

HEART FAILURE IN WOMEN



AHEAD



FAR NHL

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investigators

BACKGROUND

The AHEAD (**A**cute **HEA**rt failure **D**atabase) MAIN registry is a database conducted in 7 university hospitals

– all with 24 hour cath lab service – in 4 cities, area 3 milion inhabitants

Internal Cardiology Dpts, Masaryk University, Brno, CR

Internal Cardiology Dpts, Charles University, Prague, CR

Internal Cardiology Dpt, Olomouc, CR

Internal Cardiology Dpt, Zlín, CR



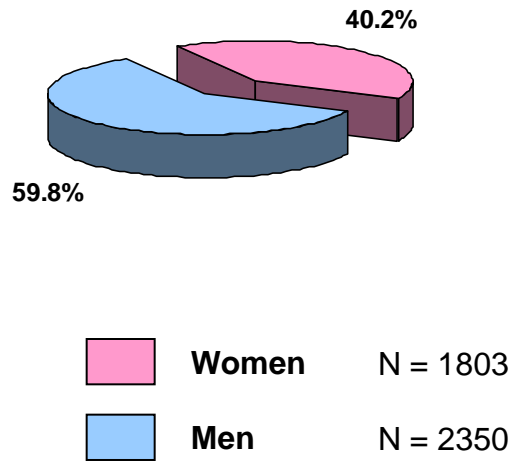
BACKGROUND

The inclusion criteria adhere to ESC guidelines for **HF**. There must be signs and symptoms of HF, confirmed LV dysfunction (systolic/diastolic) and response to therapy.

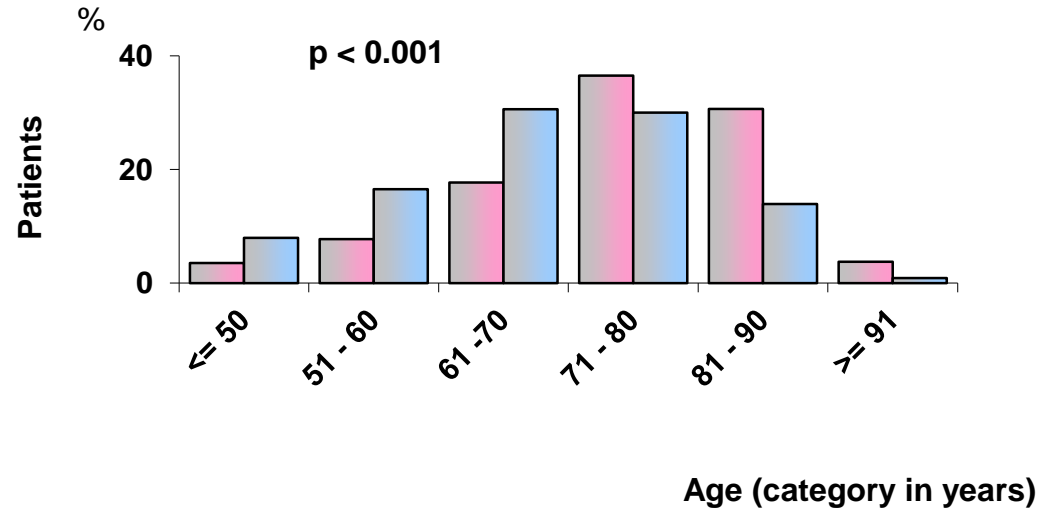


AHEAD

❖ Sex



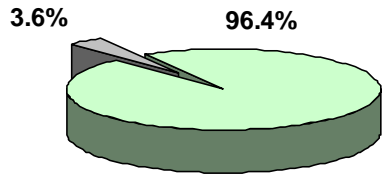
❖ Age



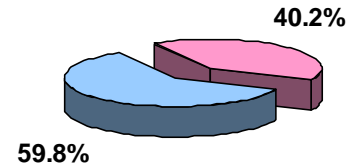
Summary statistics – age of patients (yrs)

	N	Mean	Median	5%percentile	95%percentile
All patients	4153	70.6	72.0	49.0	87.0
Sex					
Women	1803	74.6	77.0	54.0	89.0
Men	2350	68.0	69.0	46.0	85.0

$p < 0.001$

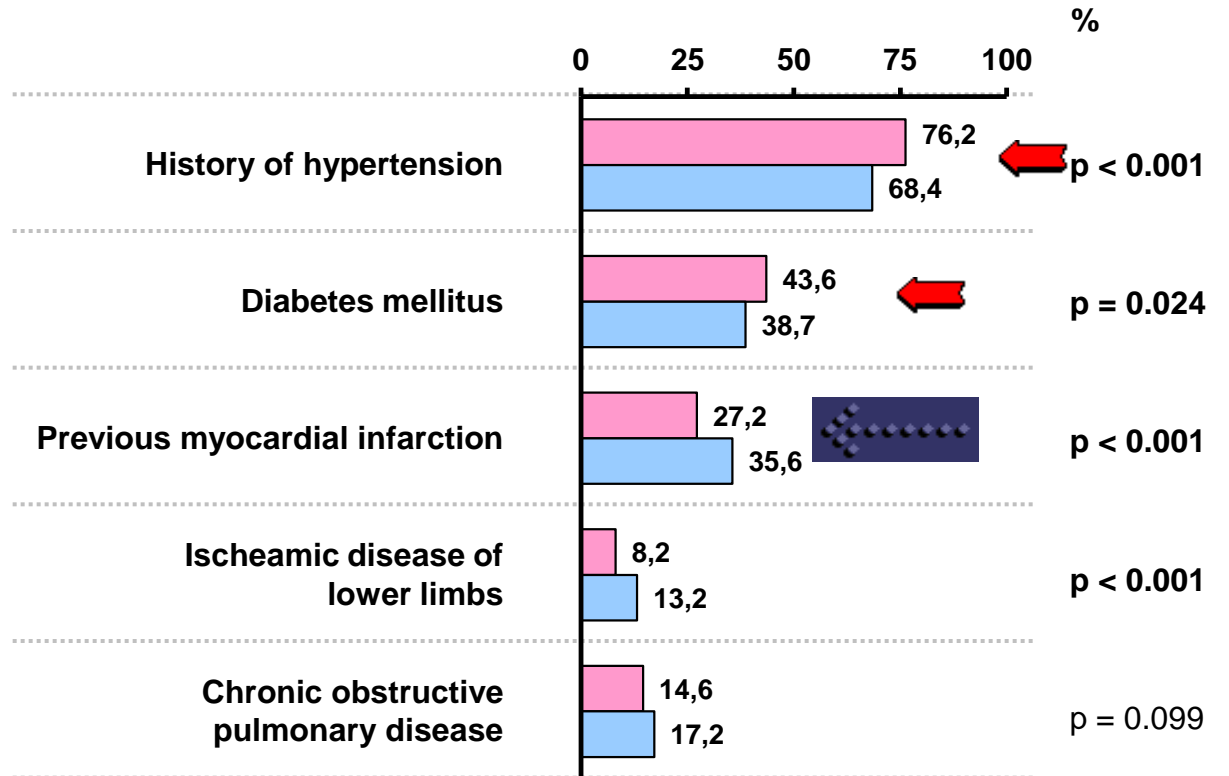


N = 4003
→

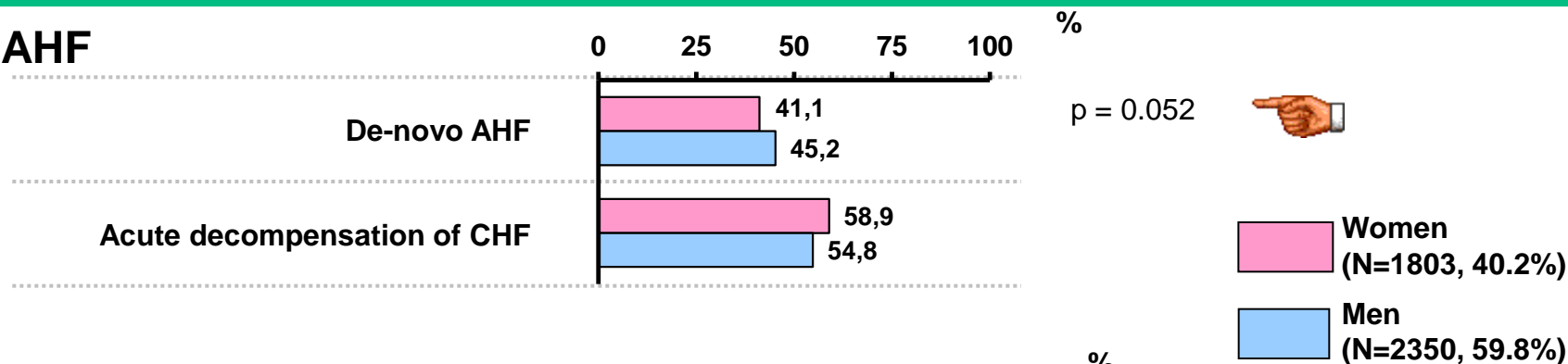


Women N = 1650
Men N = 2353

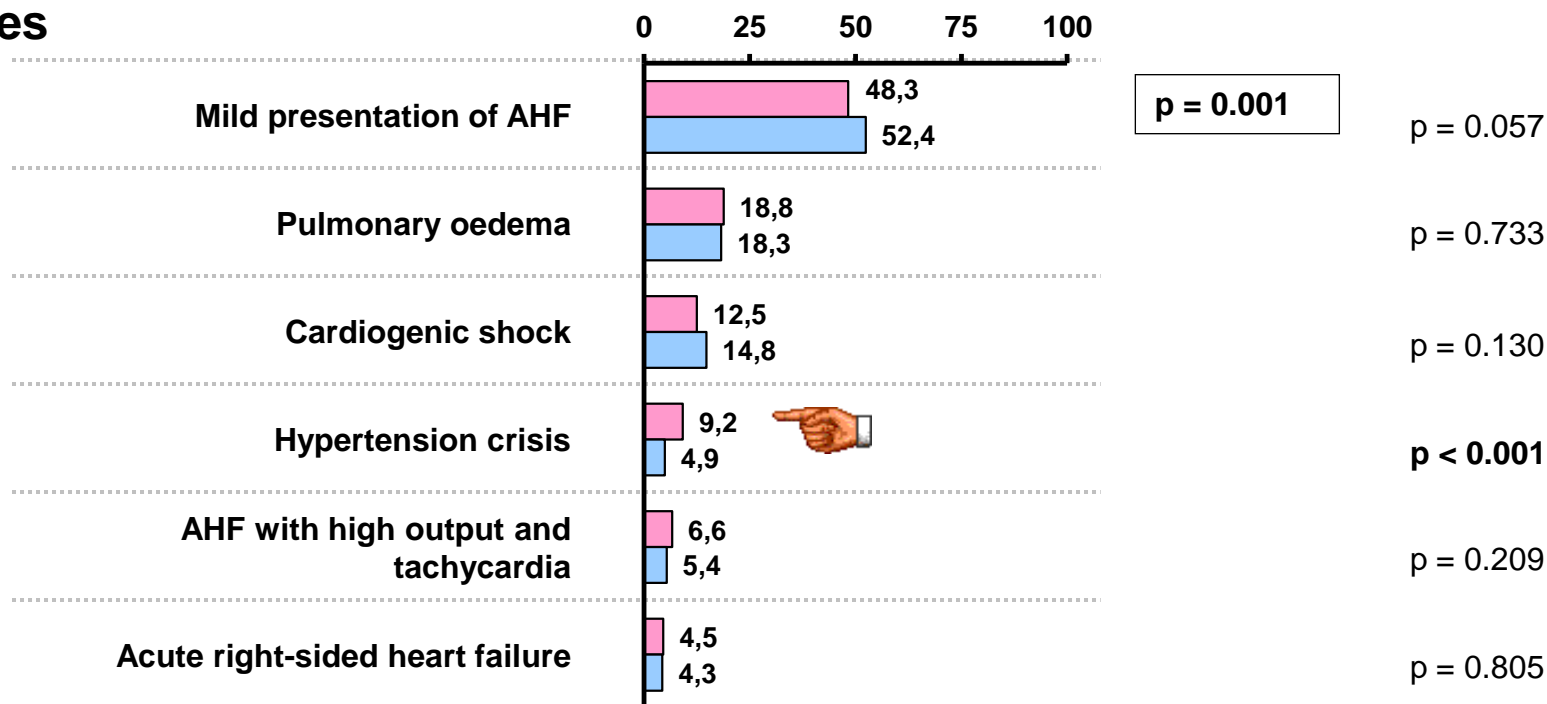
Information about medication available N = 2165
Information about medication not available N = 80



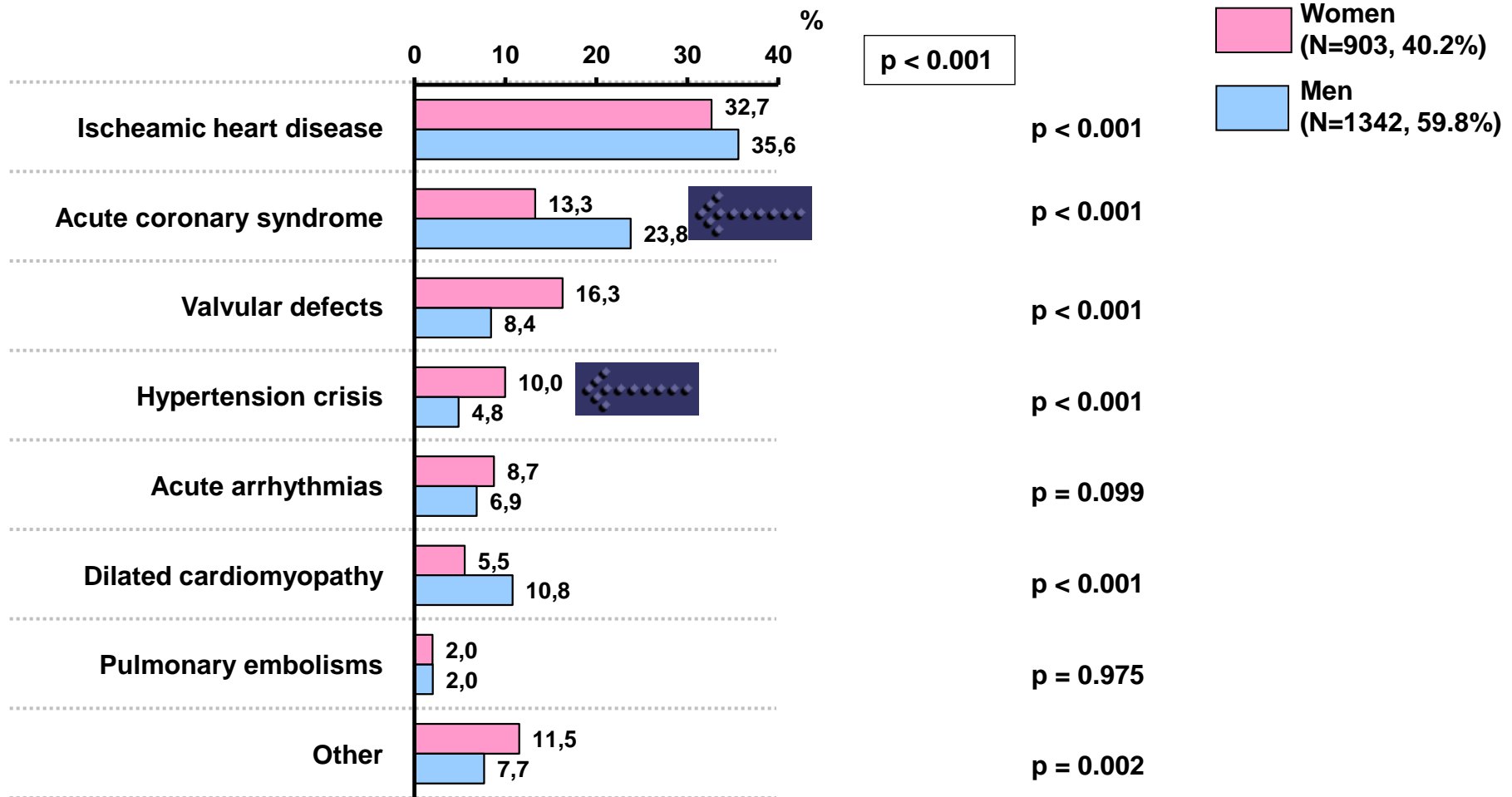
❖ Type of AHF

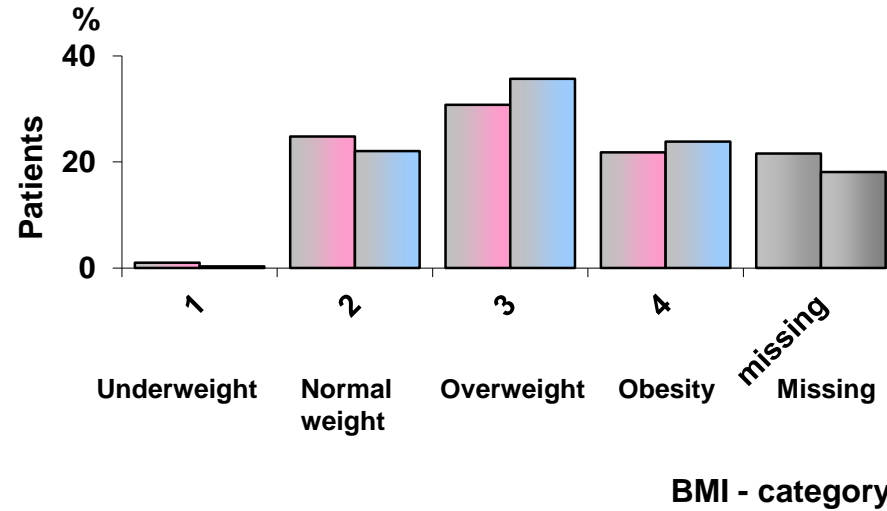
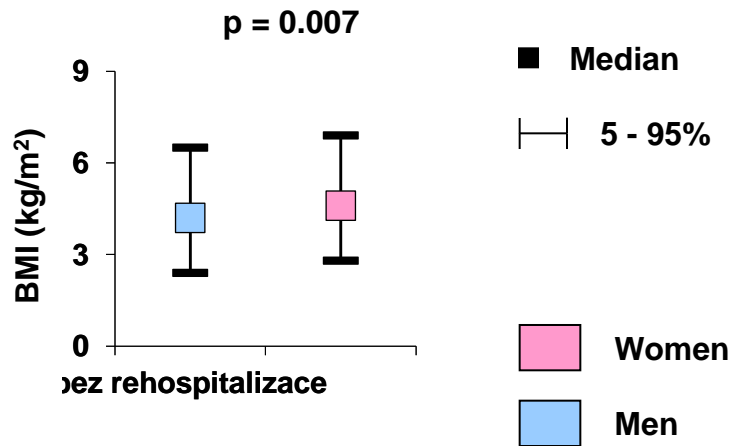


❖ Syndromes



Aetiology of acute heart failure

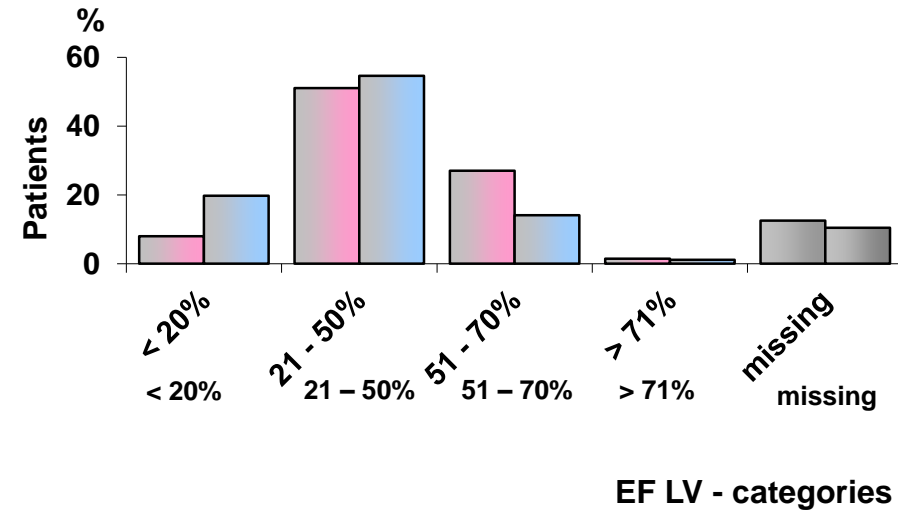
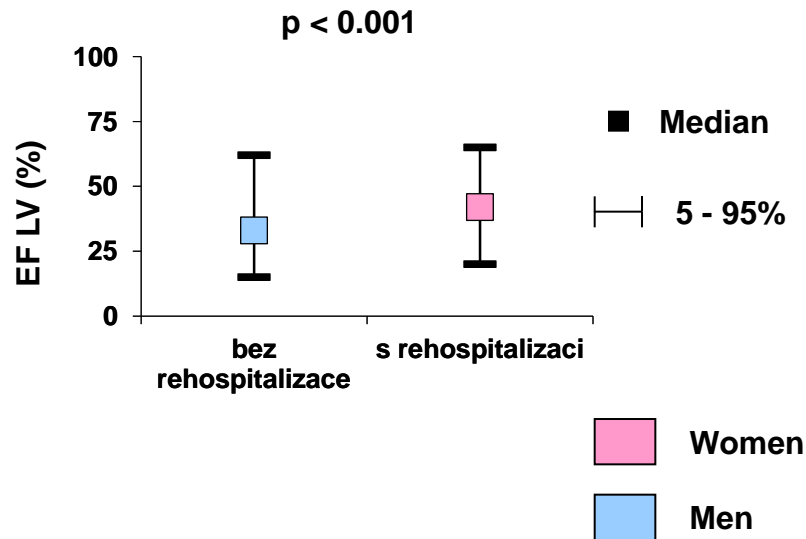




Summary statistics – BMI of patients (kg/m²)

	N	Mean	Median	5%percentile	95%percentile
All patients	1824*	28.4	27.5	21.4	37.9
Sex					
Women	720	27.8	27.3	20.6	37.1
Men	1104	28.8	27.7	21.9	38.0

* It was not possible to compute BMI value for 421 patients due to incomplete records.



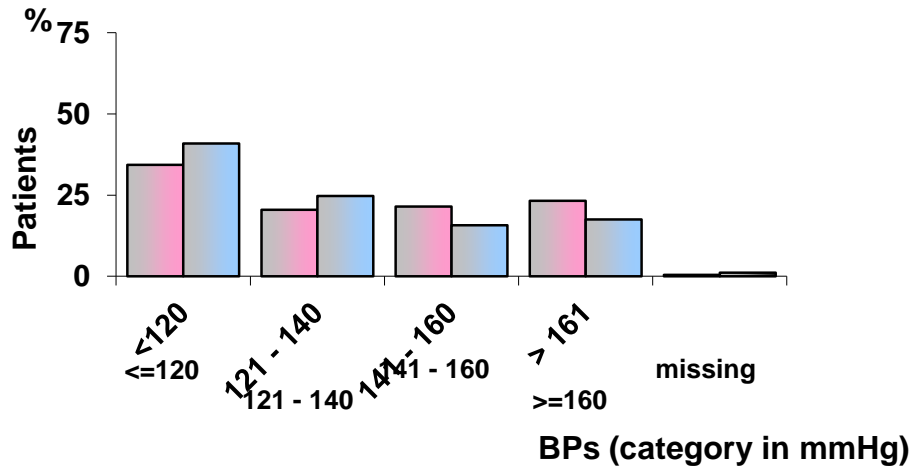
Summary statistics – EF LV (%)

	N	Mean	Median	5%percentile	95%percentile
All patients	1992*	38.5	35.0	16.0	65.0
Sex					
Women	790	42.8	42.0	20.0	65.0
Men	1202	35.6	33.0	15.0	62.0

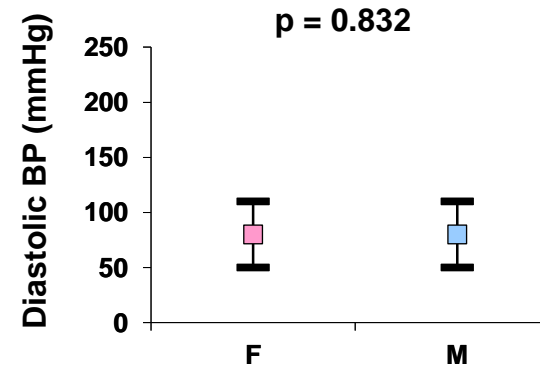
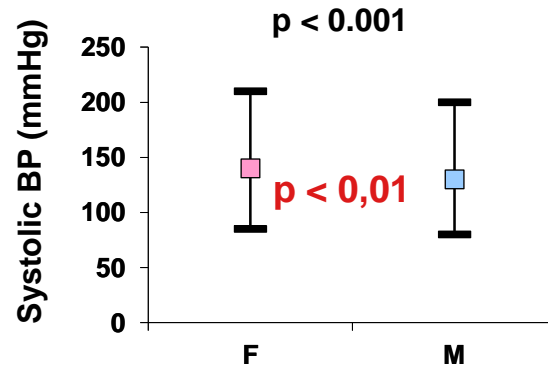
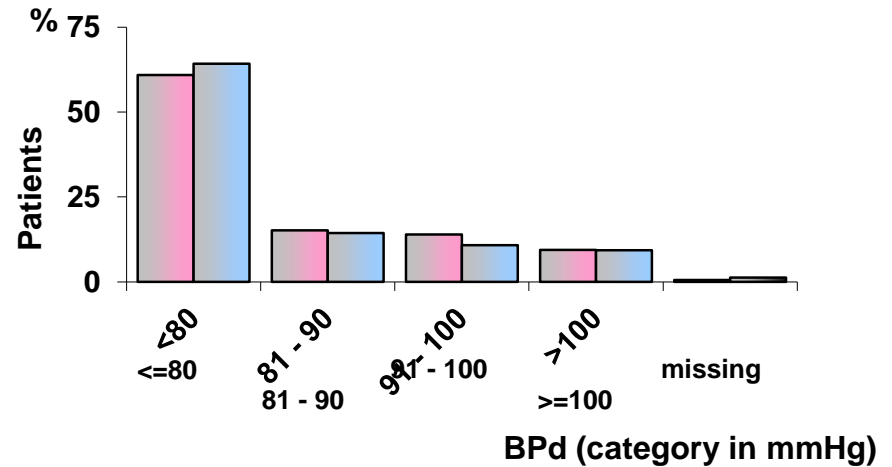
$p < 0.001$

* EF LV value was not specified for 253 patients.

❖ Systolic blood pressure (mmHg)



❖ Diastolic blood pressure (mmHg)



Women
(N=903, 40.2%)

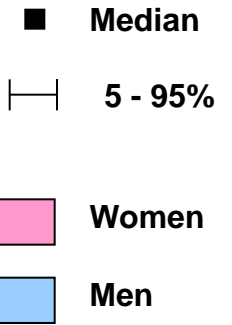
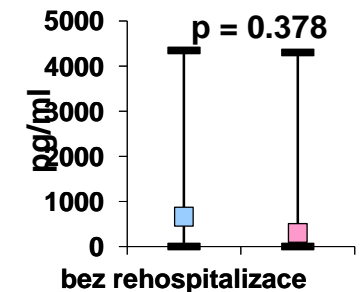
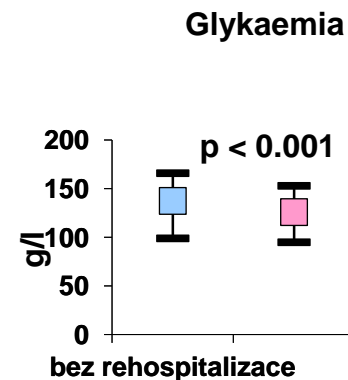
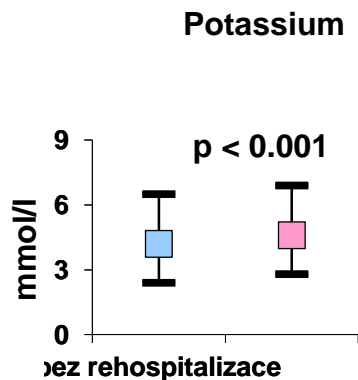
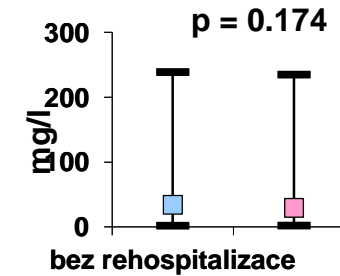
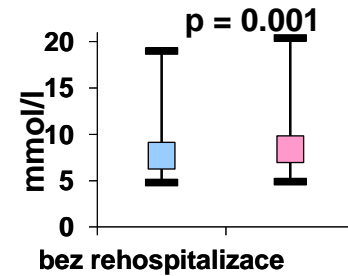
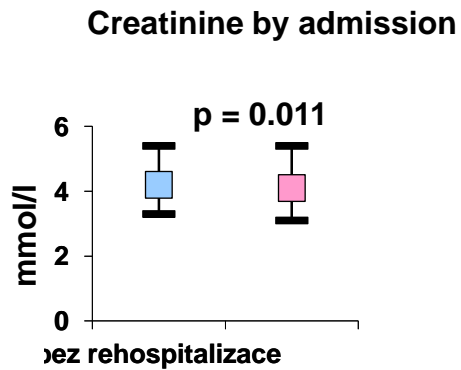
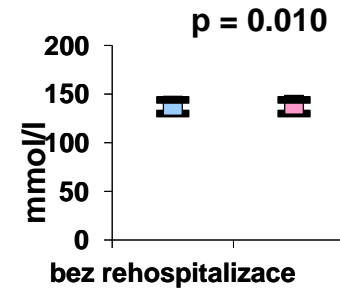
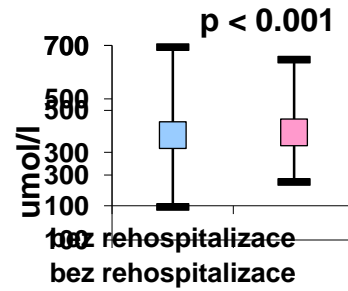
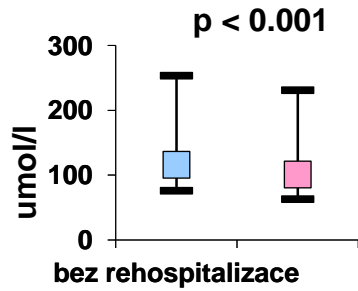
Men
(N=1342, 59.8%)

■ Median

┆ 5 - 95%

Mean	140.7	134.1	79.1	79.3
Median	140.0	130.0	80.0	80.0
5 - 95%	85 - 210	80 - 200	50 - 110	50 - 110

The value of systolic blood pressure was not specified in 19 patients, the value for diastolic blood pressure in 22 patients



RESULTS

Age of patients according to the cholesterol level and gender.

*

Age	All patients	Women	Men	p*
Cholesterol categories				
<4.50	72.8 (47.4 ;87.0)	77.7 (53.8 ;89.5)	69.5 (44.4 ;85.1)	<0.001
4.50 – 4.99	72.6 (53.5 ;87.3)	78.6 (55.9 ;88.4)	69.1 (48.7 ;84.,8)	<0.001
5.00 – 5.49	72.8 (52.3 ;82.0)	77.3 (54.3 ;86.3)	68.8 (51.8 ;83.1)	<0.001
5.50 – 5.99	70.9 (45.5 ;85.9)	76.8 (50.0 ;87.8)	64.2 (43.2 ;83.9)	0.004
>=6.00	69.4 (47.4 ;85.8)	75.6 (54.8 ;86.9)	64.4 (43.6 ;83.6)	<0.001
Together	72.0 (48.9 ;86.4)	77.3 (54.4 ;88.2)	68.7 (45.3 ;84..8)	<0.001

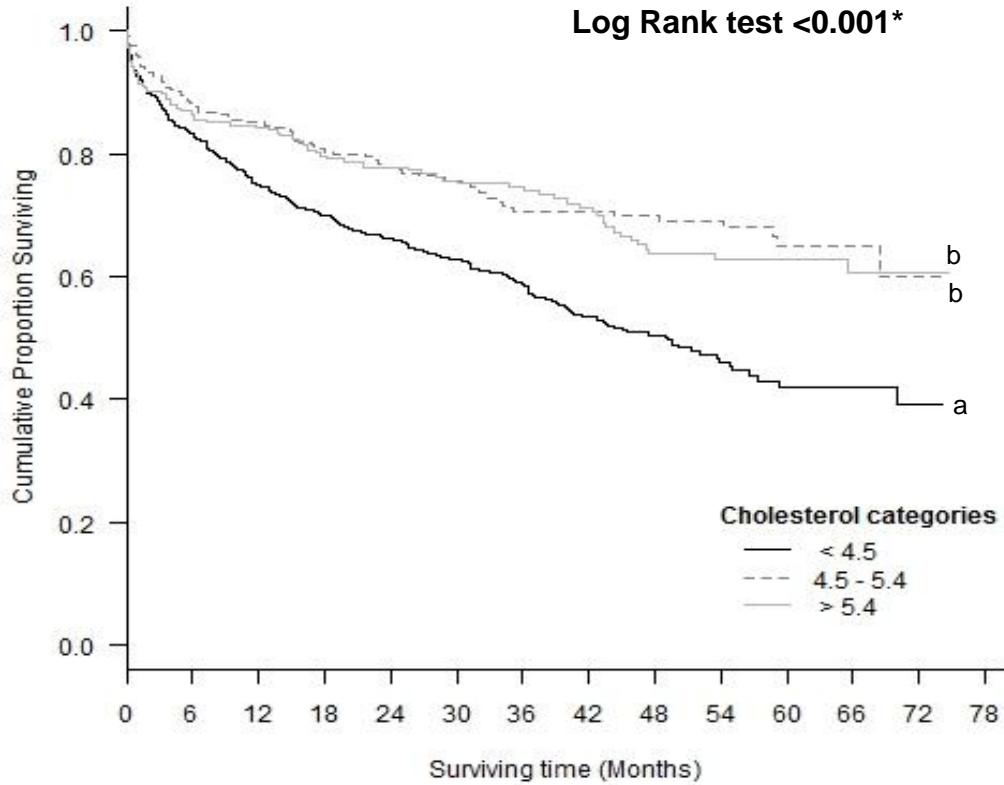
RESULTS

Proportion of patients according to the cholesterol categories and gender.

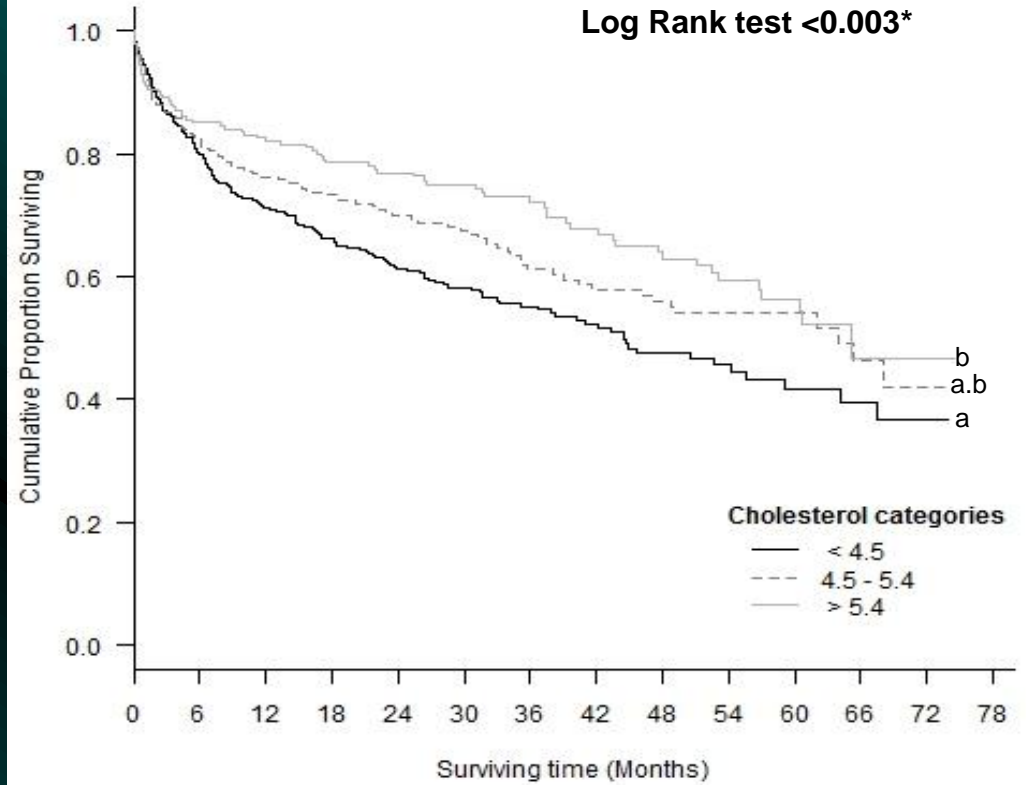
	All patients (N = 2384)	Women (N = 946)	Men (N = 1437)	p*
Cholesterol level				
	4.40	4.60	4.24	<0.001
Cholesterol categories				
<4.50	52.6%	45.0%	57.6%	<0.001
4.50 – 4.99	14.8%	16.3%	13.8%	
5.00 – 5.49	10.9%	12.5%	9.8%	
5.50 – 5.99	9.1%	11.4%	7.7%	
>=6.00	12.6%	14.8%	11.1%	

Long-term survival for discharged patients according to the cholesterol level and gender.

Male



Female



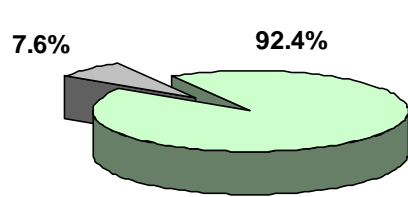
Cholesterol categories

	<4.5	4.5 - 5.4	> 5.4
	N=674(57.2%)	N=283(24.0%)	N=222(18.8%)
1 year survival	75.2(71.9;78.5)	84.6(79.9;89.4)	85.1(80.9;89.2)
3 years survival	59.0(55.1;63.0)	74.8(69.0;80.7)	70.6(64.9;76.2)
5 years survival	42.0(36.3;47.8)	63.1(55.9;70.2)	64.9(57.7;72.1)

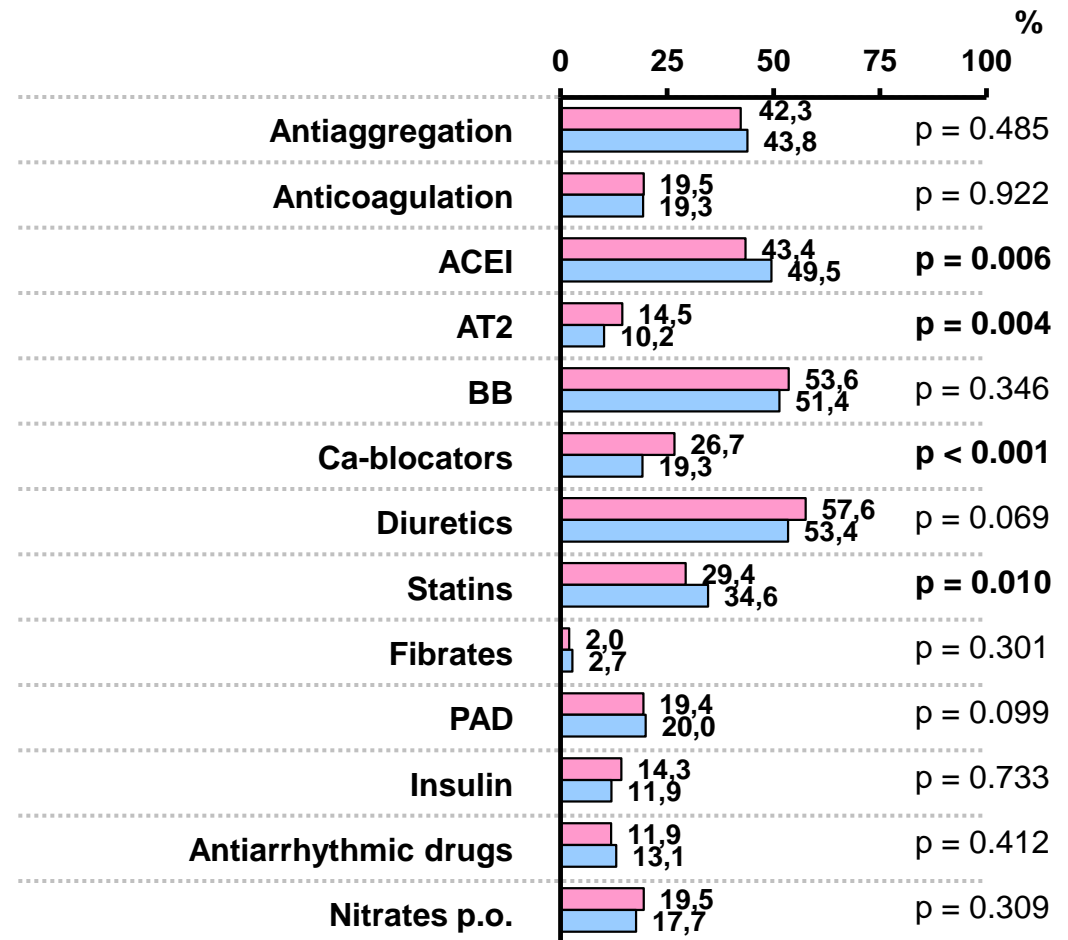
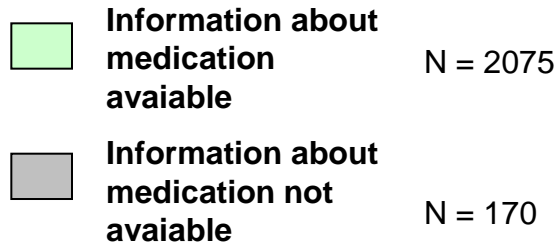
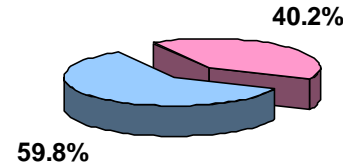
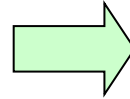
Cholesterol categories

	<4.5	4.5 - 5.4	> 5.4
	N=364(47.0%)	N=209(27.0%)	N=201(26.0%)
1 year survival	71.3(66.7;75.9)	82.6(77.4;87.8)	76.6(70.8;82.3)
3 years survival	55.2(49.8;60.6)	72.2(65.7;78.6)	61.4(54.4;68.5)
5 years survival	41.8(34.6;49.1)	56.4(47.6;65.3)	54.3(46.5;62.1)

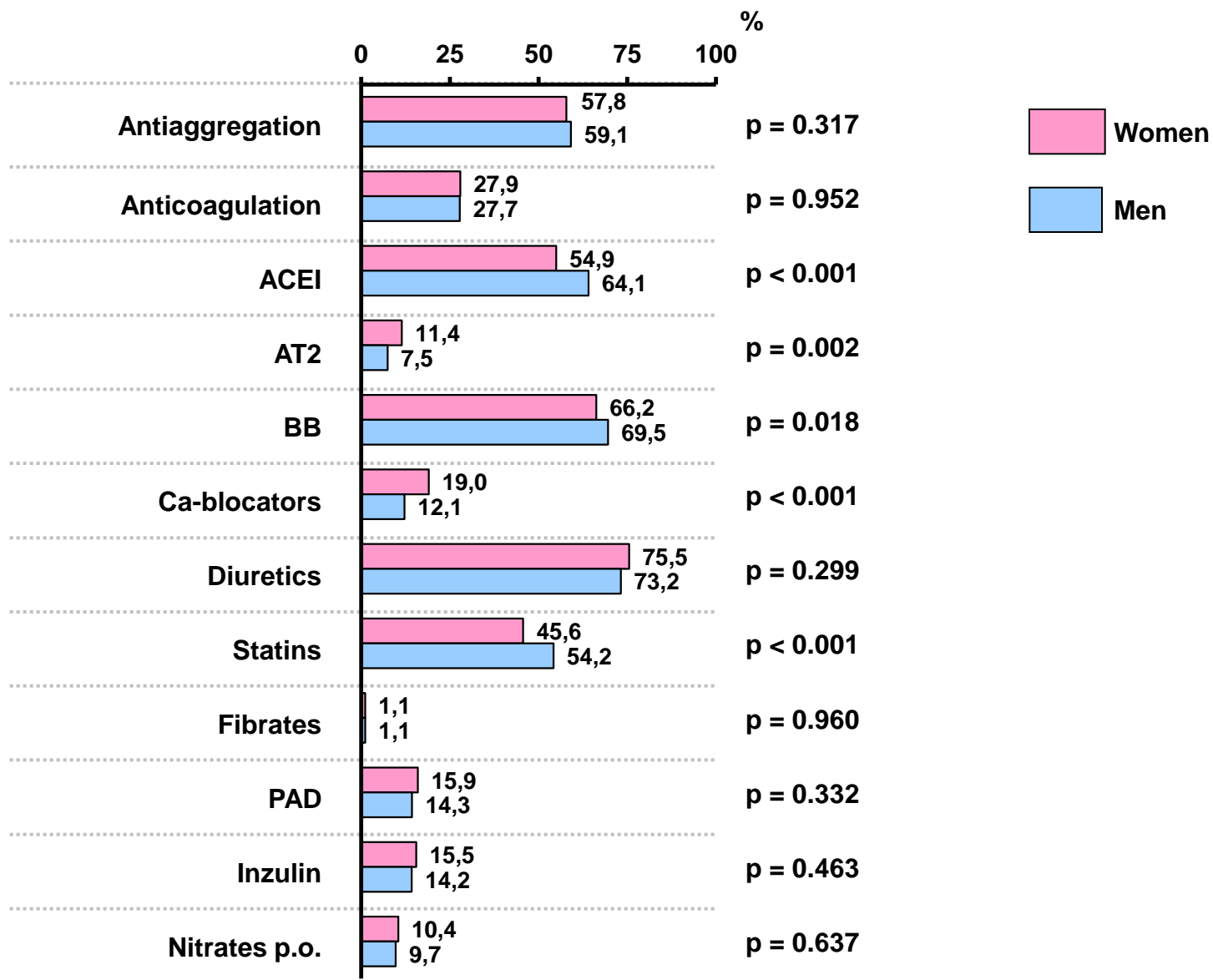
a. b. c – the same letters denotes groups of patients which are not statistically significantly different (log rank test)



N = 2075



Medication by discharge

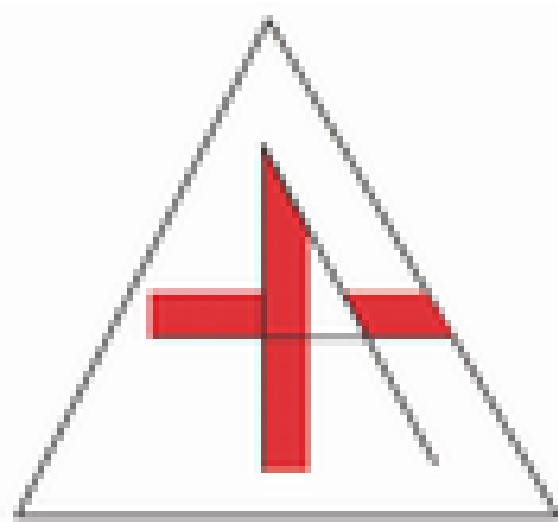


CONCLUSION

- 1. Women with AHF are older and more obese than men**
- 2. Women have more often DM and hypertension**
- 3. Aetiology of AHF in women is hypertension crisis or valvular defects, while in men ACS.**
- 4. Women have higher EF and BP**
- 4. Laboratories: women have lower Hb, K, UA and Kr and higher Glyc and chol.**

FAR NHL

FARmacotherapy and NeuroHumoraL activation
in patients with chronic heart failure





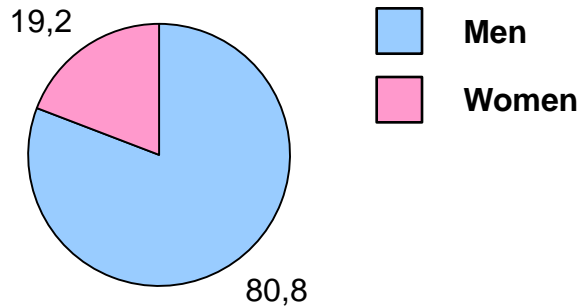
FAR NHL

Inclusion criteria

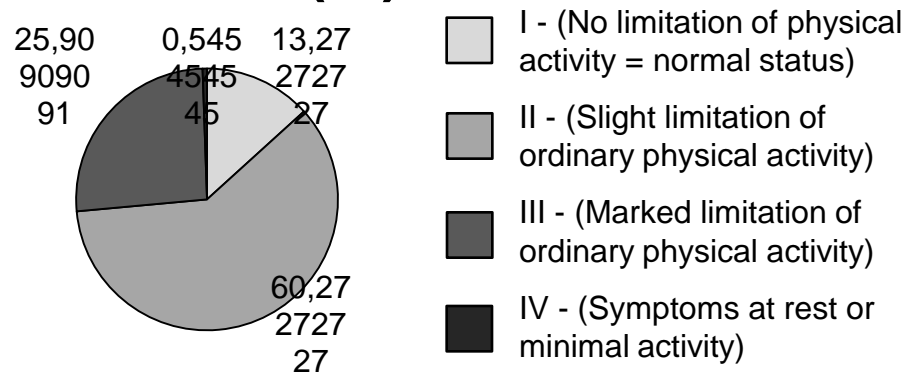
- 1. Systolic heart failure with EF less than 50%**
- 2. Treatment for heart failure**
- 3. Stable more than one month**

Basic characteristics

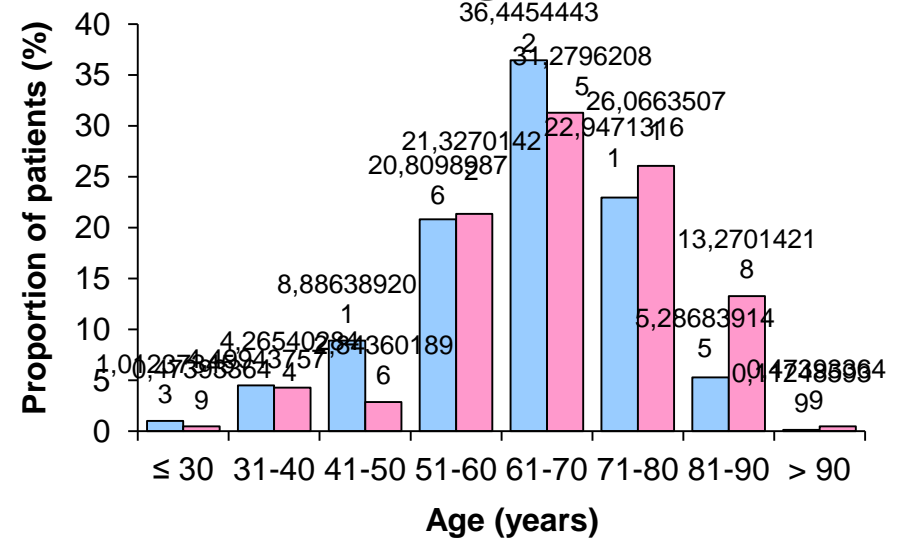
Gender (%)



NYHA (%)



Age

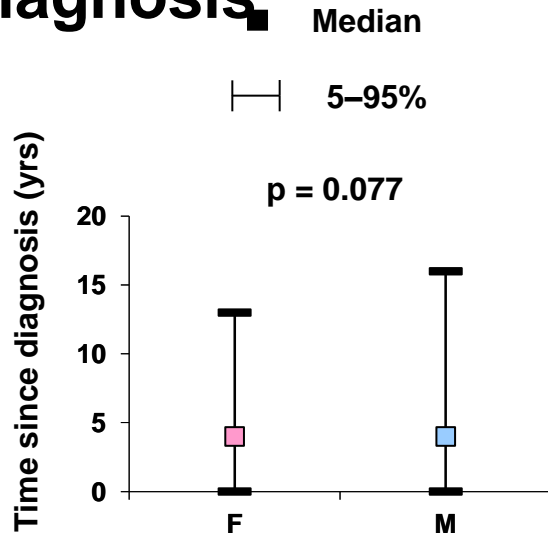


Age	N	Median (5th-95th percentile)	Mean ± SD	P*
Men	889	65.0 (39.0; 81.0)	63.4 ± 12.0	0.001
Women	211	68.0 (41.0; 86.0)	66.7 ± 12.3	
Total	1100	65.0 (39.5; 82.0)	64.0 ± 12.1	

*P-value of Mann-Whitney U test

Time since diagnosis & aetiology of chronic heart failure

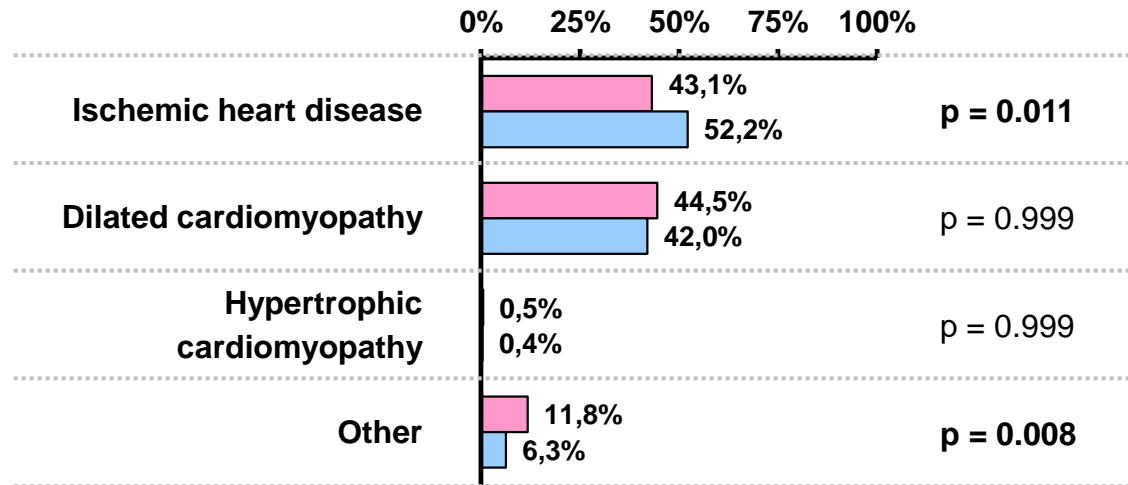
❖ Time since the diagnosis



Summary statistics – Time since diagnosis in years

	Women	Men
Mean	4.9	5.5
Median	3.8	4.2
5-95%	0.3-13.0	0.4-15.9

❖ Aetiology of chronic heart failure*



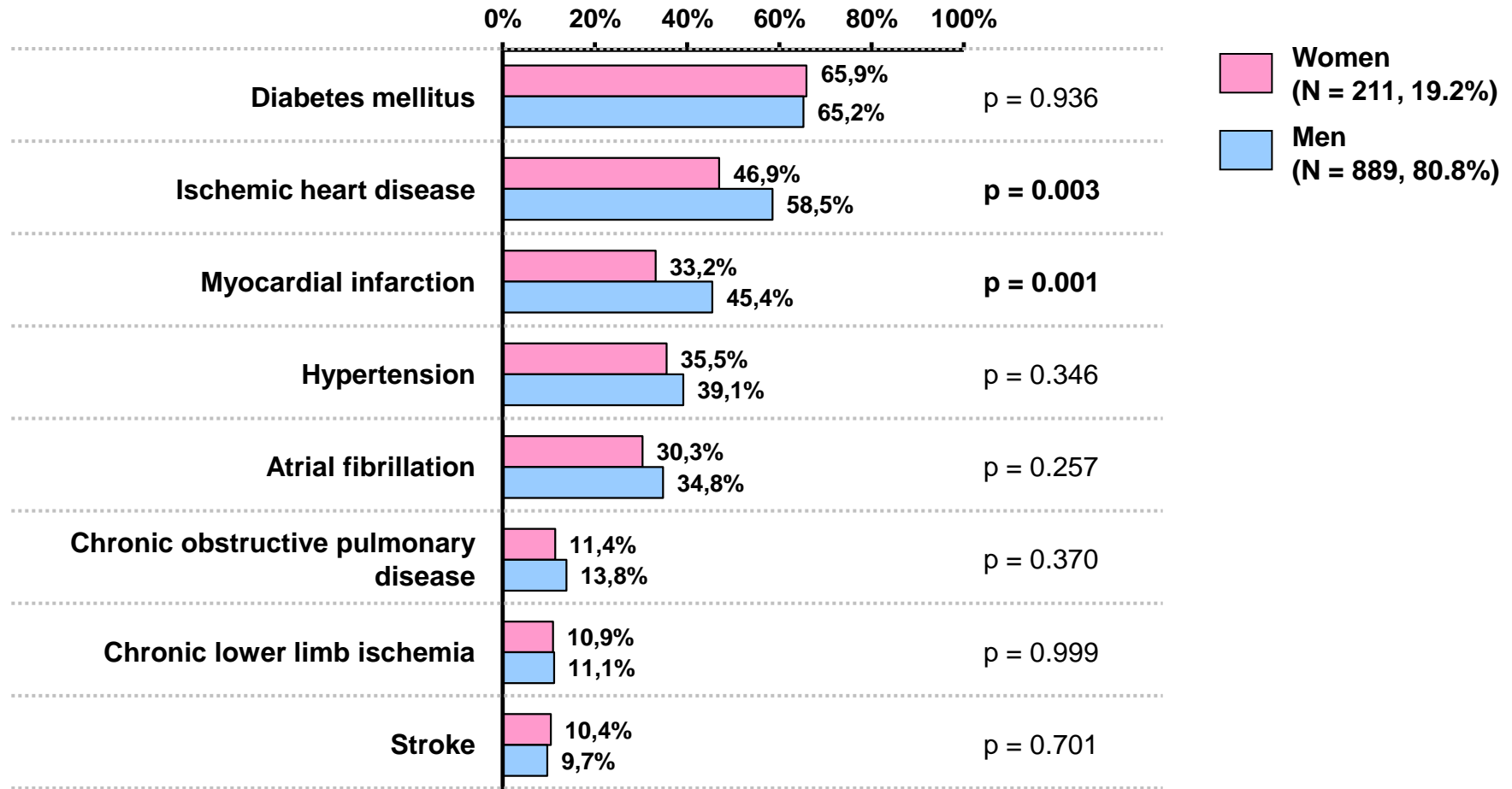
*p-value of Fisher's exact test

Women
(N = 211, 19.2%)

Men
(N = 889, 80.8%)

*More than one option is possible.

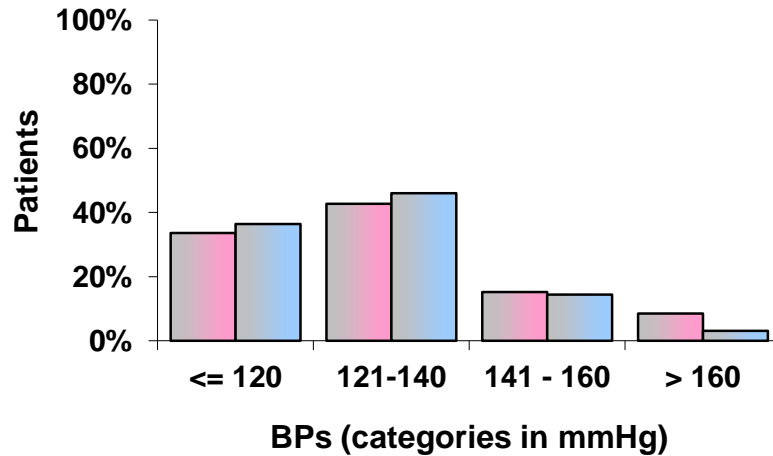
Patients' history



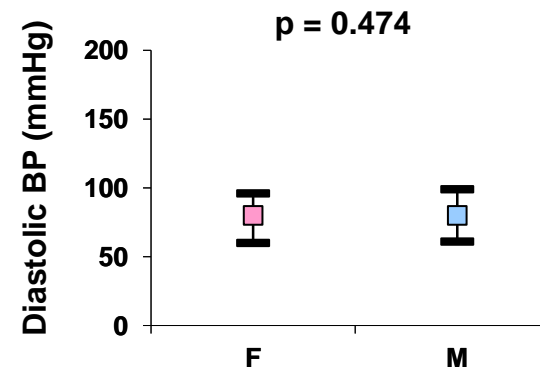
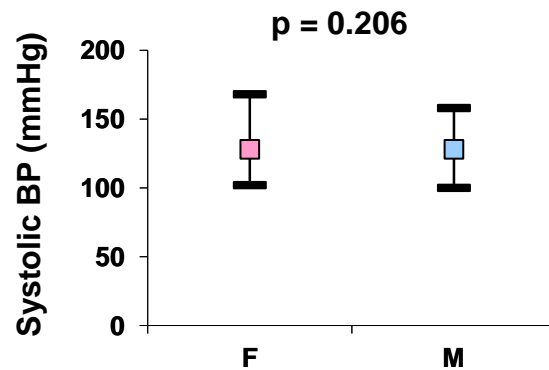
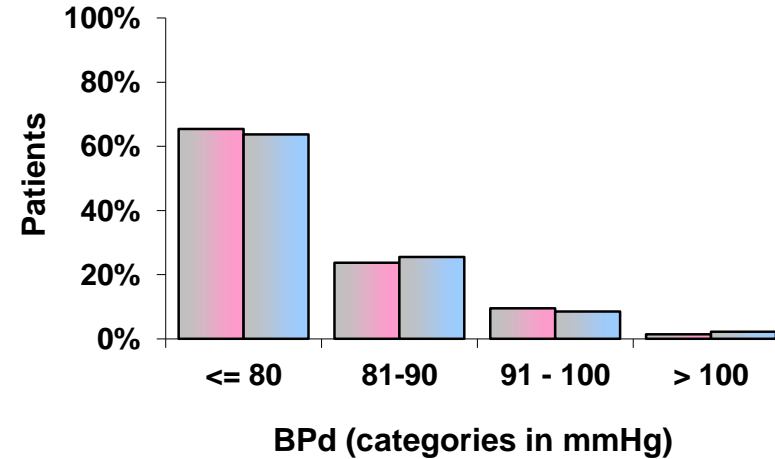
*p-value of Fisher's exact test





Blood pressure – basic characteristics

❖ Systolic blood pressure (mmHg)



❖ Diastolic blood pressure (mmHg)

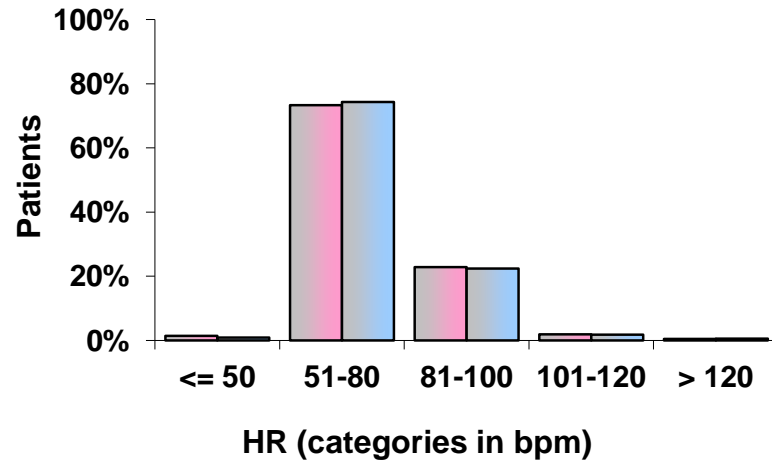



 **Women**
 (N = 211, 19.2%)
 **Men**
 (N = 889, 80.8%)
 **Median**
 **5–95%**


	F	M	F	M
Mean	130.7	127.9	79.1	79.8
Median	128.0	128.0	80.0	80.0
5–95%	102–168	100–158	60–96	61–99

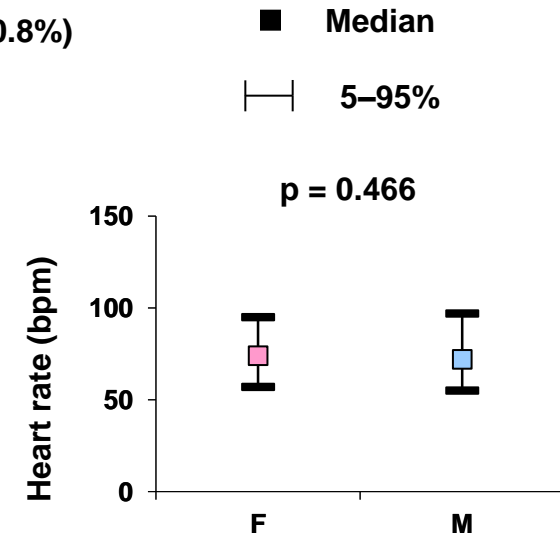
Heart rate

❖ Heart rate (bpm)



 **Women**
 (N = 211, 19.2%)

 **Men**
 (N = 889, 80.8%)



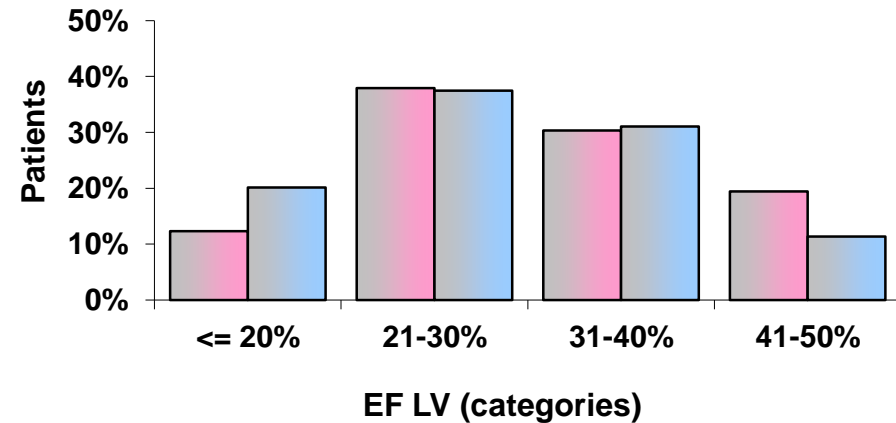
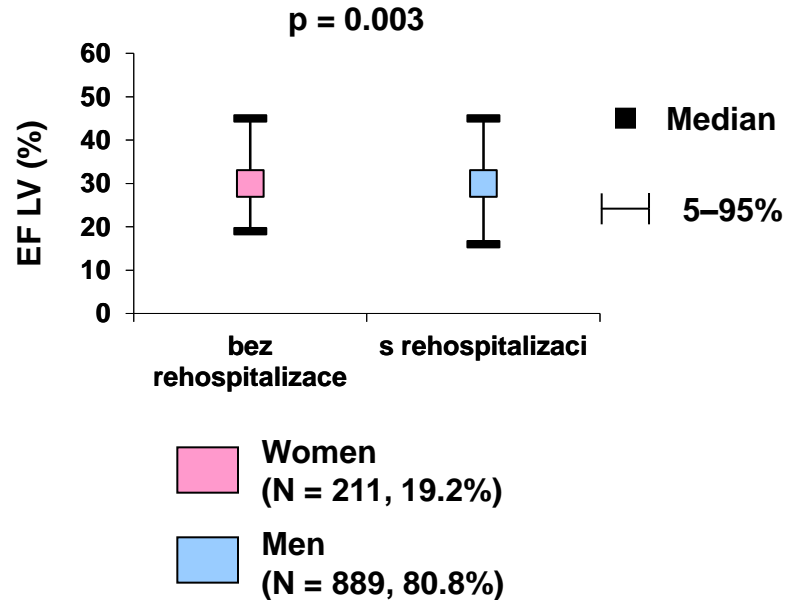
Summary statistics – HR (bpm)

	Women	Men
Mean	74.1	73.6
Median	74.0	72.0
5-95%	57-95	55-97

The value for heart rate was not specified in 2 patients.

Ejection fraction of left ventricle

❖ Ejection fraction (%)



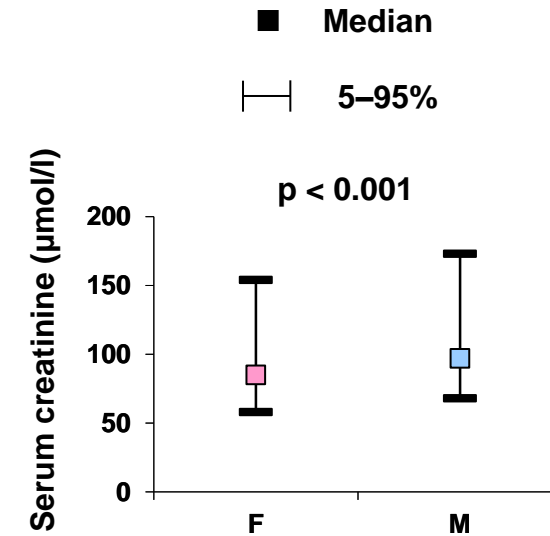
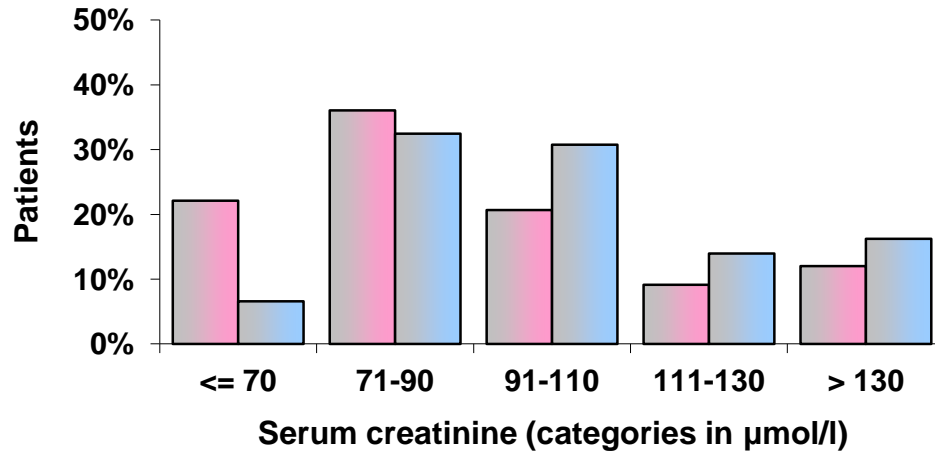
Summary statistics – EF LV (%)

	N	Mean	Median	5th percentile	95th percentile	p*
All patients	1100	30.6	30.0	17.0	45.0	
Sex						
Women	211	32.3	30.0	19.0	45.0	0.003
Men	889	30.2	30.0	16.0	45.0	

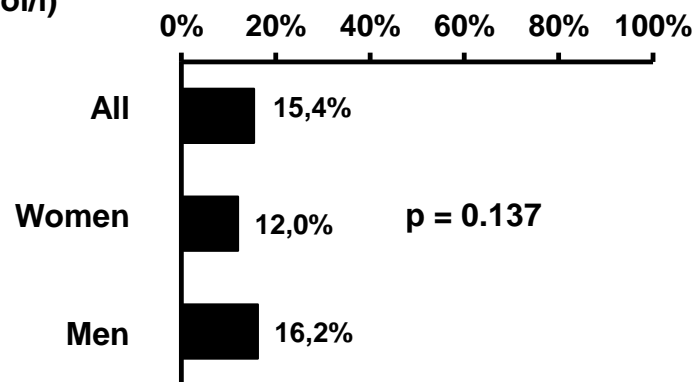
*p-value of Mann-Whitney U test

Renal insufficiency and value of serum creatinine

❖ Serum creatinine ($\mu\text{mol/l}$)



❖ Renal insufficiency (creatinine $> 130\mu\text{mol/l}$)



Summary statistics – Serum creatinine ($\mu\text{mol/l}$)

	Women	Men
Mean	95.4	108.1
Median	84.5	97.0
5-95%	58.0-154.0	68.0-173.0

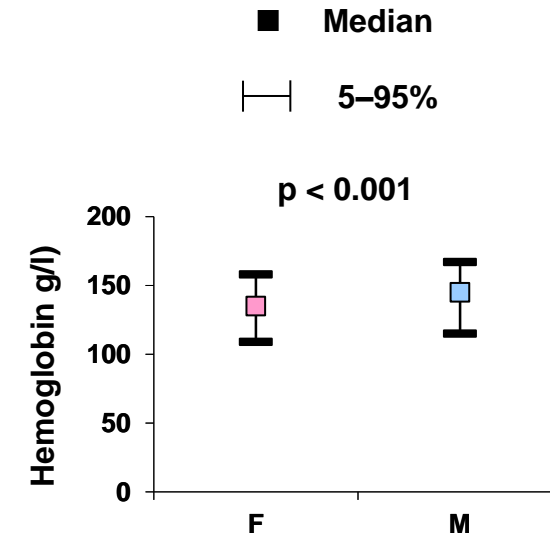
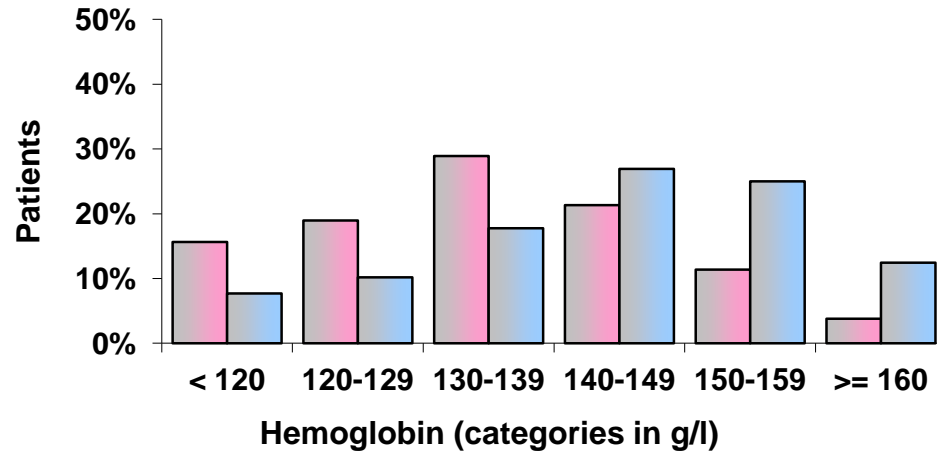
■ Women
(N = 211, 19.2%)

■ Men
(N = 889, 80.8%)

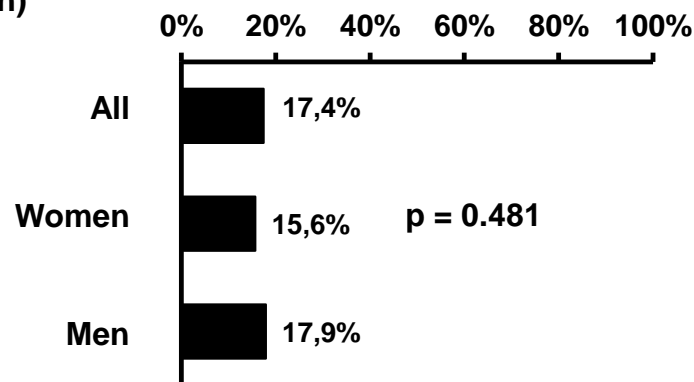
The value for serum creatinine was not specified in 11 patients.

Level of hemoglobin and occurrence of anemia

❖ Hemoglobin (g/l)



❖ Anemia (hemoglobin < 120g/l for women, < 130g/l for men)



Summary statistics – Hemoglobin (g/l)

	Women	Men
Mean	134.6	143.3
Median	135.0	145.0
5–95%	109.0-158.0	115.0-167.0

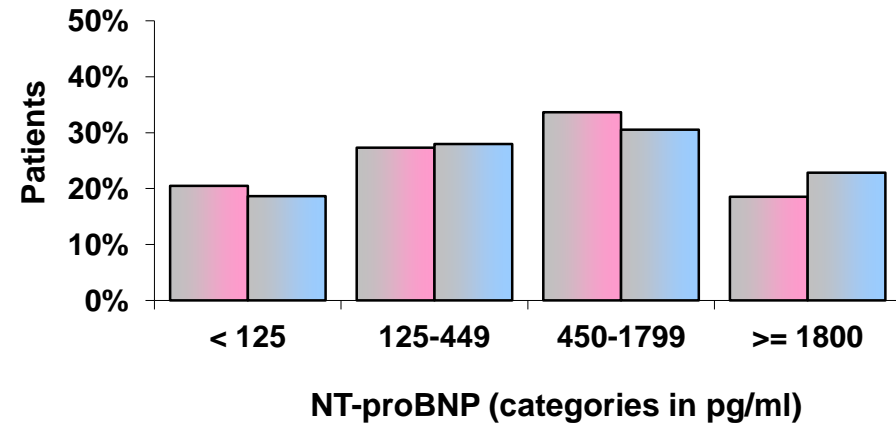
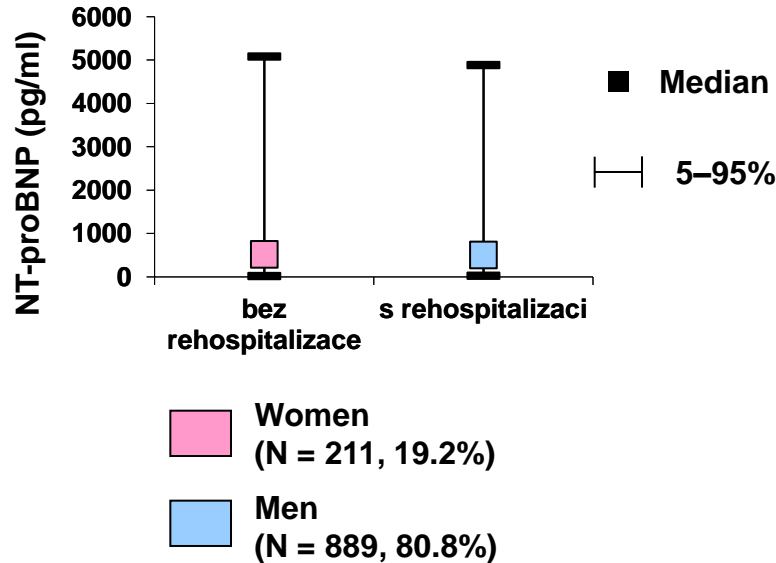
■ Women
(N = 211, 19.2%)
■ Men
(N = 889, 80.8%)

The value for hemoglobin was not specified in 5 patients.

Level of NT-proBNP

❖ NT-proBNP (pg/ml)

p = 0.796



Summary statistics – NT-proBNP (pg/ml)

	N	Mean	Median	5th percentile	95th percentile	p*
All patients	1063	1371.1	510.0	27.0	4885.0	
Sex						
Women	205	1466.8	520.0	20.0	5082.0	0.796
Men	858	1348.2	506.0	27.0	4885.0	

The value for NT-proBNP was not specified in 37 patients.

*p-value of Mann-Whitney U test



CONCLUSION

- 1. Women with CHF are older and less frequently ischemic.**
- 2. There is no difference in HR and BP**
- 3. Women have higher EF (more often HFpEF)**
- 4. Laboratories: women have lower Hb, Kr, same NT-proBNP**

Thank You for Your Attention

