Characteristic	**HFrEF N = 133**	**HFpEF N = 83**	**p-value**
Age (years)	82 [77-87]	79 [77-83]	**0.04**
Men – n. (%)	72 (54)	30 (36)	**0.01**
BMI (kg/m^2)	27.4[24.5-29.7]	28.7[26.0-30.5]	**0.02**
Risk factors - n.(%)			
CAD	88 (66)	19 (23)	**<0.001**
Diabetes	66 (50)	27 (32)	**0.01**
Dyslipidaemia	69 (52)	37 (46)	**0.30**
Hypertension	68 (51)	67 (81)	**<0.001**
Smoking	38 (29)	29 (35)	**0.32**
AF	38 (29)	16 (19)	**0.12**
Clinical examination & BNP			
Heart rate (beats/min)	90 [87-97]	89 [86-94]	**0.36**
Systolic blood pressure (mmHg)	125 [110-135]	140 [130-150]	**<0.001**
Diastolic blood pressure (mmHg)	70 [55-80]	85 [80-95]	**<0.001**
Respiratory rate (n./min)	29 [27-32]	29 [26-33]	**0.58**
Rales n./(%)	119 (89)	79 (95)	**0.14**
Peripheral oedema n./(%)	116 (87)	40 (48)	**<0.001**
Hepatomegaly n./(%)	64 (48)	27 (32)	**0.02**
Jugular vein distention n./(%)	81 (61)	33 (40)	**0.002**
Third heart sound n./(%)	71 (47)	17 (20)	**<0.001**
BNP (pg/mL)	1150 [812-1790]	851 [694-1196]	**0.002**
Echocardiography and LUS			
LVEDD (mm)	61 [56-66]	51 [45-55]	**<0.001**
LVESD (mm)	46 [41-52]	34 [29-37]	**<0.001**
LVEDV (ml)	160 [140-190]	115 [100-145]	**<0.001**
LVESV (ml)	100 [80-130]	55 [45-70]	**<0.001**
Left atrial Area (cm^2)	28 [24-31]	25 [22-27]	**<0.001**
PASP (mmHg)	45 [40-50]	45 [40-55]	**0.92**

Septal thickness (mm)	11 [10-13]	12 [11-14]	**0.001**
Posterior wall (mm)	11 [9-12]	12 [11-13]	**0.002**
TAPSE (mm)	18 [16-21]	20 [17-22]	**0.02**
Inferior vena cava diameter (mm)	23 [22-24]	22 [21-25]	**0.95**
E/e’	16 [14-18]	16 [14-18]	**0.63**
B-lines (n)	32 [27-38]	30 [25-36]	**0.07**
Outcome			
60 days adverse events - n.(%)	36 (27)	17 (21)	**0.27**

Supplementary Table 1. Characteristics of Patients with heart failure with reduced (HFrEF) or preserved (HFpEF) left ventricular ejection fraction. Abbreviations used: AF - Atrial fibrillation; BMI- Body mass index; BNP - B-type natriuretic peptide; CAD – Coronary artery disease; LVEDD – Left Ventricular End diastolic diameter; LVESD – Left Ventricular End systolic diameter; LVEDVi – Left Ventricular End diastolic volume index; LVESVi – Left Ventricular End systolic volume index; PASP - Pulmonary artery systolic pressure ; TAPSE - Tricuspid annular plane systolic excursion.

Characteristics	**BMI<25 kg/m^2 N = 59**	**25≤BMI<30 kg/m^2 N = 100**	**BMI≥30 kg/m^2 N=57**	**p-value**
Age (years)	81 [78-86]	81 [76-86]	80 [77-85]	**0.48**
Men – n. (%)	31 (52)	43 (43)	28 (49)	**0.48**
Risk factors – n. (%)				
CAD	31 (52)	53 (53)	23 (40)	**0.27**
Diabetes	28 (47)	42 (42)	23 (40)	**0.71**
Dyslipidaemia	32 (54)	50 (50)	24 (42)	**0.41**
Hypertension	34 (58)	57 (57)	34 (60)	**0.44**
Smoking	22 (37)	31 (31)	14 (25)	**0.33**
AF	14 (24)	25 (25)	15 (26)	**0.95**
Clinical examination & BNP				
Heart rate (beats/min)	91 [87-97]	89 [87-94]	91 [86-95]	**0.67**
Systolic blood pressure (mmHg)	130 [110-135]	135 [120-144]	135 [125-142]	**0.07**
Diastolic blood pressure (mmHg)	75 [55-80]	80 [70-89]	80 [70-90]	**0.12**
Respiratory rate (n./min)	31 [29-34]	29 [26-32]	28 [26-32]	**0.001**
Rales – n. (%)	56 (95)	93 (93)	49 (86)	**0.18**
Peripheral oedema (%)	42 (72)	76 (76)	38 (67)	**0.44**
Hepatomegaly (%)	27 (46)	47 (47)	17 (30)	**0.09**
Jugular vein distention (%)	31 (53)	54 (54)	29 (51)	**0.93**
Third heart sound (%)	29 (49)	43 (43)	16 (28)	**0.06**
BNP - pg/mL	1640 [1020-2600]	1035 [768-1394]	703 [571-957]	**<0.001**
Echocardiography and LUS				
LVEDD (mm)	59 [52-65]	57 [50-63]	55 [50-63]	**0.30**
LVESD (mm)	43 [36-50]	41 [33-49]	39 [34-47]	**0.21**
LVEDV (ml)	150 [120-190]	145 [106-175]	145 [112-180]	**0.34**
LVESV (ml)	88 [65-138]	80 [60-110]	80 [55-100]	**0.16**
LVEF (%)	40 [25-50]	42 [31-50]	45 [35-55]	**0.08**
Left Atrial Area (cm^2)	28 [25-31]	26 [22-29]	25 [23-29]	**0.03**

PASP (mmHg)	45 [40-55]	45 [40-50]	45 [35-55]	**0.32**
Septal thickness (mm)	12 [10-13]	12 [10-13]	12 [10-13]	**0.77**
Posterior wall (mm)	11 [10-13]	11 [10-12]	11 [10-12]	**0.90**
TAPSE (mm)	19 [16-21]	18 [16-21]	19 [16-21]	**0.98**
Inferior Vena cava diameter (mm)	23 [22-25]	22 [22-25]	23 [21-25]	**0.57**
E/e'	17 [14-18]	15 [14-17]	16 [13-18]	**0.13**
B-lines (n)	38 [32-42]	30 [26-35]	28 [24-33]	**<0.001**
Outcome				
60 days adverse events - n (%)	14 (24)	30 (30)	9 (16)	**0.14**

Table 1. Characteristics of patients with heart failure, according to body mass index (BMI). Abbreviations used: AF- Atrial fibrillation; BNP - B-type natriuretic peptide; CAD – Coronary artery disease; LVEDD – Left Ventricular End diastolic diameter; LVESD – Left Ventricular End systolic diameter; $LVEDV_i$ – Left Ventricular End diastolic volume index; $LVESV_i$ – Left Ventricular End systolic volume index; LVEF- Left ventricular ejection fraction; PASP - Pulmonary artery systolic pressure; TAPSE - Tricuspid annular plane systolic excursion.

	B-Lines Tercile 1 (Range: ≤27) N=63	**B-Lines Tercile 2 (Range: 28-35) N=83**	**B-Lines Tercile 3 (Range: ≥36) N=70**	**p-value**
Clinical congestion				
Rales (yes) - n. (%)	56 (89)	74 (89)	68 (97)	0.13
Peripheral oedema- n. (%)	44 (70)	60 (72)	52 (74)	0.85
JV distention - n. (%)	25 (40)	42 (51)	47 (67)	0.006
Hepatomegaly – n. (%)	23 (36)	36 (43)	32 (46)	0.54
Third heart sound – n. (%)	22 (35)	29 (35)	37 (53)	0.04
Biochemical or ultrasound congestion				
BNP – pg/ml	822 [586-1130]	890 [694-1354]	1740 [982-2577]	<0.001
BNP – pg/ml (if in SR)	836 [672-1131]	974 [759-1383]	1525 [915-2595]	<0.001
BNP – pg/ml (if in AF)	586 [408-1110]	681 [473-815]	1900 [1410-2572]	<0.001
IVC – mm	22 [21-24]	22 [20-25]	24 [22-26]	0.002

	IVC Tercile 1 (Range: ≤21 mm) N=50	**IVC Tercile 2 (Range: 22-24 mm) N=107**	**IVC Tercile 3 (Range: ≥25 mm) N=59**	
Clinical congestion				
Rales (yes) - n. (%)	41 (82)	103 (96)	54 (91)	0.01
Peripheral oedema- n. (%)	31 (62)	72 (67)	53 (90)	0.001
JV distention - n. (%)	16 (27)	58 (54)	40 (80)	0.001
Hepatomegaly – n. (%)	12 (24)	44 (41)	35 (59)	0.001
Third heart sound – n. (%)	10 (20)	51 (48)	27 (48)	0.003
Biochemical or ultrasound congestion				
BNP – pg/ml	839 [712-1022]	1150 [791-1790]	1100 [679-1950]	0.008

BNP – pg/ml (if in SR)	832 [693-980]	1164 [826-1792]	1135 [862-1970]	<0.001
BNP – pg/ml (if in AF)	1174 [779-1610]	1000 [516-1765]	851 [527-1965]	0.93
B-lines	28 [26-36]	32 [26-36]	32 [29-42]	0.008

Table 2a and 2b. Clinical, biochemical and ultrasound prevalence of congestion according to terciles of B-lines or IVC diameter.

Variable	Univariable analysis		
Demographics			
	HR (95% CI)	χ^2	p-value
Age (years)	1.04[0.99-1.08]	2.42	0.12
Male sex	0.75[0.43-1.30]	1.08	0.30
Atrial Fibrillation	14.12[7.71-25.87]	73.44	<0.001
Heart rate (beats/min)	1.00[0.96-1.04]	0.01	0.92
Systolic blood pressure (mmHg)	1.01[0.99-1.03]	2.09	0.15
Diastolic blood pressure (mmHg)	1.01[0.99-1.03]	2.30	0.13
Respiratory rate (n./min)	1.19[1.11-1.29]	21.04	<0.001
Clinical signs of congestion			
Rales (yes vs no)	2.64[0.64-10.84]	1.81	0.18
Peripheral oedema (yes vs no)	37.09[3.26-491.92]	8.48	0.004
Hepatomegaly (yes vs no)	5.06[2.70-9.47]	25.70	<0.001
Jugular vein distention (yes vs no)	10.50[4.18-26.40]	25.00	<0.001
Third heart sound (yes vs no)	5.32[2.84-9.95]	27.27	<0.001
Echocardiography			
LVEDD (mm)	1.00[0.97-1.03]	0.002	0.96
LVESD (mm)	1.00[0.97-1.02]	0.02	0.90
LVEDV (ml)	1.00[0.99-1.01]	0.25	0.62
LVESV (ml)	1.00[0.99-1.01]	0.03	0.87
LVEF (%)	0.99[0.97-1.01]	0.96	0.33
LVEF<50%	1.30[0.73-2.32]	0.80	0.37
Septal thickness (mm)	1.02[0.90-1.15]	0.10	0.76
Posterior wall (mm)	1.07[0.93-1.23]	0.87	0.35
Left Atrial Area (cm^2)	1.05[0.99-1.11]	3.31	0.07
E/e’	1.08[0.99-1.18]	2.79	0.10
TAPSE (mm)	0.86[0.80-0.92]	18.71	<0.001

PASP (mmHg)	1.00[0.97-1.02]	0.05	0.83
BMI, ultrasound measures of congestion and BNP			
BMI - kg/m^2	0.96[0.89-1.04]	0.96	0.33
BMI<25 kg/m^2	ref	ref	ref
25≤BMI<30 kg/m^2	1.28[0.68-2.42]	0.58	0.46
BMI>30 kg/m^2	0.64[0.28-1.48]	1.07	0.30
LogBNP	1.47[0.95-2.29]	3.00	0.08
B-lines (n)	1.07[1.03-1.11]	15.00	<0.001
Inferior Vena cava diameter (mm)	1.16[1.12-1.21]	57.67	<0.001

Table 2 supplementary: Univariable Cox regression model for the composite endpoint of death from all causes or HF hospitalization in patients with HF (n = 216 patients with heart failure who had 53 events). For the continuous variables, the values are the hazard ratios associated with a unitary increase in that variable. List of abbreviation used: Atrial Fibrillation (AF); Body mass index (BMI); B-type Natriuretic Peptide (BNP); Coronary Artery Disease (CAD); Left Ventricular End diastolic diameter (LVEDD); Left Ventricular End systolic diameter (LVESD);Left Ventricular End diastolic volume index (LVEDVi); Left Ventricular End systolic volume index (LVESVi); Left ventricular ejection fraction (LVEF); Pulmonary artery systolic pressure (PASP); Tricuspid annular plane systolic excursion (TAPSE).

Variable	Association with the Composite of First HFH or Death Multivariable analysis								
	Model including B-Lines			Model including IVC			Model including IVC and B-lines		
	HR (95% CI)	**χ^2**	**p-value**	**HR (95% CI)**	**χ^2**	**p-value**	**HR (95% CI)**	**χ^2**	**p-value**
Age - years									
Atrial Fibrillation (vs no AF)	12.59[6.55-24.20]	57.79	<0.001	9.03[4.70-17.33]	51.66	<0.001	10.70[5.45-20.99]	47.46	<0.001
Respiratory rate	1.14[1.04-1.26]	7.60	0.006	1.16[1.06-1.28]	43.75	0.002	1.12[1.02-1.23]	6.10	0.01
Peripheral oedema (yes vs no)									
LogBNP				2.06[1.38-3.06]	12.62	<0.001	1.85 [1.13-3.03]	5.98	0.01
B-lines	1.11[1.05-1.17]	14.35	<0.001	-	-	-	1.10[1.04-1.16]	12.63	<0.001
IVC – mm	-	-	-	1.09[1.03-1.15]	9.42	0.002	1.08[1.02-1.13]	7.65	0.006

Table 3A: Five candidate variables of interest (age, atrial fibrillation (AF), respiratory rate, peripheral oedema and LogBNP) were chosen prospectively in addition to ultrasound measurements of congestion. A small number of variables were selected to avoid over-fitting. Three separate analyses are shown to test the independent association of different ultrasound measurements of congestion with outcome, including B-lines (left column), IVC diameter (mid column), and IVC diameter and B-lines simultaneously (right column). Results are shown only for variables independently associated with outcome.

Variable	Association with the Composite of First HFH or Death

	Multivariable analysis								
	Model including B-Lines			Model including IVC			Model including IVC and B-lines		
	HR (95% CI)	**χ^2**	**p-value**	**HR (95% CI)**	**χ^2**	**p-value**	**HR (95% CI)**	**χ^2**	**p-value**
Age - years									
TAPSE - mm	0.87[0.81-0.94]	12.83	<0.001	0.88[0.82-0.95]	10.25	0.001	0.89[0.83-0.97]	7.59	0.006
Left atrial area – cm^2									
E/e'									
LogBNP				1.50 [1.01-2.23]	3.98	0.05			
B-lines	1.06[1.01-1.11]	6.83	0.009				1.04[0.99-1.09]	2.48	0.11
IVC – mm				1.20[1.14-1.27]	46.78	<0.001	1.19[1.13-1.26]	39.92	<0.001

Table 3b: The three echocardiographic variables that were most strongly associated with prognosis in univariable analysis (TAPSE, E/e' and Left atrial area) were chosen in addition to ultrasound measurements of congestion, age and logBNP. A small number of variables were selected to avoid over-fitting. Three separate analyses are shown to test the independent association of different ultrasound measurements of congestion with outcome, including B-lines (left column), IVC diameter (mid column), and IVC diameter and B-lines simultaneously (right column). Results are shown only for variables independently associated with outcome.

DEATH OR RE-HOSPITALIZATION (60 days)

Variable	**BMI<25 kg/m²**			**25≤BMI<30 kg/m²**			**BMI≥30 kg/m²**		
	HR (95% CI)	**Wald**	**p-value**	**HR (95% CI)**	**Wald**	**p-value**	**HR (95% CI)**	**Wald**	**p-value**
Clinical congestion									
Peripheral oedema	37.8[0.34-4134.63]	2.29	0.13	34.23[1.19-919,1]	4.24	0.04	41.19[0.14-12039]	1.647	0.20
Pulmonary rales	21.9[0.001-478478]	0.368	0.54	1.20 [0.29-5.04]	0.06	0.80	25.8[0.009-71795]	0.65	0.42
Hepatomegaly	4.88[1.36-17.54]	5.92	0.01	7.41[2.83-21.40]	16.64	<0.001	2.08[0.56-7.75]	1.19	0.27
Jugular vein distension	6.19[1.38-27.70]	5.69	0.02	15.76[3.75-66.26]	14.16	<0.001	8.67[1.08-69.40]	4.15	0.04
Third heart sound	4.22[1.18-15.16]	4.88	0.03	5.49[2.35-12.84]	15.46	<0.001	5.47[1.36-21.91]	5.75	0.02
Biochemical congestion									
LogBNP	2.63 [1.03-6.70]	4.11	0.04	1.87 [0.88-3.99]	2.64	0.10	0.49 [0.15-1.58]	1.43	0.23
Congestion by ultrasound									
B-lines	1.11 [1.03-1.19]	8.44	0.004	1.14 [1.07-1.21]	16.97	<0.001	1.00 [0.91-1.09]	0.01	0.92
Inferior vena cava - mm	1.27 [1.14-1.41]	19.93	<0.001	1.14 [1.09-1.21]	25.50	<0.001	1.16 [1.06-1.27]	9.96	0.002

Table 4. Univariate analysis according to body mass index (BMI).