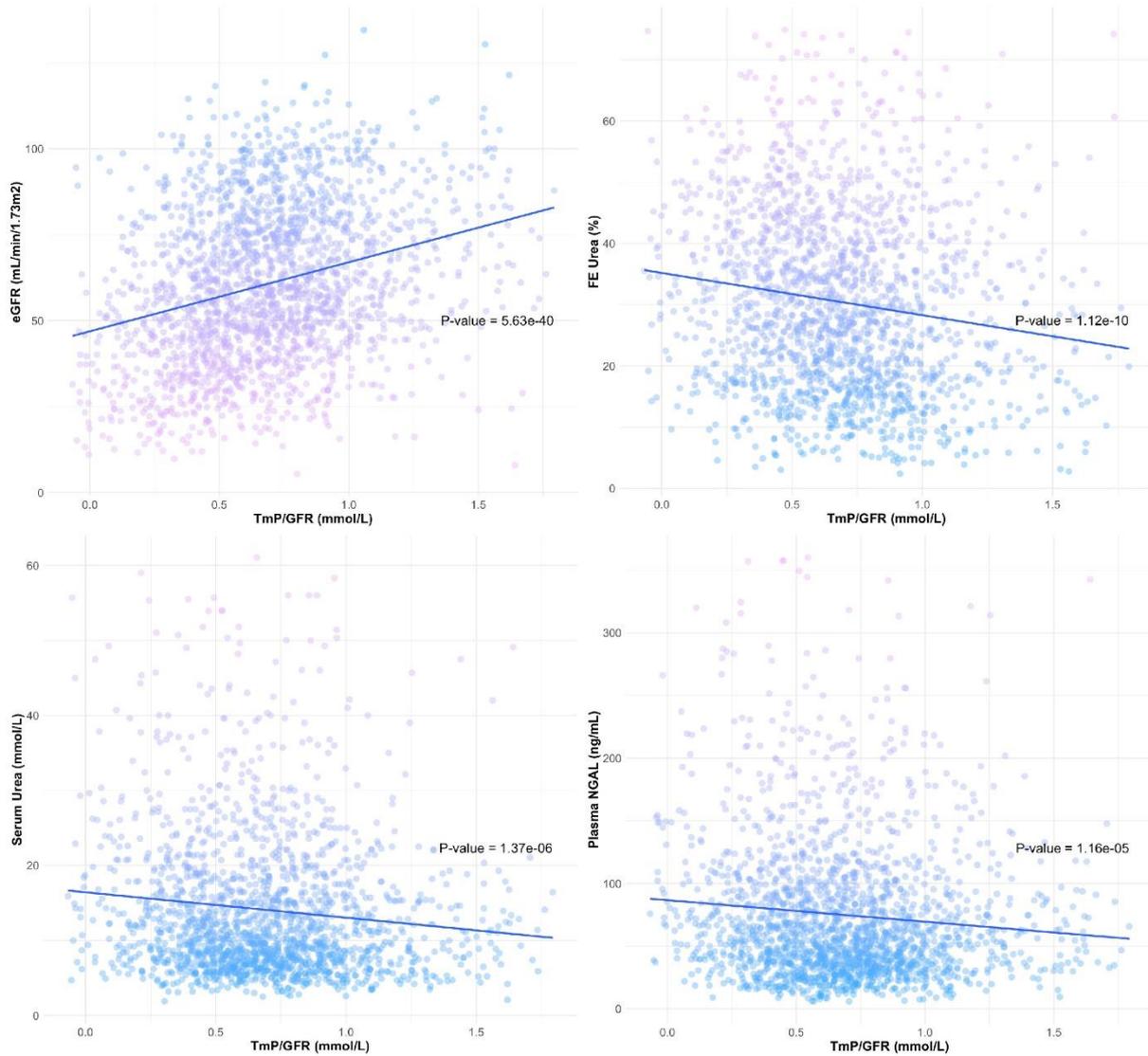
Keywords:

heart failure, renal dysfunction, tubular damage

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Figure:

Figure 1. Correlation plots of TmP/GFR with glomerular and tubular parameters Correlation coefficients: eGFR, 0.287; FEUrea, -0.146; serum urea, -0.125; plasma NGAL, -0.099
Abbreviations: eGFR, estimated glomerular filtration rate; FEUrea, fractional excretion of urea; NGAL, Neutrophil Gelatinase-Associated Lipocalin



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Predictors of Late Right Heart Failure During Long-term Mechanical Circulatory Support

Presenting author: S.E.A. Felix

Department: cardiology

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Purpose:

Right heart failure (RHF) in patients on mechanical circulatory support (MCS) is associated with worse outcome. Currently, little is known about the characteristics and predictors of RHF occurring after the index hospitalization for MCS implantation, defined late RHF. We aimed to identify pre- and peri-operative risk factors for late RHF, requiring intensification of diuretics with/without inotropes.

Methods:

We retrospectively identified late RHF in patients successfully discharged after MCS implantation with or without the need for readmission. Baseline clinical parameters that associated significantly ($p < 0.1$) with late RHF on univariate analysis, entered the multivariable Cox regression model for the prediction of late RHF.

Results:

Between 2006-2019, 262 patients (66% male, 51 ± 13 years) were discharged after MCS. 49 (19%) suffered from late RHF after a median of 363 (IQR 131-1001) days; two thirds required readmission. A history of atrial fibrillation (AF; HR 2.14, 95% CI 1.12 to 4.10), high body mass index at implantation (BMI; HR 1.06, 95% CI 1.00 to 1.12), and more days on the intensive care unit after implantation (ICU; HR 1.03, 95% CI 1.00-1.06) were significant predictors of late RHF (table 1).

Conclusion:

19 % of MCS patients require intensification of diuretics with/without inotropes for late RHF, often requiring hospitalization. A history of AF, a higher BMI and longer stay on the ICU increases the risk of late RHF.

Keywords:

mechanical circulatory support, right heart failure,

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Figure:

Table 1. Univariate and significant multivariable risk factors for late RHF

Parameters	Univariate risk factors		Significant multivariable risk factors	
	p-value	HR (95% CI)	p-value	HR (95% CI)
Gender (reference male)	0.85	1.06 (0.59-1.90)		
Age at implantation (in years)	0.802	0.997 (0.97-1.02)		
Ischemic etiology	0.483	0.80 (0.42-1.51)		
Body mass index (in kg/m ²)	0.028	1.06 (1.01-1.12)	0.035	1.06 (1.00-1.12)
History of AF	0.034	1.91 (1.05-3.48)	0.021	2.14 (1.12-4.10)
INTERMACS profile (reference profile 3-6)	0.040			
Profile 1		2.69 (1.25-5.77)		
Profile 2		1.86 (0.88-3.92)		
Blood urea nitrogen (pre-MCS)	0.328	1.01 (0.99-1.02)		
<u>Kreatinin</u> (pre-MCS)	0.295	1.31 (0.79-2.16)		
Bilirubin (pre-MCS)	0.93	1.02 (0.73-1.41)		
Days of hospitalization for MCS implantation	0.081	1.01 (0.999-1.02)		
Days on intensive care unit after MCS implantation	0.006	1.03 (1.01-1.05)	0.040	1.03 (1.00-1.06)

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Potential of e-Health Smart Technology in Optimization and Monitoring of Heart Failure Treatment in Systemic Right Ventricular Failure

Presenting author: M. Nederend

Department: Cardiology

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Purpose:

E-Health smart technology is a promising tool for adult patients with congenital heart disease. Patients with a systemic right ventricle (sRV) in context of transposition of the great arteries (TGA) after atrial switch or congenitally corrected TGA are prone to heart failure. We aimed to evaluate feasibility, patient adherence and appreciation of a smart technology-based care-pathway for heart failure treatment optimization and monitoring.

Methods:

This was a single center, non-blinded cohort study from the department of Cardiology, Leiden University Medical Center between April 2019 and June 2020. Twenty-three patients with symptomatic sRV failure eligible for initiation of treatment with sacubitril/valsartan were provided with 4 smart-phone compatible devices (blood pressure monitor, weight scale, step counter, rhythm monitor) and were treated and monitored according to a smart technology care-pathway (Figure). Two weekly sacubitril/valsartan titration visits were replaced by electronic visits; eHealth monitoring continued for at least 6 months. Feasibility and patient satisfaction were evaluated.

Results:

This was a single center, non-blinded cohort study from the department of Cardiology, Leiden University Medical Center between April 2019 and June 2020. Twenty-three patients with symptomatic sRV failure eligible for initiation of treatment with sacubitril/valsartan were provided with 4 smart-phone compatible devices (blood pressure monitor, weight scale, step counter, rhythm monitor) and were treated and monitored according to a smart technology care-pathway. Two weekly sacubitril/valsartan titration visits were replaced by electronic visits; eHealth monitoring continued for at least 6 months. Feasibility and patient satisfaction were evaluated.

Conclusion:

These data suggest that implementation of a smart technology-based care-pathway for sRV failure is feasible and can support optimization of medical treatment with high measurement adherence and patient satisfaction.

Keywords:

Congenital Heart Disease, E-health, Heart Failure

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Figure:

Table 1. Results of the eHealth smart-technology specific questionnaire (n=20).

Questionnaire item	Agree (N, %)	Disagree (N, %)	No answer (N, %)
<i>Telemonitoring is of added value to usual care</i>	20 (100%)	0 (0%)	0 (0%)
<i>Telemonitoring makes me nervous</i>	4 (20%)	16 (80%)	0 (0%)
<i>Telemonitoring makes me feel more secure</i>	12 (60%)	6 (30%)	2 (10%)
<i>Telemonitoring improved communication with my cardiologist</i>	14 (70%)	2 (10%)	4 (20%)
<i>My cardiologist reached out unnecessarily</i>	0 (0%)	20 (100%)	0 (0%)
<i>Telemonitoring costs me more time than I gain from it</i>	1 (5%)	17 (85%)	2 (10%)
<i>I don't pay attention to changes in my measurements myself</i>	2 (10%)	17 (85%)	1 (5%)
<i>I would continue even if the cardiologist doesn't look at my measurements anymore</i>	17 (85%)	2 (10%)	1 (5%)
<i>I am satisfied with this system of telemonitoring</i>	19 (95%)	0 (0%)	1 (5%)

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Diabetes and Contemporary Treatment of Chronic Heart Failure in a Large Real-world Heart Failure Population

Presenting author: S.P. Radhoe

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Purpose:

Although diabetes mellitus (DM) is a common comorbidity in chronic heart failure (HF) patients, European data on concurrent HF and DM treatment is lacking. Therefore, we have studied the contemporary HF treatment of patients with and without DM and assessed the potential impact of sodium glucose cotransporter-2 (SGLT-2) inhibitors in the CHECK-HF registry according to the latest clinical trial criteria.

Methods:

A total of 7488 patients with chronic HF with a reduced left ventricular ejection fraction (LVEF) from 34 Dutch outpatient HF clinics between 2013 and 2016 were analyzed. Detailed information regarding prescription rates and dosages of HF therapy were assessed and compared between diabetics and non-diabetics.

Results:

Diabetes was present in 29% of the patients (N=2174). Diabetics on average had a worse renal function (mean eGFR 56 vs. 61 ml/min/1.73m², p<0.001). RAS-inhibitors were less often prescribed in diabetics compared to non-diabetics (79% vs. 82%, p=0.001), while no significant differences regarding other guideline-recommended HF drugs were found. Diabetic patients more often received the guideline-recommended target doses of beta-blockers (23% vs. 16%, p<0.001), RAS-inhibitors (47% vs. 43%, p=0.009) and MRA (57% vs. 51%, p=0.005) compared to non-diabetic patients. Based on the latest major SGLT-2 trials, up to 31% of the HF patients would fulfill the eligibility criteria to receive SGLT-2 inhibitors.

Conclusion:

In this large real-world HF registry, a high prevalence of DM was observed. Significant, but small differences in prescription rates and prescribed dosages were observed between diabetic and non-diabetic HF patients, with diabetics often being on guideline-recommended therapy which is in line with the latest trials. Based on current evidence, a considerable proportion of our HF population may be eligible for treatment with an SGLT-2 inhibitor.

Keywords:

HFrEF, Heart Failure, Diabetes Mellitus

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Figure:

Figure. Guideline-recommended heart failure therapy use according to diabetes in HF patients with a reduced LVEF, shown as A prescription rates, B percentage of the recommended target dose prescribed, C prescription of triple therapy and, D prescription of triple therapy at $\geq 50\%$ of guideline recommended target dose

