



ABSTRACTS
NVVC Najaarscongres 2025
Donderdag 6 november
09.00 – 10.30 uur

SESSIE 6: Heart failure (CMP & risk factors)

	Zaal 15	Voorzitters: drs. Casper Eurlings, cardioloog Laurentius Ziekenhuis Roermond Yvonne van Cateren, AIOS cardiologie Maastricht UMC+
1	09.00 - 09.10	The Prognostic Role of Serum Chloride Levels in Acute Decompensated Heart Failure Patients: A Retrospective Cohort Study <i>K.R.R. Smulders (Catharina Ziekenhuis, Eindhoven)</i>
2	09.11 - 09.21	The Application of the Heart Failure Frailty Score in Clinical Practice <i>M.L. Niesing (Alrijne Hospital, Leiderdorp)</i>
3	09.22 - 09.32	Feasibility of Early Detection of Heart Failure, a Pilot Study <i>J. Dekker (Netherlands Heart Network, Eindhoven)</i>
4	09.33 - 09.43	Guidelines vs. Reality: Sex Differences in the Optimization of Guideline-Directed Medical Therapy in Heart Failure with Reduced Ejection Fraction <i>C. Jansen (Medisch Spectrum Twente, Enschede)</i>
5	09.44 - 09.54	Duplications and Triplications of the PLN Gene: Do They Lead to Cardiomyopathy? <i>A. Salavati (UMC Utrecht, Utrecht)</i>
6	09.55 - 10.05	Proactive Screening for Early Identification of Heart Failure in Individuals with Obesity <i>P.A. Motiram (Franciscus Gasthuis & Vlietland, Rotterdam; Erasmus MC, Rotterdam)</i>
7	10.06 - 10.16	Longitudinal Quality of Life in Hypertrophic Cardiomyopathy: One-Year Follow-Up of the AFFECT-HCM study <i>R.A. Mangal (Erasmus MC, Rotterdam)</i>



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Abstract 1

The Prognostic Role of Serum Chloride Levels in Acute Decompensated Heart Failure Patients: A Retrospective Cohort Study

Presenting author: K.R.R. Smulders

Department: Cardiologie

K.R.R. Smulders (Catharina Ziekenhuis, Eindhoven); K.R.R. Smulders (Catharina Ziekenhuis, Eindhoven); R.A. Tio (Catharina Ziekenhuis, Eindhoven)

Purpose:

This study aims to explore the relationship between serum chloride levels and 1-year mortality in heart failure patients, offering new insights into potential prognostic markers in the treatment of heart failure.

Methods:

In this retrospective, single-centre cohort study, we analysed data from patients admitted to the Catharina Hospital in Eindhoven between 2017 and 2022 with acute decompensated heart failure. The primary endpoint was 1-year mortality. Baseline serum chloride levels were categorised as hypochloraemic (<97 mmol/L), normochloraemic (97–108 mmol/L), and hyperchloraemic (>108 mmol/L). Kaplan-Meier survival curves were constructed, and log-rank tests were performed to compare survival distributions between groups.

Results:

A total of 1308 patients were included. Hypochloraemic patients had significantly lower 1-year survival rates ($P < 0.001$) compared to normochloraemic and hyperchloraemic patients. The mortality rate was highest in the hypochloraemic group at 44.4%, compared to 31.4% in the normochloraemic group and 23.8% in the hyperchloraemic group. Kaplan-Meier survival curves confirmed a significant survival difference across the groups.

Conclusion:

Our findings suggest that low serum chloride levels are associated with increased 1-year mortality in hospitalized patients with acute decompensated heart failure. This highlights the potential prognostic value of chloride levels in the treatment of heart failure.

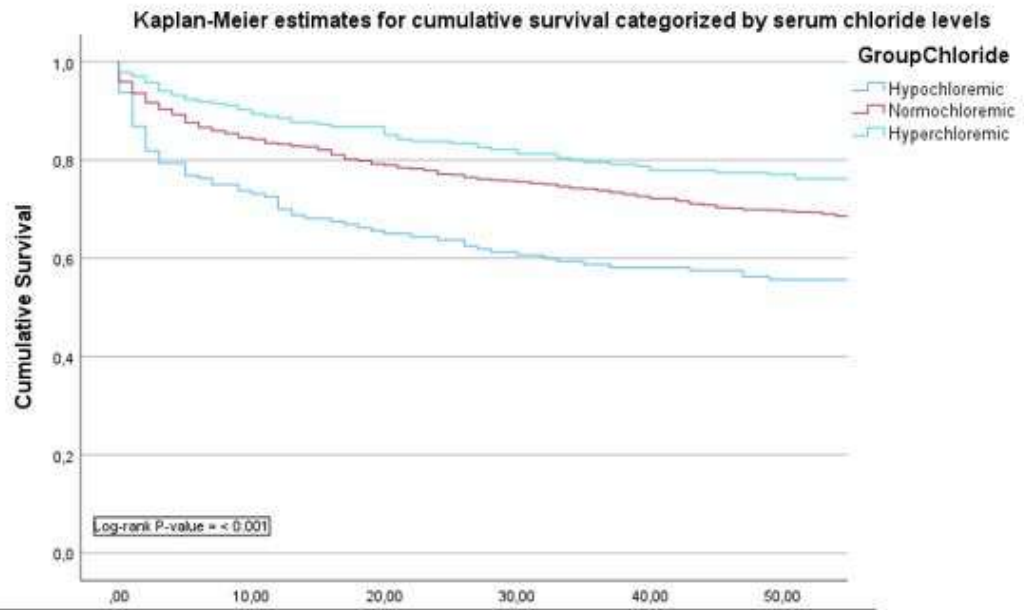
Keywords:

Hypochloraemia



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Figure:
 Figure 1 Kaplan Meier Survival Curves of Serum Chloride Levels



Number at risk

Hypochloraemia	160	118	105	98	93	89
Normochloraemic	913	772	723	692	663	637
Hyperchloraemic	235	212	204	193	185	181



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Abstract 2

The Application of the Heart Failure Frailty Score in Clinical Practice

Presenting author: M.L. Niesing

Department: Cardiology

M.L. Niesing (Alrijne Hospital, Leiderdorp); M.L. Niesing (Alrijne Hospital, Leiderdorp); J. van der Laken (Alrijne Hospital, Leiderdorp); C.M.H.B. Lucas (Alrijne Hospital, Leiderdorp)

Purpose:

Although several frailty scoring systems exist for the elderly, the Heart Failure Frailty Score (HFFS) and its short version (HFFS-S) were specifically developed for patients with heart failure. These tools assess four domains: clinical, functional, psychosocial, and cognitive. At our outpatient heart failure clinic, we evaluated the HFFS-S's applicability by comparing it to the general VMS score.

Methods:

Forty-three patients were assessed using both the HFFS-S and VMS score by two experienced heart failure specialist nurses. Patient data were collected retrospectively. A score >2 on the HFFS-S was considered indicative of moderate frailty.

Results:

The cohort included elderly heart failure patients (aged 71–93, mean age 81), with 25 males. Heart failure types: HFrEF 46%, HFpEF 21%, HFmrEF 33%. Scoring was quick and practical (around 5 minutes). The HFFS-S identified 32 patients as moderately frail or worse, compared to 20 identified by the VMS score. Only 2 patients scored positive for frailty with the VMS but negative with HFFS-S.

Conclusion:

The HFFS-S is a recently developed, heart failure-specific frailty assessment tool. It is easy to use in clinical practice and identified more frail patients than the non-specific VMS score. This may be due to greater weighting of comorbidities and social/physical factors in the HFFS-S. Further studies are needed to evaluate its predictive value for mortality and morbidity, and to support tailored care in heart failure management.

Keywords:

Heart Failure, Frailty, Elderly patients



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Abstract 3

Feasibility of Early Detection of Heart Failure, a Pilot Study

Presenting author: J. Dekker

Department: Cardiology

J. Dekker (Netherlands Heart Network, Eindhoven); J. Dekker (Netherlands Heart Network, Eindhoven); A.R.T. van de Ven (Anna, Geldrop); G. Smits (Pozob, Veldhoven); F.J. Hafkamp (Netherlands Heart Network, Eindhoven), N.E.M. Lexmond (Pozob, Veldhoven); L.R.C. Dekker (TU/e, Eindhoven)

Purpose:

By shortening the time to diagnosis, and subsequent treatment of heart failure (HF), the prognosis for patients can be improved. The aim of this study was to investigate the clinical feasibility of early detection of HF in COPD and Diabetes Mellitus (DM) patients in general practitioners (GP) practices. Further effort was made to give insight into the number of newly diagnosed HF in the Zuidoost-Brabant (ZOB) region.

Methods:

Five GP practices participated in the study. Each practice created a list of patients diagnosed with DM or COPD, aged between 50-79 years, excluding patients with known HF. Patients were asked to answer four questions about shortness of breath and reduced exercise tolerance (shortened RED-CVD questionnaire). A positive response to any of these questions was followed by an N-terminal pro-B-type natriuretic peptide (NT-proBNP) test. If the NT-proBNP level was ≥ 125 pg/ml, an echocardiogram was scheduled.

Results:

In total, 255 DM patients and 41 COPD patients filled in the questionnaire. 89% (DM) and 90% (COPD) patients responded negative to all questions. From the 33 patients with a positive response, 10 patients had an NT-proBNP ≥ 125 . For 7 of these patients an echocardiogram was performed, and 2 patients were diagnosed with HF (Figure 1).

Conclusion:

Compared with literature, a small number of patients had a positive response on the questionnaire, and consequently less than expected echocardiograms were necessary. Both DM and COPD care protocols in ZOB-region already have a focus on detecting HF, resulting in a potential underrepresentation of HF patients in the leftover group.

Keywords:

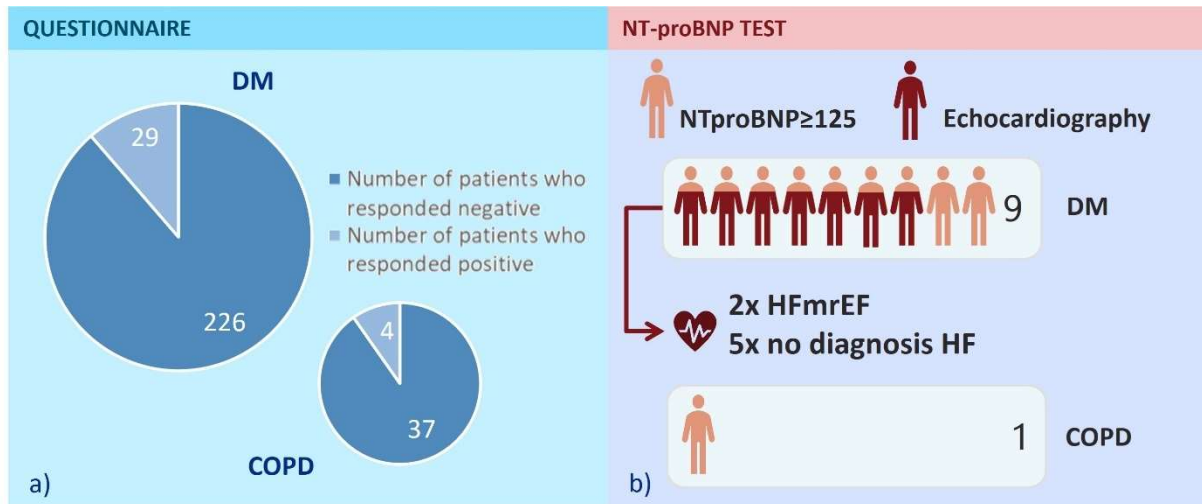
Unrecognised heart failure, Early detection, Primary care



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Figure:

Figure 1: a) Results of the questionnaire, showing that 29 Diabetes Mellitus (DM) and 4 COPD patients had a positive response to any of these questions. b) This resulted in 9 DM and 1 COPD patients with a NT-proBNP \geq 125. In total, for 7 patients an echocardiogram was performed and 2 patients were diagnosed with HF.





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Abstract 4

Guidelines vs. Reality: Sex Differences in the Optimization of Guideline-Directed Medical Therapy in Heart Failure with Reduced Ejection Fraction

Presenting author: C. Jansen

Department: Cardiology

C. Jansen (Medisch Spectrum Twente, Enschede); J.G. Valk (Medisch Spectrum Twente, Enschede); J.A.M. van der Palen (Medisch Spectrum Twente, Enschede); M.M.R. Vollenbroek-Hutten (Medisch Spectrum Twente, Enschede); M. Tabak (University of Twente, Enschede); A. John (University of Twente, Enschede); M. van den Heuvel (Medisch Spectrum Twente, Enschede); G. ten Buuren (Medisch Spectrum Twente, Enschede); C.J.A. Doelman (Medisch Spectrum Twente, Enschede); A.H. Zwinderman (Amsterdam Universitair Medisch Centrum, Amsterdam); C. von Birgelen (Medisch Spectrum Twente, Enschede); J.G. Krabbe (Medisch Spectrum Twente, Enschede); K.L.L. Movig (Medisch Spectrum Twente, Enschede); F.W. Asselbergs (Amsterdam Universitair Medisch Centrum, Amsterdam); R.W. Treskes (Medisch Spectrum Twente, Enschede); G. IJff (Maasstad Ziekenhuis, Rotterdam); P.E.J. van Pol (Onze Lieve Vrouwe Gasthuis Ziekenhuis, Amsterdam); L.C. Otterspoor (Catharina Ziekenhuis, Eindhoven); G.P.J. van Hout (St. Antonius Ziekenhuis, Nieuwegein); M.J. Schuurin (Medisch Spectrum Twente, Enschede)

Purpose:

Target doses are sex-neutral for guideline-directed medical therapy (GDMT) in heart failure with reduced ejection fraction (HFrEF), as recommended by European Society of Cardiology guidelines. However, current literature indicates that women are more prone to adverse drug reactions, which may pose a barrier in the optimization of medication. Aim of this study is to explore sex differences in number and type of barriers during GDMT optimization in HFrEF patients.

Methods:

Observational single-centre data from 135 patients with HFrEF, enrolled in the ADMINISTER-II trial, were analysed during 6 months. Informed consent was obtained in all patients. Primary outcome was the difference between sexes in the number of optimization barriers, as defined by the treating clinicians. Secondary outcomes were sex differences in barrier types per GDMT class.

Results:

Data of 34 (25%) women and 101 (75%) men were compared. In women, significantly more barriers were documented in three of the four GDMT classes (Figure 1a). For each GDMT class, the type of barriers was specified, revealing a higher, but not significant, incidence of cardiovascular and circulatory issues (symptomatic hypotension, bradycardia and cold extremities) in women (Figure 1b).

Conclusion:

More barriers of GDMT optimization were reported in women than in men. It appears to be more difficult to achieve target doses in women, raising the intriguing question whether sex-neutral guidelines are still acceptable. These insights will be considered during the intervention phase of the ADMINISTER-II trial which aims to optimize GDMT prescription rates in patients with heart failure.

Keywords:

Guideline Directed Medical Therapy (GDMT), Sex-differences, Adverse Drug Reactions (ADRs)



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Figure:

a Representing the total number of patients reported barriers per GDMT medication type.

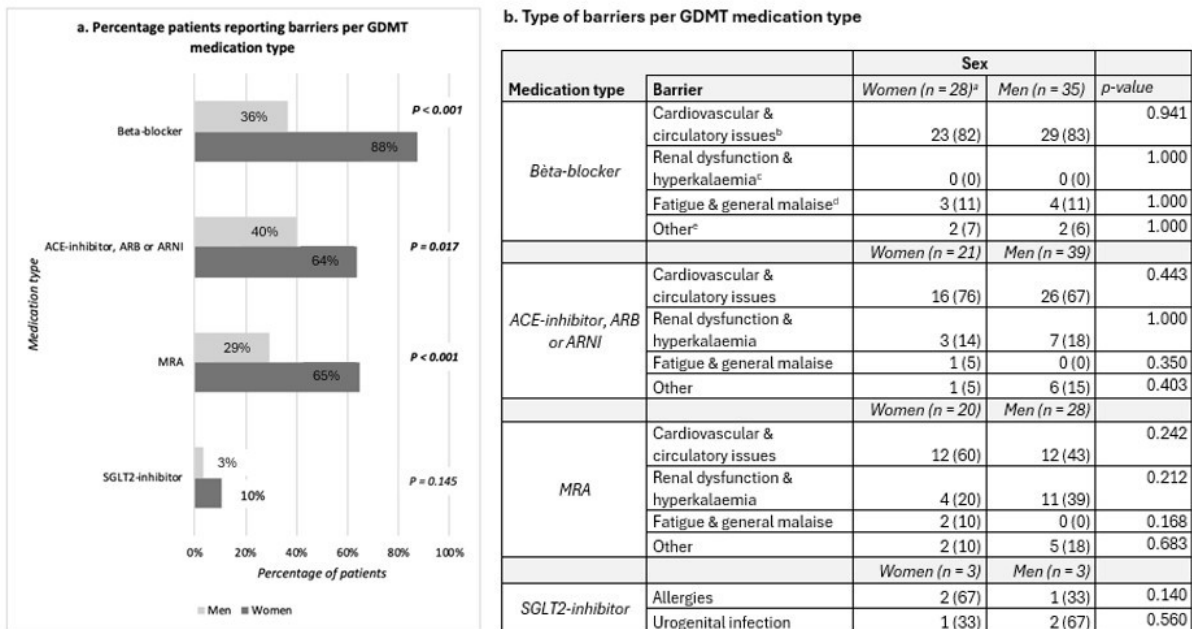
b Symptomatic hypotension (with or without objective confirmation of hypotension), bradycardia & cold extremities.

c Acute kidney injury, acute-on-chronic kidney injury, eGFR <30 ml/min/1,73m² and urea level >15 mmol/L.

d Fatigue, general malaise and reduced exercise capacity.

e Itching, nausea, abdominal pain, dyspnoea and physically unfit for further optimization as assessed by a healthcare professional.

Figure 1: Percentages of the number and type of patient-reported barriers per GDMT medication type





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Abstract 5

Duplications and Triplications of the PLN Gene: Do They Lead to Cardiomyopathy?

Presenting author: A. Salavati

Department: Cardiology

A. Salavati (UMC Utrecht, Utrecht); K. Taha (University Medical Center Utrecht, Utrecht); K.I.M. van der Sijs (University Medical Center Utrecht, Utrecht); M.T. Meems-Veldhuis Jongbloed (University Medical Center Groningen, Groningen); D. Dooijes (University Medical Center Utrecht, Utrecht); E. van Binsbergen (University Medical Center Utrecht, Utrecht); J.D.H. Jongbloed (University Medical Center Groningen, Groningen); D.Q.C.M. Barge-Schaapveld (Leiden University Medical Center, Leiden); K.Y. van Spaendonck-Zwarts (Leiden University Medical Center, Leiden); M. Bootsma (Leiden University Medical Center, Leiden); A.C. Houweling (Amsterdam University Medical Center, Amsterdam); R.L. Lekanne dit Perez (Amsterdam University Medical Center, Amsterdam); A.S. Amin (Amsterdam University Medical Center, Amsterdam); W.P. te Rijdt (Erasmus Medical Center, Rotterdam); S.C. Yap (Erasmus Medical Center, Rotterdam); M.C. Cox (University Medical Center Groningen, Groningen); B.A. Schoonderwoerd (Frisius MC, Leeuwarden); P.G.A. Volders (Maastricht University Medical Center+, Maastricht); A.S.J.M. te Riele (University Medical Center Utrecht, Utrecht); J. van Setten (University Medical Center Utrecht, Utrecht); J.P. van Tintelen (University Medical Center Utrecht, Utrecht)

Purpose:

The Phospholamban (PLN) R14del Dutch pathogenic founder genetic variant is an established cause for dilated cardiomyopathy (DCM) and arrhythmogenic right ventricular cardiomyopathy (ARVC). However, duplications/triplications (two/three copies of the complete gene on one allele) of PLN are also being identified in cardiomyopathy patients yet classified as a variant of unknown significance (VUS) with limited scientific literature being available. This study investigates whether PLN duplications/triplications are associated with cardiomyopathy and should be reclassified as (likely) pathogenic.

Methods:

We retrospectively included carriers of PLN duplications/triplications identified through cardiogenetic screening and collected clinical data. DCM and hypertrophic cardiomyopathy (HCM) were defined per 2023 ESC Guidelines and ARVC per 2010 Task Force Criteria. Prevalence of PLN duplications was compared between probands tested for cardiomyopathies/arrhythmia syndromes and four reference databases using Fisher's exact test. Criteria for variant reclassification were assessed according to the American College of Medical Genetics (ACMG) guidelines.

Results:

Thirty-seven individuals (49% male, 28/37(76%) proband, median age 48.5yrs[IQR 16]) were included. Twenty-three probands (23/28=82%) fulfilled diagnostic criteria for: DCM (15/28=54%), ARVC (3/28=11%), ARVC+DCM (3/28=11%) and HCM (2/28=7%). Five relatives (5/9=56%) fulfilled diagnostic criteria for: ARVC (2/9=22%), DCM (1/9=11%), ARVC+DCM (1/9=11%) and unspecified non-ischemic cardiomyopathy (1/9=11%). Duplications in 4631 probands undergoing genetic testing for cardiomyopathies/arrhythmia syndromes (13/4631=0.28%) was 6-11.2 fold higher than in the general population (four reference databases) (0.025-0.047%; all $p < 0.001$), fulfilling the PS4 "strong pathogenic" criterion for variant reclassification.

Conclusion:

PLN duplications/triplications are associated with DCM/ARVC phenotypes. Our analysis



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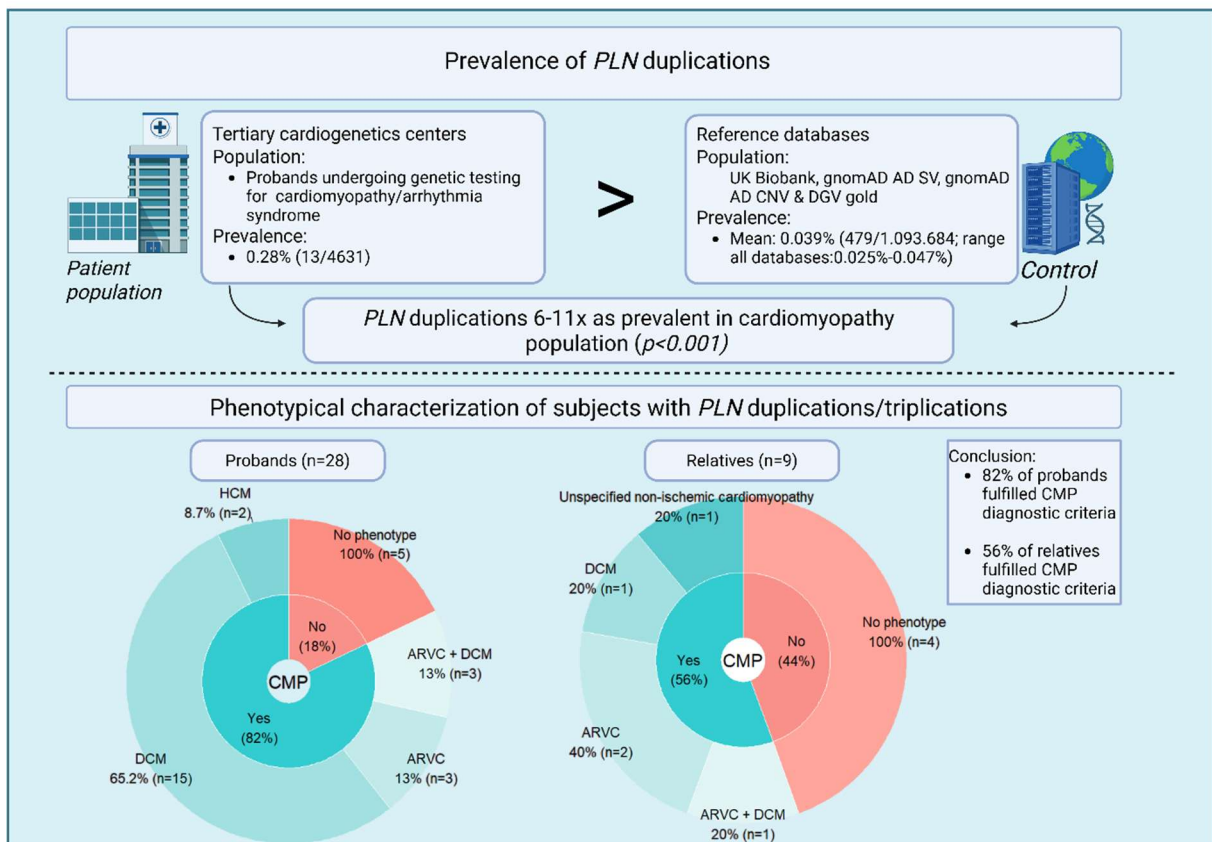
supports a “strong pathogenic” grading on the “population data” criterion contributing to variant reclassification.

Keywords:

Dilated cardiomyopathy, Arrhythmogenic cardiomyopathy, Phospholamban (PLN)

Figure:

Prevalence and phenotypical outcome of subjects with duplications/triplications the phospholamban (PLN) gene





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Abstract 6

Proactive Screening for Early Identification of Heart Failure in Individuals with Obesity

Presenting author: P.A. Motiram

Department: Cardiology

P.A. Motiram (Franciscus Gasthuis & Vlietland, Rotterdam; Erasmus MC, Rotterdam); J.F. Chin (Franciscus Gasthuis & Vlietland, Rotterdam; Erasmus MC, Rotterdam); C.P. Teuwen (Franciscus Gasthuis & Vlietland, Rotterdam; Erasmus MC, Rotterdam); A. Hendrix (Franciscus Gasthuis & Vlietland, Rotterdam); W.L. Verloop (Franciscus Gasthuis & Vlietland, Rotterdam); M.E. Emans (Ikazia Ziekenhuis, Rotterdam); E.V. Rouwet (Erasmus MC, Rotterdam); J.J. Brugts (Erasmus MC, Rotterdam); R.A. de Boer (Erasmus MC, Rotterdam); B.M. van Dalen (Franciscus Gasthuis & Vlietland, Rotterdam; Erasmus MC, Rotterdam)

Purpose:

Obesity significantly increases the risk of heart failure (HF), but diagnosis is frequently missed or delayed since symptoms and routine biomarkers lack specificity in individuals with obesity. This results in poorer outcomes and increased healthcare costs.

Methods:

SCOR(HF)E is a pragmatic randomized trial conducted in Rotterdam, the Netherlands. Adults ≥ 45 years with a BMI ≥ 30 kg/m² without known cardiac history were randomized 1:1 to cardiac screening versus usual care (n=420; 210 per arm). Screening included medical history, physical examination, laboratory testing, 12-lead ECG, and transthoracic echocardiography. HF diagnosis was assessed in accordance with international guidelines. Here we present baseline characteristics of the study population and findings of the screening.

Results:

Randomisation resulted in well-balanced arms: ~70% female, average age ~58 years, and BMI ~35 kg/m². In the screening arm, 55.3% reported exertional dyspnoea and 44.7% experienced ankle oedema. 56.7% met the criteria for suspected HF based on symptoms plus structural or functional echocardiographic abnormalities and/or increased NT-proBNP. Screening also identified a substantial burden of undiagnosed or inadequately managed cardiometabolic conditions: e.g. new hypertension in 22.1% (poorly regulated in 27.9%), new type 2 diabetes in 2.4% (poorly regulated in 6.8%), and new dyslipidemia in 46.7% (poorly regulated in 26.7%). For 209 individuals this resulted in targeted referral and treatment according to prevailing guidelines.

Conclusion:

Proactive cardiac screening in individuals with obesity demonstrated high prevalence of suspected HF and a significant burden of treatable risk factors. These results highlight the potential for systematic screening as a promising strategy for earlier identification of HF in obesity.

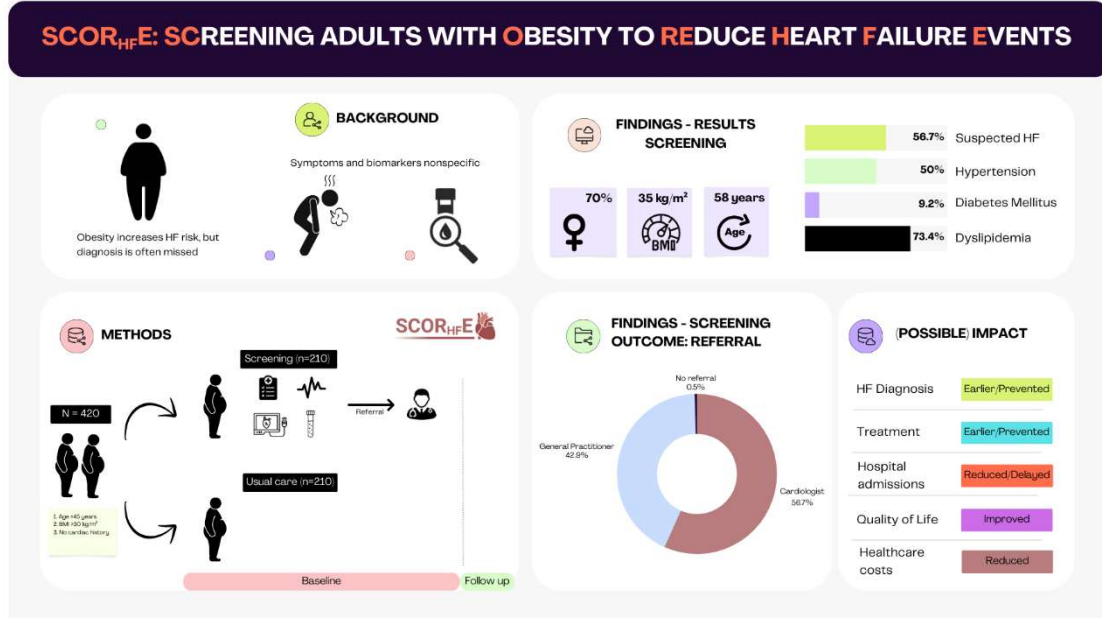
Keywords:

Obesity, Heart Failure, Proactive screening



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Figure:





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Abstract 7

Longitudinal Quality of Life in Hypertrophic Cardiomyopathy: One-Year Follow-Up of the AFFECT-HCM study

Presenting author: R.A. Mangal

Department: Cardiology

R.A. Mangal (Erasmus MC, Rotterdam); S.A.C. Schoonvelde (Erasmus MC, Rotterdam); I. Wiethoff (Maastricht University, Maastricht); P.P. Zwetsloot (Erasmus MC, Rotterdam); C. Knackstedt (MUMC+, Maastricht); T. Germans (Noord-West Ziekenhuisgroep, Alkmaar); M. Sikking (MUMC+, Maastricht); A.F.L. Schinkel (Erasmus MC, Rotterdam); M.A. van Slegtenhorst (Erasmus MC, Rotterdam); J.M.A. Verhagen (Erasmus MC, Rotterdam); R.A. de Boer (Erasmus MC, Rotterdam); S.M.A.A. Evers (Maastricht University, Maastricht); A. Hirsch (Erasmus MC, Rotterdam); M. Hiligsmann (Maastricht University, Maastricht); M. Michels (Erasmus MC, Rotterdam)

Purpose:

Hypertrophic cardiomyopathy (HCM) is the most prevalent inherited cardiac disease. Baseline results from the Dutch AFFECT-HCM cohort reported a reduced quality of life (QoL) in HCM patients. This study assesses changes in QoL after one-year of follow-up.

Methods:

In this multicenter, prospective cohort study, the QoL in HCM-patients, both obstructive (oHCM) and non-obstructive (nHCM), was assessed at baseline. After one-year, QoL, NYHA functional class and the occurrence of cardiac events were assessed. QoL was measured with the Kansas City Cardiomyopathy Questionnaire (KCCQ) and EQ-5D-5L. A significant change in KCCQ was defined as $\Delta KCCQ \geq \pm 5$ points (e.g. stable/reduced/improved groups).

Results:

After one-year, 479 (95%) participants completed follow-up (299 nHCM and 102 oHCM; median age 60 years, 32% female). Six (1%) participants died, including 1 sudden cardiac death and 5 non-cardiac deaths. Questionnaire completion rate was 86%. In HCM-patients, KCCQ remained stable in 163 (49%, 97 vs. 97), significantly improved in 89 (26%, 67 vs. 86) and, significantly reduced in 84 (25%, 86 vs. 73). Baseline KCCQ was higher in the stable group ($P < 0.001$ vs. reduced and $P < 0.001$ vs. improved). Compared with KCCQ-stable HCM patients, reduced KCCQ was linked to age ($P = 0.006$) and medical therapy ($P = 0.019$). Improved KCCQ was associated with device implantation ($P = 0.037$) and SRT ($P = 0.004$). In nHCM, reduced QoL was linked to age ($P = 0.003$), hospitalization ($P = 0.041$) and medical therapy ($P = 0.002$); in oHCM improvement was associated with SRT ($P = 0.013$). EQ-5D-5L scores improved in overall HCM patients over time ($P = 0.024$) (Table 1).

Conclusion:

In HCM patients, older age and medical therapy are associated with the reduction of QoL during follow-up, while undergoing SRT is positively associated with improved QoL.

Keywords:

Hypertrophic Cardiomyopathy, Quality of Life, Burden of Disease



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Figure:

Table 1. Characteristics of overall HCM-patients

BMI= body mass index; IQR= interquartile range; KCCQ= Kansas City Cardiomyopathy Questionnaire; KCCQ-CSS= KCCQ clinical summary score; nHCM= non-obstructive hypertrophic cardiomyopathy; NYHA= New York Heart Association functional classification; oHCM= obstructive hypertrophic cardiomyopathy; SRT= septal reduction therapy; yrs= years. Cardiac medication was defined as use of at least one of the following: angiotensin-converting enzyme inhibitor; angiotensin receptor blocker; angiotensin receptor/neprilysin inhibitor; beta blocker; cardiac myosin inhibitor; dihydropyridines calcium channel blocker; mineralocorticoid receptor antagonist; sodium-glucose co-transporter-2 inhibitor. Medians and IQR were reported for variables with non-parametric distribution. P-values were calculated with Chi-square tests.

	Stable KCCQ-CSS (n=163)	Improved KCCQ-CSS (n=89)	P value	Reduced KCCQ-CSS (n=84)	P value
Age (yrs, IQR)	60 (46-67)	59 (50-66)	0.964	65 (54-70)	0.006
Female (n, %)	47 (29)	26 (30)	1.000	34 (41)	0.086
BMI (kg/m ² , IQR)	27 (24-30)	27 (25-29)	0.410	27 (24-30)	0.841
oHCM (n, %)	36 (22)	26 (29)	0.223	21 (25)	0.358
nHCM (n, %)	127 (78)	63 (75)	0.223	63 (75)	0.634
KCCQ-CSS baseline scores (median, IQR)	97 (88-100)	67 (57-84)	<0.001	86 (75-96)	<0.001
NYHA I vs ≥ II at baseline (n, %)	118/42 (72/28)	37/52 (42/58)	<0.001	56/28 (67/33)	0.379
NYHA I vs ≥ II at follow-up (n, %)	124/39 (76/24)	51/38 (57/47)	0.003	42/42 (50/50)	<0.001
All cause hospitalization (n, %)	24 (15)	18 (20)	0.291	17 (20)	0.283
Cardiac hospitalization (n, %)	3 (2)	2 (2)	1.000	6 (7)	0.066
Device implantation (n, %)	12 (7)	1 (1)	0.037	9 (11)	0.470
SRT (n, %)	2 (1)	8 (9)	0.004	1 (1)	1.000
Medical therapy (n, %)	102 (63)	76 (85)	0.250	67 (80)	0.019