Heart failure

PP-089

A recent survey done in social media: Which areas do you think a heart failure specialist should have competence in?

Servet Altay,[1] Hakan Altay,[2] Yüksel Çavuşoğlu[3]

[1]Department of Cardiology, Trakya University Faculty of Medicine, Edirne
[2]Department of Cardiology, Başkent University İstanbul Health Care Application and Research Center Hospital, İstanbul
[3]Department of Cardiology, Eskişehir Osmangazi University Faculty of Medicine, Eskişehir

Background and Aim: Heart failure (HF) is a serious public health problem occupying a large place in the cardiology clinical practice.Despite advances in diagnosis and treatment of HF, mortality and morbidity remains to be high. Many developed countries national training bodies have developed HF subspecialty curricula within their cardiology training curricula or as postgraduate courses. Studies in the development of a curriculum for a HF specialist has begun in our country as well. However, there is not a consensus about which areas a HF specialist should have competence in. In this study, it was attempted to reveal the doctors' view in social media on the characteristics that a HF specialist should bear and the interventions he should be capable to perform in order to better manage a HF patient.
Methods: Our survey was carried out on the Young Cardiologists Facebook page of the Turkish Society of Cardiology which has 1402 members all of whom consist of medical doctors and medical students within the scope of "Heart Failure Awareness Day on 5-7 May 2017". All the medical doctors wishing to participate in the survey between the dates of 5-15 May were invited. Those who participated in the survey were asked the question "Which area or areas do you think a HF specialist should have competence in?" and the options of Intensive Care Unit, Echocardiography, ICD-CRT Implantation, Catheterization, Percutaneous Coronary Intervention and the option of all of them were presented. Those who participated in the survey were given the right to choose more than one option.
Results: 102 doctors in total participated in the survey. 93.3% of the participants (n=99) stated that a HF specialist should have competence in the Intensive Care Unit area, and this was followed by the options of Echocardiography by 88.6% (n=94), ICD-CRT Implantation by 63.2% (67), Catheterization by 44.3% (n=47), and Percutaneous Coronary Intervention by 33.9% (n=36), respectively (Table 1). 36.7% of the medical doctors (n=39) chose the option of "should have competence in all these areas".
Conclusions: According to the results of our survey, a great majority of the medical doctors believe that a HF specialist should have competence in the intensive care unit area and be specialized in the subject of echocardiographic examination. Along with this, the results also indicate that it is necessary for the specialists who perform the HF follow-ups to be able to carry out coronary intervention and device implantation and follow-up of their own patient.

Table 1.

Profession	% (n)
Intensif Care Unit	93.3 (99)
Echocardiography	88.6 (94)
ICD-CRT Implantation	63.2 (67)
Catheterization	44.3 (47)
Percutan Coronary Intervention	33.9 (36)

Heart failure

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Can atrial fibrillation development be predictable in patients with low ejection fraction heart failure?

Şeref Alpsoy,[1] Kubilay Erselcan,[1] Aydın Akyüz,[1] Demet Özkaramanlı Gür,[1] Şahin Topuz,[1] Birol Topçu,[2] Niyazi Güler1

[1]Department of Cardiology, Namık Kemal University Faculty of Medicine, Tekirdağ
[2]Department of Statistics, Namık Kemal University Faculty of Medicine, Tekirdağ

Background and Aim: Heart failure (HF) is a disease that impairs quality of life. The development of atrial fibrillation (AF) in patients with HF leads to further deterioration of quality of life due to increased symptoms, frequent hospitalizations, cerebrovascular and other embolic events. Paroxysmal AF also poses a risk for embolic phenomena. For this reason, the development of AF in CHF patients should be recognized and well treated. This study was conducted to investigate the factors affecting AF development in patients with low ejection fraction of HF.
Methods: A 24-hour rhythm Holter study was performed in 60 patients with low ejection fraction (EF <40%) HF, basal rhythm sinus.Biochemical and echocardiographic parameters were compared of patients with AF detected and not detected in 24-hour rhythm holter analysis.
Results: AF was found in 46% of the patients participating in the study. In the AF group, NT-proBNP, mitral and aortic regurgitation velocities, E / E' ratio, pulmonary capillary wedge pressure, pulmonary artery pressure and left atrial volume were higher. There were positive correlation between NT-proBNP values and mitral and aortic regurgitation velocities, E / E' ratio, pulmonary capillary wedge pressure, pulmonary artery pressure and left atrial volume. High NT-proBNP values, indicative of increased wall tension, were found to be predictor of AF development in patients with reduced ejection fraction HF in multivariate logistic regression analysis (B±S.E= -0.001±0.000; p<0.001).
Conclusions: In patients with heart failure, increase in intracardiac pressure, left atrial dilatation, and increased wall tension are factors affecting the developmental process of AF. High NT-proBNP values, indicative of increased wall tension, predict AF development.

Heart failure

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Relation of intrarenal renin-angiotensin-aldosterone activity with re-hospitalization and other parameters in heart failure patients with reduced ejection fraction

Özcan Örsçelik,[1] Buğra Özkan,[1] Ayça Arslan,[1] Ertan Emre Şahin,[1] Ozan Sakarya,[1] Orçun Ali Sürmeli,[1] Şenay Balcı Fidancı,[2] Ahmet Çelik,[1] Burak Yavuz Çimen,[2] İsmail Türkay Özcan[1]

[1]Department of Cardiology, Mersin University Faculty of Medicine, Mersin
[2]Department of Biochemistry, Mersin University Faculty of Medicine, Mersin

Background and Aim: Heart failure (HF) is a clinical syndrome resulting from structural or functional damages. In the natural course of HF these patients have recurrent hospitalizations. Because of this, in an increasingly recent manner, new methods are being investigated to provide predictability of both short-term and long-term re-hospitalization and death in HF patients. Although clinical trials have already shown the plasma renin-angiotensin system (RAS) activation negatively affect HF status, the effect of intrarenal RAS activity is unknown yet. Urinary angiotensinogen (UAGT) is consider a marker of intrarenal RAS activity. In this study we investigated the relationship between NYHA class, duration and number of hospitalizations in the last year, and UAGT in heart failure with reduced ejection fraction (HFrEF) patients.
Methods: 85 patients who ejection fraction measured <40% with transthoracic echocardiography and received optimal medical therapy, were included. Twenty-two of these patients were removed the study for various reasons. Demographically and biochemically the remaining 63 patients was compared according to NYHA functional classes and re-hospitalization status.
Results: In terms of demographic features, patients with ≥2 hospitalization in the last year had more males and their NYHA functional classes were worse and the systolic blood pressure (SBP) of these patients were significantly lower (respectively p=0.008, <0.001, p=0.007). When the groups were compared with the respect to NT-proBNP, UAGT, Hs-CRP, it was found that these parameters were significantly higher in patients with ≥2 hospitalization history in the last one year [respectively 709 (67-19971), 4254 (81-14598) p<0.001; 99 (13.3-1233), 193.2 (10.7-804) p=0.007; 3.2 (0.33-70), 14 (1.32-82) p<0.001]. There was a significant correlation between hospitalization numbers of patients in last year and NT-proBNP (r=0.507, p<0.001), Hs-CRP (r=0.511, p<0.001), hemoglobin level (r=-0.419, p=0.001), serum sodium (r=-0.26, p=0.04) and SBP (r=-0.283, p=0.02). In the multivariate linear regression analysis, NT-proBNP, Hs-CRP, and hemoglobin levels were independent predictors of re-hospitalization, but not the same for UAGT.
Conclusions: UAGT status of patients with heart failure has not been clarified in previous studies. Although urinary angiotensinogen level is high in patients with poor NYHA functional class and re-hospitalizations, this marker is not valuable for predicting recurrent hospitalizations in patients with HFeEF.

Table 1. Basal characteristic parameters according to NYHA class

	NYHA class I-II n=30	NYHA class III-IV n=33	P
Age (year)	63.0 ± 12.9	66.2 ± 10.5	0.08
Gender (F/M)	22/8	26/7	0.61*
Duration of HF (month)	32 (10-200)	45 (10-240)	0.61
Number of days hospitalized in the last year	0 (0-20)	16 (3-60)	**<0.001**
Number of hospitalization in the last year	0 (0-3)	3 (1-10)	**<0.001**
BMI (kg/m^2)	25.8 ± 5.1	27.7 ± 3.3	**0.02**
Heart Rhythm			
Sinus rhythm	28	20	
Atrial fibrillation	0	11	
Pacemaker rhythm	2	2	
Disease History			
Diabetes mellitus	9	15	0.2*
Hypertension	20	18	0.32*
Coronary artery disease	21	23	0.97*
Coronary artery bypass grafting	7	14	0.1*
Device History			
Implantable cardioverter defibrillator	11	15	0.63*
Cardiac resynchronization therapy	1	3	
Drug Information			
Beta blocker	27	31	0.66*
Ace-i/ARB	29	27	0.056*
MRA	25	29	0.72*
Furosemide	17	30	**0.005***
Ivabradine	8	10	0.96*

NYHA: New York Heart Failure Association functional classification; F/m: female/male; HF: heart failure; BMI: body mass index; Ace-i: angiotensin converting enzyme; ARB: angiotensin II receptor blocker; MRA: mineralocorticoid receptor antagonist

Normally distributed values are presented as mean ± SD, non-normally distributed values as median (range) and categorical values as number of patients.
*p = Chi-squared value.

Table 2. Basal characteristic and biochemical parameters according to re-hospitalization

	Hospitalized < 2 times n=27	Hospitalized ≥ 2 times n=36	p
Age (year)	66.4 ± 13.1	63.4 ± 10.5	0.31
Gender (f/m)	11/16	4/32	**0.008***
Duration of HF (month)	40 (10-200)	33 (10-240)	0.87
NYHA class 3-4 (%)	5 (%15.2)	28 (%84.8)	**<0.001***
Hemoglobin (g/L)	13.3 ± 1.6	12.4 ± 2	0.06
Platelet count (x1000/mm^3)	223 ± 84	229 ± 75	0.77
White blood cell count (10^3/µL)	8.6 ± 2.4	8.7 ± 2.8	0.86
BMI (kg/m^2)	26.2 ± 2.9	27.2 ± 3.6	0.25
Systolic blood pressure (mmHg)	129.2 ± 21.6	114.1 ± 21	**0.007**
Diastolic blood pressure (mmHg)	75.5 ± 12.4	70.6 ± 14.3	0.16
Heart rate (beat/min)	74.7 ± 12.9	82 ± 15.6	0.051
Biochemical parameters			
Creatinine (mg/dL)	1.0 ± 0.27	1.0 ± 0.34	0.57
Serum sodium (mEq/L)	139.7 ± 3.6	137.7 ± 4.6	0.08
Serum potassium (mEq/L)	4.8 ± 0.5	4.4 ± 0.6	**0.005**
eGFR (ml/min per 1.73 m^2)§	68.6 (35-115)	75.4 (50.6-133.9)	0.56
Fasting total cholesterol (mg/dL)	181.8 ± 51	152.7 ± 51.4	**0.03**
Fasting LDL cholesterol (mg/dL)	100.1 ± 39.3	91.6 ± 41.5	0.42
Fasting triglyceride (mg/dL)	201.8 ± 149.5	125.9 ± 58	**0.01**
NT-proBNP (pg/mL)	709 (67-19971)	4254 (81-14598)	**<0.001**
UAGT/UCre (µg/g)	99 (13,3-1233)	193.2 (10.7-804)	**0.007**
Hs-CRP (mg/dL)	5.2 (0.33-70)	14 (1.32-82)	**<0.001**
Heart Rhythm			
Sinus rhythm	24	24	
Atrial fibrillation	1	10	
Pacemaker rhythm	2	2	

Table 2. Basal characteristic and biochemical parameters according to re-hospitalization.

	Hospitalized < 2 times n=27	Hospitalized ≥ 2 times n=36	p
Disease History			
Diabetes mellitus	8	16	0.34*
Hypertension	21	17	**0.028***
Coronary artery disease	21	23	0.97*
Coronary artery bypass grafting	7	14	0.1*
Device History			
Implantable cardioverter defibrillator	13	13	0.11*
Cardiac resynchronization therapy	0	4	
Drug Information			
Beta blocker	24	34	0.64*
Ace-i/ARB	26	29	0.12*
MRA	24	30	0.72*
Furosemide	17	30	0.33*
Ivabradine	8	10	0.90*
Echocardiographic parameters			
Left Ventricle End-Diastolic Diameter (mm)	57.2 ± 7.4	61.5 ± 8.6	**0.04**
Left Ventricle End-Systolic Diameter (mm)	46.2 ± 6.9	5.0 ± 8.4	0.07
Left Ventricular Ejection Fraction (%)	30.8 ± 5.4	26.9 ± 7.5	**0.02**
Systolic Pulmonary Artery Pressure (mmHg)	46 ± 19.3	54.1 ± 14.6	0.17
Left Atrium Diameter (mm)	41 ± 7.4	49 ± 8.4	**<0.001**

NYHA: New York Heart Failure Association functional classification; f/m: female/male; HF: heart failure; BMI: body mass index; Ace-i: angiotensin converting enzyme; ARB: angiotensin II receptor blocker; MRA: mineralocorticoid receptor antagonist; eGFR: estimated glomerular filtration rate; **LDL**: low density lipoprotein; *NT-proBNP: N-terminal fragment of B-type natriuretic peptide; UAGT: urinary angiotensinogen; UCre: urine creatinine; Hs-CRP: high-sensitivity C-reactive protein*

§Calculated formula by the Modification of Diet in Renal Disease (MDRD)
Normally distributed values are presented as mean ± SD, non-normally distributed values as median (range) and categorical values as number of patients.
*p = Chi-squared value.

Table 3. Correlation analysis of important parameters in terms of heart failure

	UAGT/UCre		Number of hospitalization in the last year		Number of days hospitalized in the last year		NT-proBNP		Hs-CRP		eGFR		Serum sodium		Systolic blood pressure		Hemoglobin	
	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p	r	p
UAGT/UCre	-	-	0.432	<0.001	0.464	<0.001	0.514	<0.001	0.437	<0.001	-0.046	0.71	-0.242	0.058	-0.219	0.08	-0.283	0.02
Number of hospitalization in the last year	0.432	<0.001	-	-	-	-	0.507	<0.001	0.503	<0.001	0.033	0.80	-0.26	0.04	-0.283	0.02	-0.459	0.001

Table 4. Multivariate linear regression analysis of the predictive factors for rehospitalization (r2 = 0.308)

Varibles	Beta	p
UAGT/UCre (µg/g)	-0.19	0.24
NT-proBNP (pg/mL)	-0.37	**0.04**
Hs-CRP (mg/dL)	0.39	**0.03**
Hemoglobin (g/L)	-0.38	**0.02**
Serum sodium (mEq/L)	-0.08	0.6
Systolic blood pressure (mmHg)	0.08	0.58

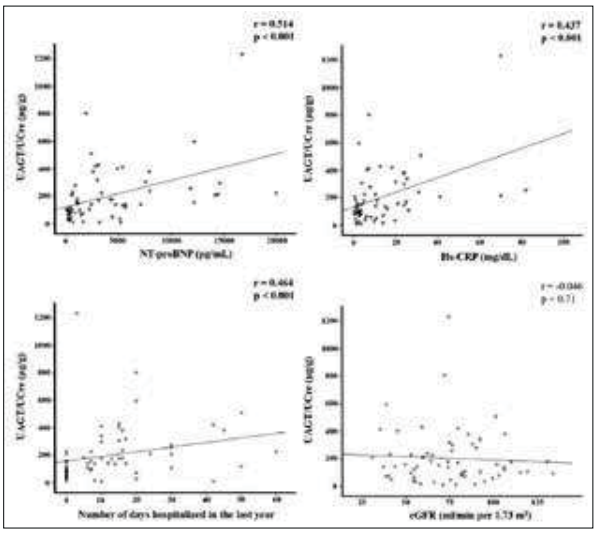

Figure 1. Univariate correlates of selected markers in all 63 study participants.

Heart failure

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Sacubitril/valsartan in heart failure: First clinical experiences

Müjgan Tek Öztürk, Aksüyek Savaş Çelebi, Basri Amasyalı, Berkten Berkalp

Department of Cardiology, Private TOBB ETÜ Hospital, Ankara

Background and Aim: Sacubitril/valsartan (LCZ696) is a new oral agent approved for the treatment of symptomatic chronic heart failure. The efficacy and safety of LCZ696 in heart failure patients were demonstrated in PARADIGM-HF study. We aimed to present our real life clinical practice with sacubitril/valsartan.
Methods: Ten chronic heart failure patients treated with sacubitril/valsartan were evaluated. Sacubitril/valsartan was started at a dose twice 50 mg and 3 months later in 6 patients titrated up to twice 100mg dose. New York Heart Association (NYHA) class, blood pressure measurings were recorded and blood samples for BNP, potassium were taken baseline and at the end of 6 months follow up. Baseline and follow up results were compared statistically.
Results: The study population included 7 (70%) male 3 (30%) female patient mean age 66.6±11.83. Their mean LVEF was 28±4.47. There was a significant difference in NYHA class between baseline and 6 months (after sacubitril/valsartan) (p=0.025). A significant decrease was found in BNP levels (1164.2±1095.79 versus 859.32±1086, p=0.043). There was no significant change between serum potassium levels (p>0.05), but in one patient there was a history of hospitalization due to hypercalemia. Although there was a significant decrease in systolic blood pressure of the patients (p=0.028), only 2 patients had symptomatic hypotension and half-dose use was achieved.
Conclusions: Our initial clinical experience show that, patients may be able to provide serious symptomatic benefits when used in selected appropriate patients and that patients require close follow-up in terms of side effects.

Table 1. Comparision of baseline and 6 months characterictics of the study group

	Baseline	6 Months (after sacubitril/valsartan)	p
NYHA class	3,0±0,5	2,14±0,37	0,025
BNP (pg/ml)	1164,2±1095,79	859,32±1086	0,043
K (mEq/ L)	4,09±0,43	4,08±0,61	0,735
SBP (mmHG)	121,0±8,43	106,11±18,67	0,028
DBP (mmHG)	67,5±8,24	64,44±9,16	0,459

Heart failure

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The effect of medication and dietary compliance on re-hospitalization and quality of life in patients with heart failure

Seyhan Çıtlık Sarıtaş, Gül Dural

Department of Nursing, İnönü University Faculty of Health Sciences, Malatya

Background and Aim: Heart failure is a disease that is increasingly hospitalized, harmonizing with medication and dietary treatment, and adversely affecting the quality of life of patients.The aim of this research is to determine the effect of medical and dietary compliance on re-hospitalization and quality of life in patients with heart failure.
Methods: The research was done between July 2015 and July 2016. The research universe consisted of 379 adult patients with heart failure who was diagnosed at least 6 months before and have previously hospitalized