

Kantonsspital St. Gallen 

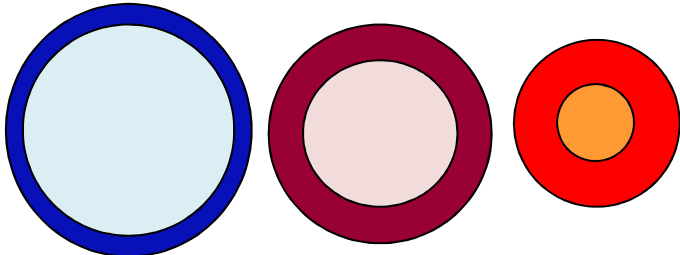
Herzinsuffizienz 2019

Tipps und Tricks

PD Dr. med. Micha T. Maeder
Klinik für Kardiologie
Kantonsspital St. Gallen
micha.maeder@kssg.ch

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HFrEF **HFmrEF** **HFpEF**



dilatiert	leicht/nicht-dilatiert	Nicht-dilatiert
exzentrisch		konzentrisch
LVEF < 40%	LVEF 40-49%	LVEF ≥ 50%
DF ↓ bis ↓↓↓	DF ↓ bis ↓↓↓	DF ↓ bis ↓↓↓

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Neue Definition ESC 2016

	HFrEF	HFmrEF	HFpEF
Klinik	Symptome ± Zeichen	Symptome ± Zeichen	Symptome ± Zeichen
LVEF	< 40%	40-49%	≥ 50%
Zusätzliche Kriterien	-	BNP/NT-proBNP↑ + LVH/ LA Dilatation	BNP/NT-proBNP↑ + LVH/ LA Dilatation
Therapie	definiert	Ws. wie HFrEF	Nicht definiert

Modifiziert nach Ponikowski et al. EHJ 2016

3

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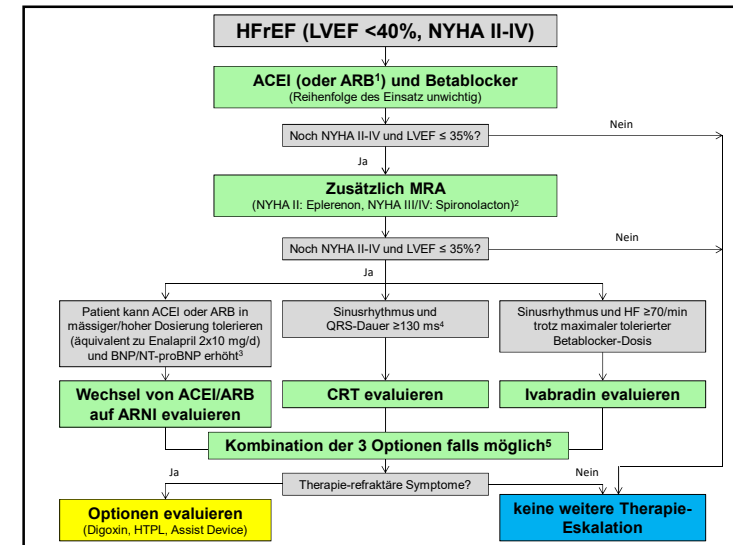
Modifiziert nach Ponikowski et al. EHJ 2016

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Therapie-Prinzip

- Behandlung der **Ursache**
 - z.B. Klappen-/Bypass-Chirurgie
 - z. B. Frequenz-Kontrolle
- Therapie des «**final common pathway**»
 - Medikamente
 - Devices

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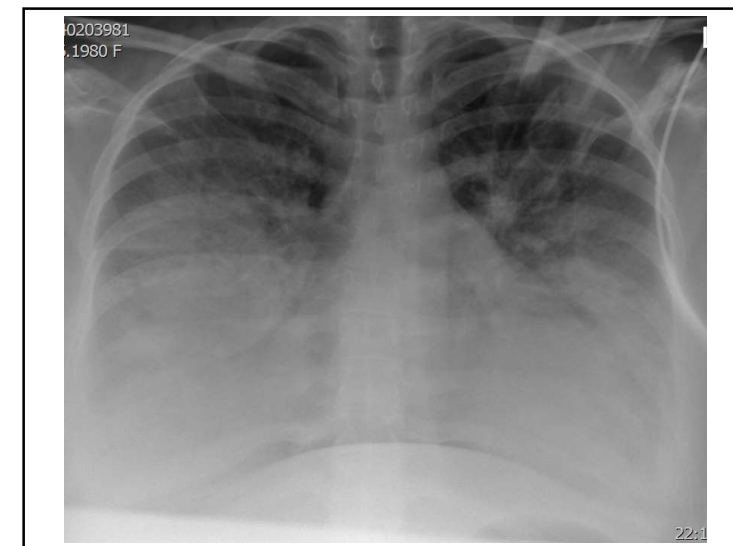


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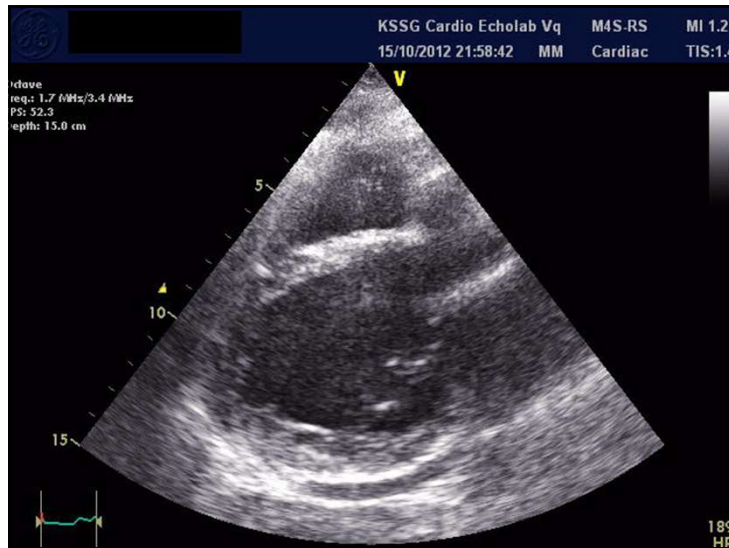
32-jährige Frau

- Akute Atemnot zwei Wochen nach Geburt des ersten Kindes
- Hysterektomie wegen intractabler Blutung mit Massentransfusion vor 5 Tagen
- Sinustachykardie
- BNP 1636 ng/l

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32-jährige Frau

- Nitrate, Furosemid, nicht-invasive Ventilation
- ACE inhibitor
- Bromocriptin
- Heparin
- «Life vest»
- BNP vor Austritt 264 ng/l
- Stationäre Rehabilitation

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1 Monat

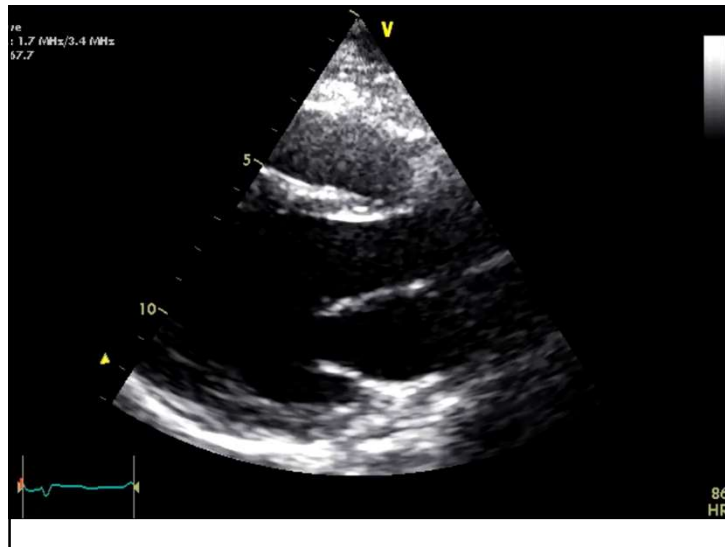
- «LVEF 45%»
- BNP 109 ng/l
- «Life vest» stop

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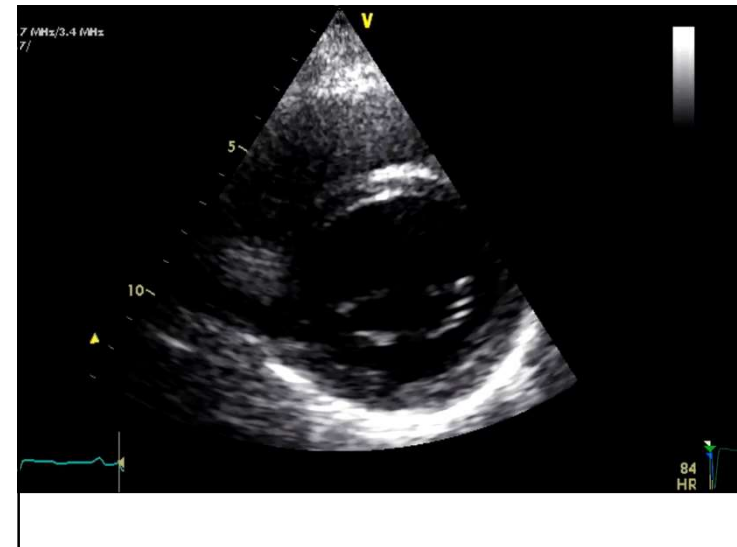
4 Monate

- NYHA II-III
- «müde»
- BD 100/70 mmHg
- HF 84 bpm
- Lisinopril 10 mg 1-0-1/2
- Carvedilol 6.25 mg 1-1-1

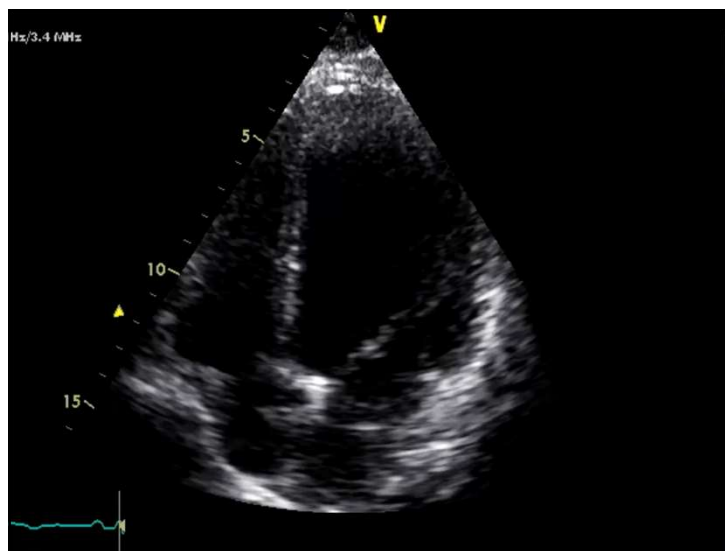
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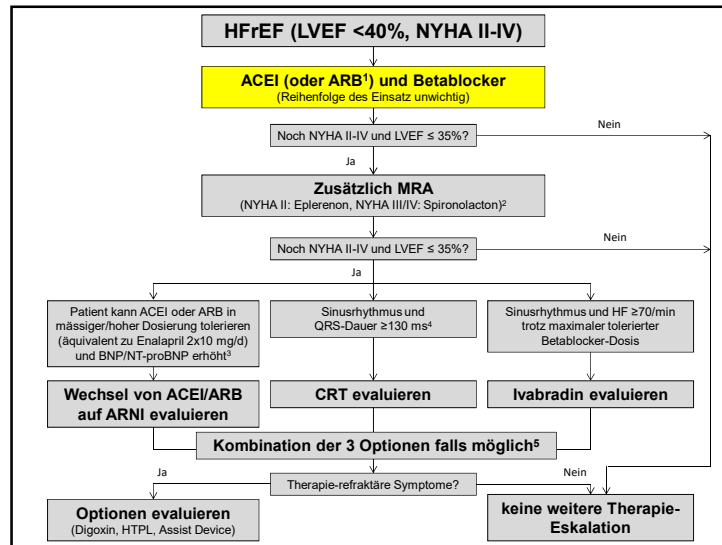


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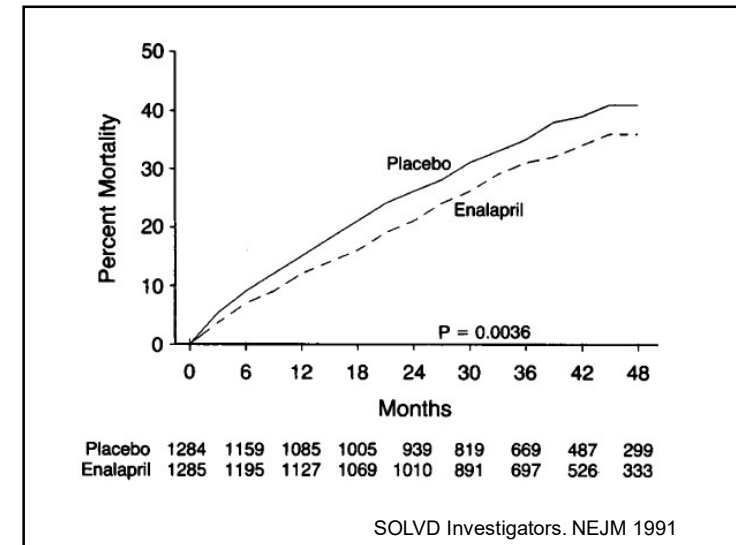
32-jahre alte Patientin

- Was tun?

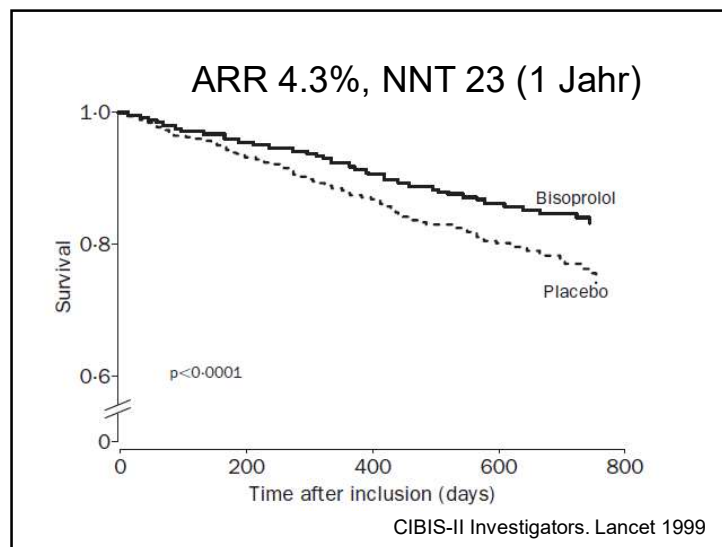
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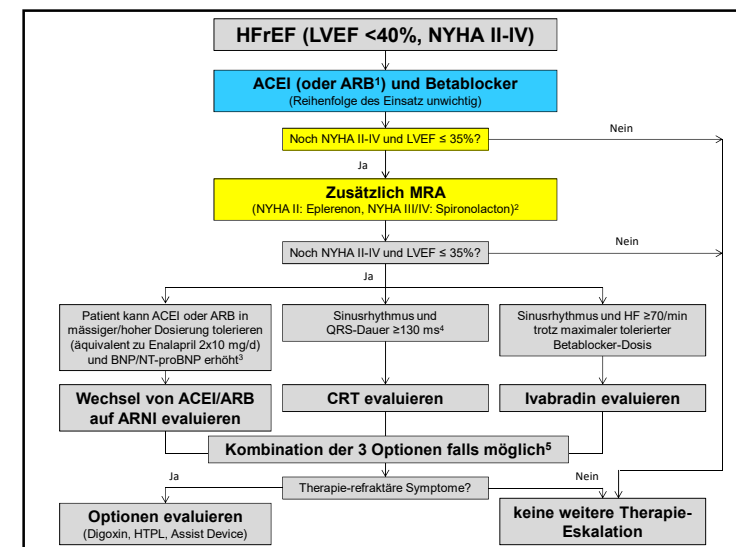
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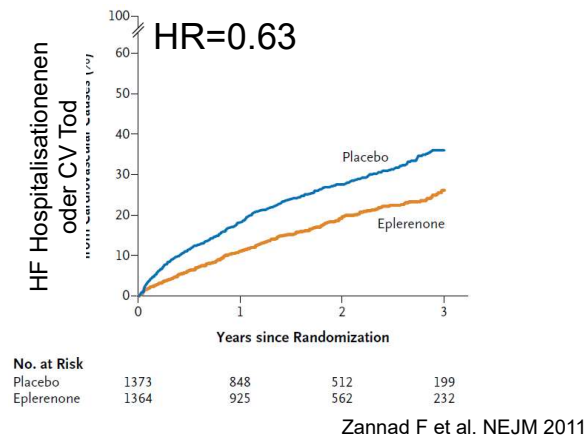
20

Mineralokortikoid-Rezeptor-Antagonisten

- Mortalitätsbenefit zusätzlich zu ACE-Hemmer und Betablocker
- für gesamtes NYHA-Spektrum (II-IV)
 - II: Eplerenon
 - III/IV: Spironolacton
- Risiko der Hyperkaliämie

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MRA: Eplerenon



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Eligibility criteria were as follows: an age of at least 55 years, NYHA functional class II symptoms, an ejection fraction of no more than 30% (or, if >30 to 35%, a QRS duration of >130 msec on electrocardiography), and treatment with an angiotensin-converting-enzyme (ACE) inhibitor, an angiotensin-receptor blocker (ARB), or both and a beta-blocker (unless contraindicated) at the recommended dose or maximal tolerated dose.

Table 1. Baseline Characteristics of the Patients, According to Study Group.*

Characteristic	Eplerenone (N=1364)	Placebo (N=1373)
Age — yr	68.7±7.7	68.6±7.6
Female sex — no. (%)	309 (22.7)	301 (21.9)
Principal cause of heart failure — no. (%)		
Ischemic heart disease	951 (69.7)	935 (68.1)
Nonischemic heart disease	410 (30.1)	436 (31.8)
Unknown	3 (0.2)	2 (0.1)
Duration of heart failure — yr	4.8±5.9	4.6±5.5

Zannad F et al. NEJM 2011

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9 Monate

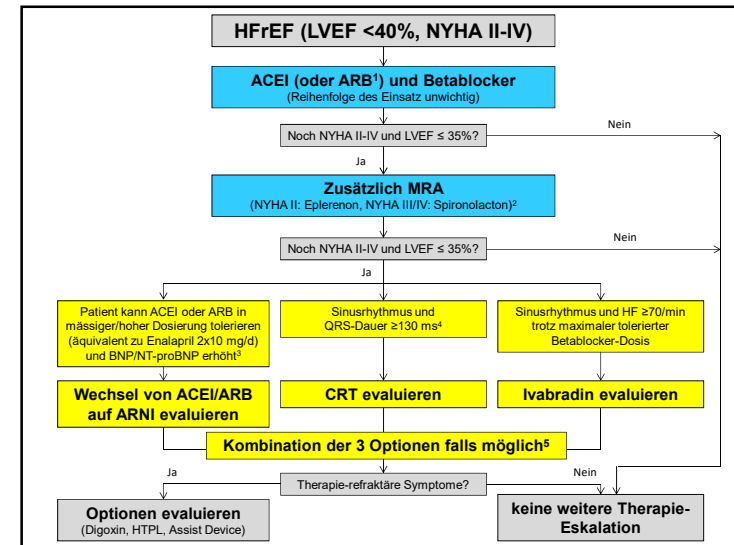
- NYHA II
- BNP 10 ng/l
- LVEF 40%
- BD 100/70 mmHg, HR 82 bpm
- Lisinopril 10 mg 1-0-1/2
- Carvedilol 6.25 mg 1-1-1
- Eplerenon 25 mg 1-0-0

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32-jährige Patientin

- Was tun?

25



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Carvedilol: Relevante Studien

Table 1. Pretreatment Characteristics of Patients in the Study.*

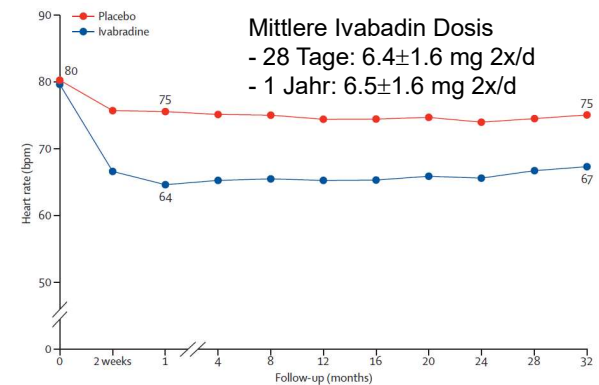
CHARACTERISTIC	ALL RANDOMIZED PATIENTS	
	PLACEBO (N = 398)	CARVEDILOL (N = 696)
Age (yr)	58.1±12.3	57.9±12.2
Sex (M/F)	304/94	534/162
New York Heart Association class		
II	208	374
III	177	303
IV	13	19
Cause of heart failure†		
Coronary artery disease	189	332
Nonischemic dilated cardiomyopathy	208	362
Left ventricular ejection fraction	0.22±0.07	0.23±0.07
Six-minute walk (m)	386±96	390±90
Systolic blood pressure (mm Hg)	115±17	116±17
Diastolic blood pressure (mm Hg)	73±11	72±10
Heart rate (beats/min)	83±12	84±12
Medication (% of patients)		
Digitalis	90	91
Loop diuretic	95	95
ACE inhibitor	95	95
Direct-acting vasodilator	32	32
CHARACTERISTIC		
Age (yr)	63.4±11.5	63.2±11.4
Male sex (% of patients)	80	79
Ischemic cause of heart failure (% of patients)	67	67
Left ventricular ejection fraction (%)	19.8±4.0	19.9±4.0
Hospitalization for heart failure within previous year (% of patients)	65	66
Blood pressure (mm Hg)		
Systolic	123±19	123±19
Diastolic	76±11	76±11
Heart rate (beats/min)	83±13	83±12
Serum sodium (mmol/liter)	137±3	137±3
Serum creatinine (μmol/liter)	134±36	134±37
Concomitant medications (% of patients)		
Digitalis	65	67
Diuretics	99	99
ACE inhibitor or angiotensin II antagonist	97	97
Spironolactone	20	19
Amiodarone	17	18

Packer M et al. NEJM 1996

Packer M et al. NEJM 2001

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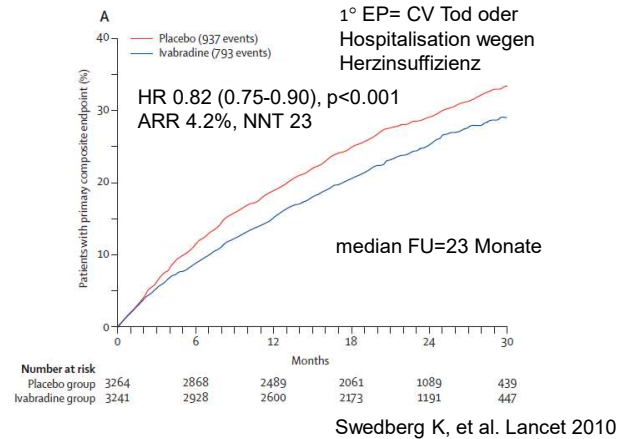
Ivabradin und HF-Reduktion



Swedberg K, et al. Lancet 2010;376:875-885

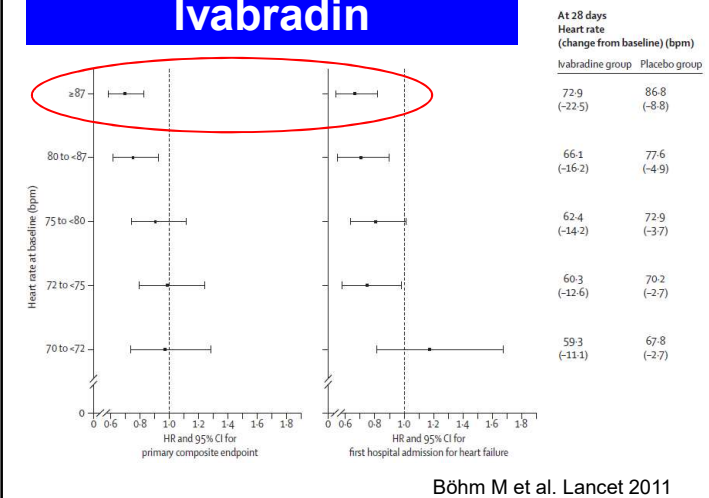
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Ivabradin und primärer EP



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Ivabradin



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Wer profitiert von Ivabradin?

Baseline HF Quintilen (bpm)	Q1 (70-71)	Q2 (72-74)	Q3 (75-79)	Q4 (80-86)	Q5 (≥87)	P value
Alter (Jahre)	63	61	60	60	58	<0.001
Systolischer BD (mmHg)	122	122	121	122	120	0.006
Nicht-ischämisch	26%	29%	32%	33%	39%	<0.001
NYHA III	47%	47%	46%	49%	58%	<0.001
ACE-Hemmer	81%	81%	81%	76%	75%	0.001
ARB	13%	15%	13%	16%	14%	ns
Betablocker	93%	92%	92%	88%	82%	<0.001
Schleifendiuretikum	81%	82%	82%	85%	86%	0.004
MRA	56%	56%	59%	61%	65%	0.001
Digoxin	18%	18%	21%	23%	28%	<0.001

Böhm M et al. Lancet 2011

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13 Monate

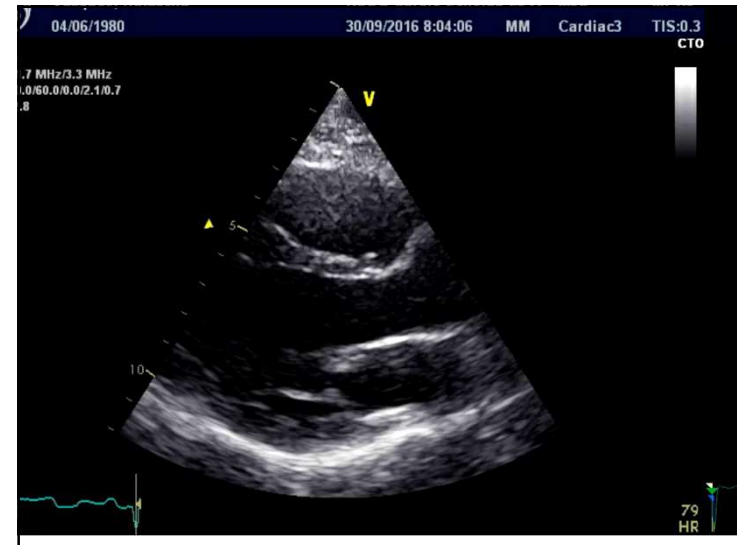
- LVEF 40%
- Lisinopril 10 mg 1-0-1/2
- Carvedilol 6.25 mg 1-1-1
- Eplerenon 25 mg 1-0-0
- Ivabradin 5 mg 1-0-1
- BD 100/70 mmHg, HF 62 bpm
- NYHA II

32

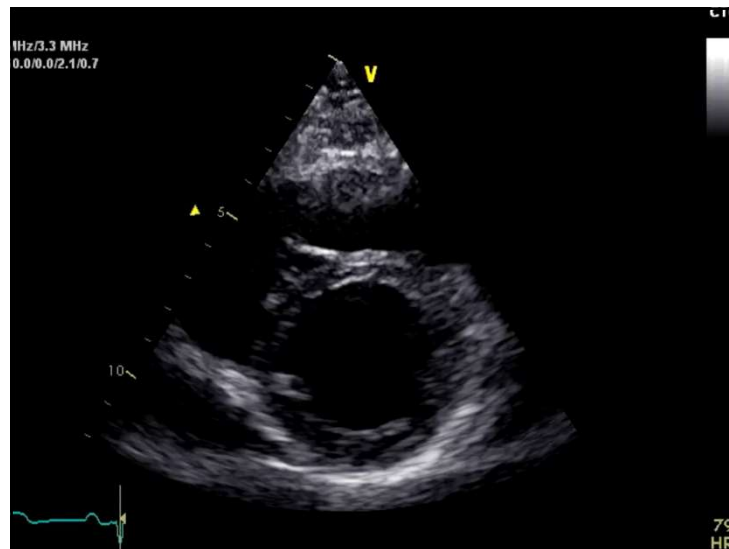
3 Jahre

- NYHA II
- Unveränderte Medikation
- Peak VO_2 24.6 ml/min/kg
- VE/ VCO_2 slope 23.2
- Will Medikamente stoppen, nicht mehr ins Fitness gehen, mehr Alkohol trinken....

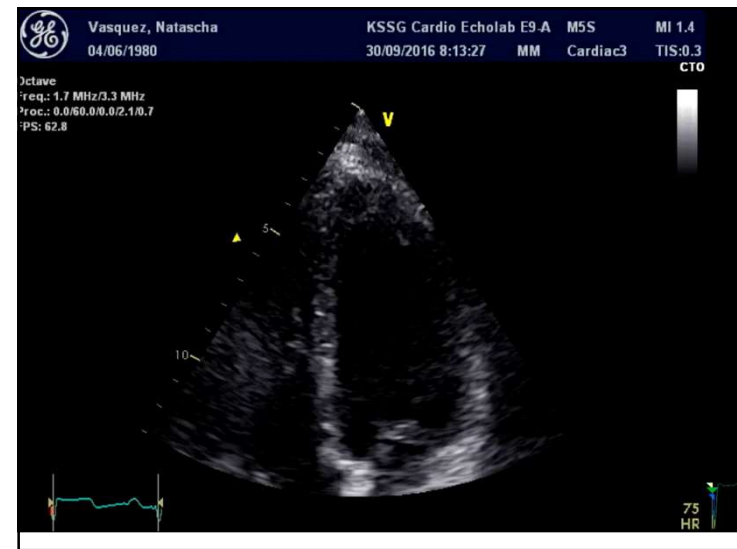
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Nächste beiden Jahre

- Keine Abendmedikamente
- Wenig Training
- Will alle Medikamente stoppen

37

5 years

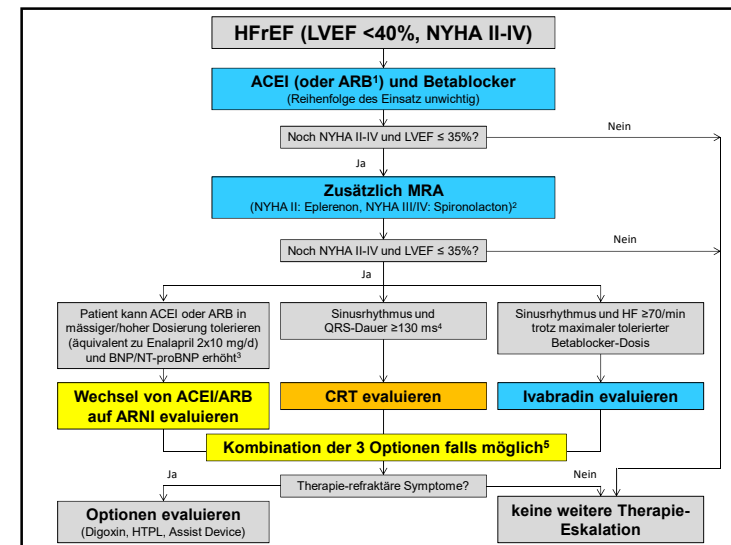
- NYHA II
- Lisinopril 10 mg 1-0-1
- Carvedilol 6.25 mg 1-1-1
- Ivabradin 5 mg 1-0-1
- Eplerenon 25 mg 1-0-0
- Peak VO₂ 25.8 ml/kg/min

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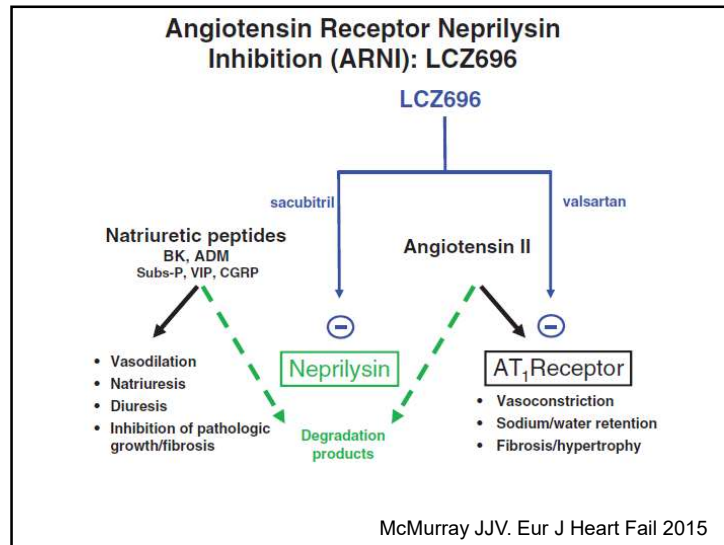
Jetzt 37-jährige Patientin

- Was tun??

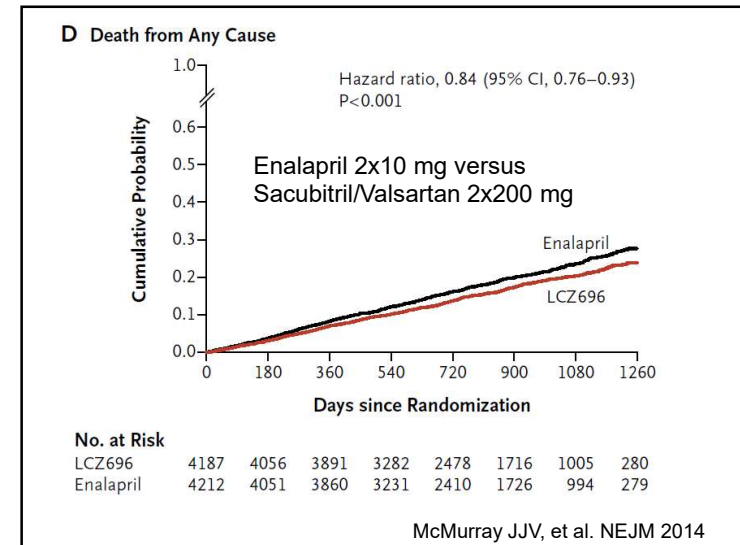
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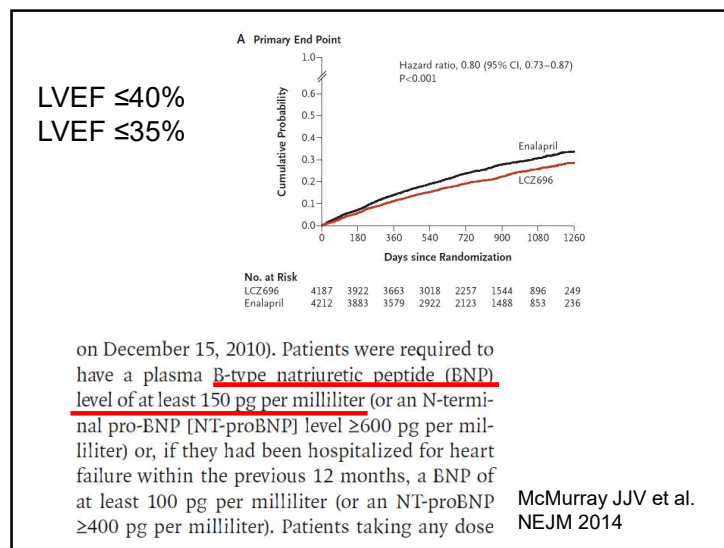
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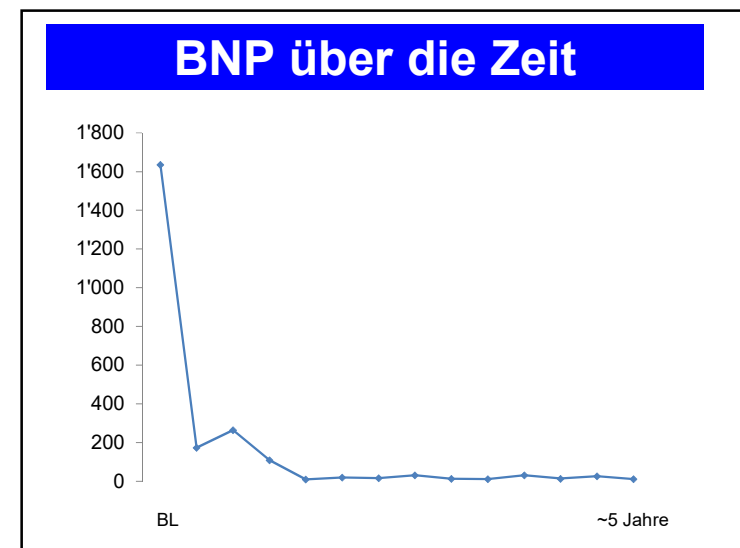
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Jetzt 37-jährige Patientin

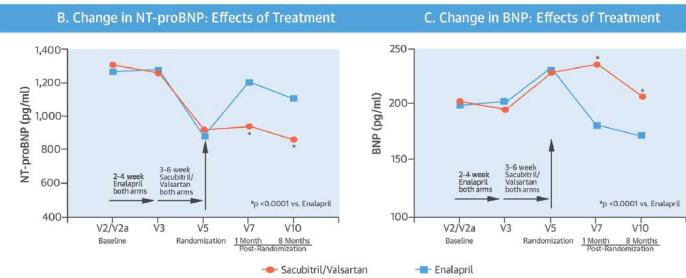
- Entscheid gegen Sacubitril/Valsartan

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Wenn man doch mit Sacubitril/Valsartan behandelt hätte:

NT-proBNP

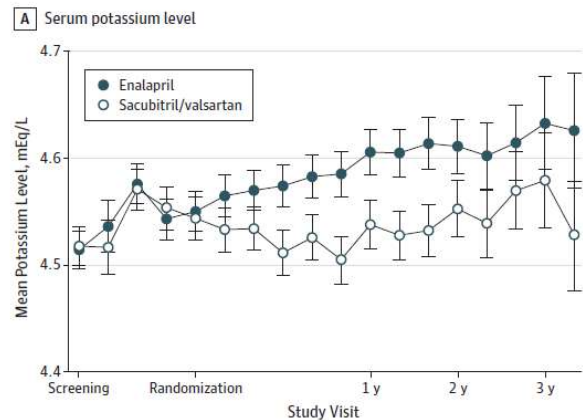
BNP



Zile MR et al. JACC 2016

46

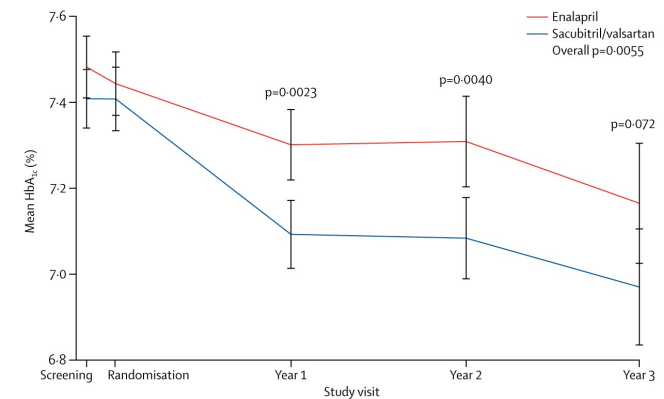
Kalium



Desai AS et al. JAMA Cardiol 2016

47

HbA1c

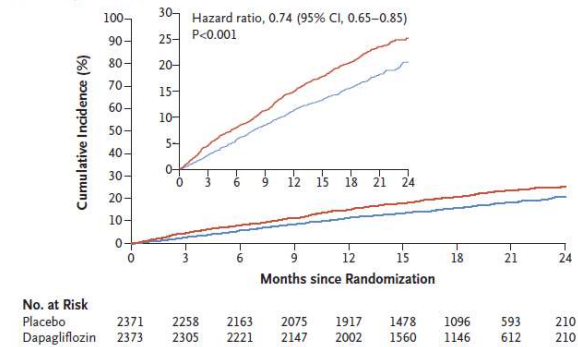


Seferovic JP et al. Lancet Diabetes Endocrinol 2017

48

Dapagliflozin

A Primary Outcome



McMurray JJV et al. N Engl J Med 2019

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Jetzt 37-jährige Patientin

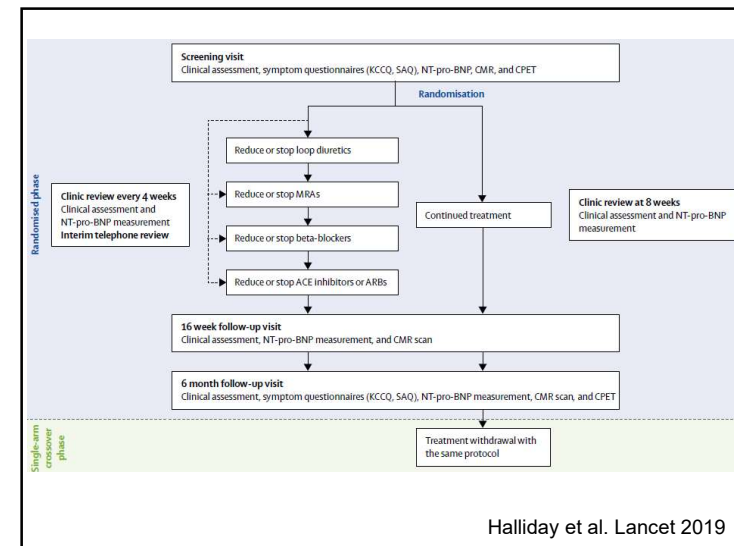
- Reduktion der Therapie?

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	Treatment withdrawal group (n=25)	Continued treatment group (n=26)
Demographics		
Median age, years	54 (46 to 64)	56 (45 to 64)
Men	16 (64%)	18 (69%)
Previous cardiovascular history		
Time since initial DCM diagnosis, months	63 (36 to 112)	41 (20 to 91)
LVEF at initial diagnosis	28% (20 to 33)	25% (19 to 33)
Absolute improvement in LVEF	29% (23 to 36)	30% (25 to 38)
Time since LVEF >50%, months	28 (8 to 45)	20 (6 to 44)
Medications at enrolment		
ACE inhibitor or ARB	25 (100%)	26 (100%)
Beta-blocker	21 (84%)	24 (92%)
Mineralocorticoid receptor antagonist	12 (48%)	12 (46%)
Loop diuretic	3 (12%)	3 (12%)

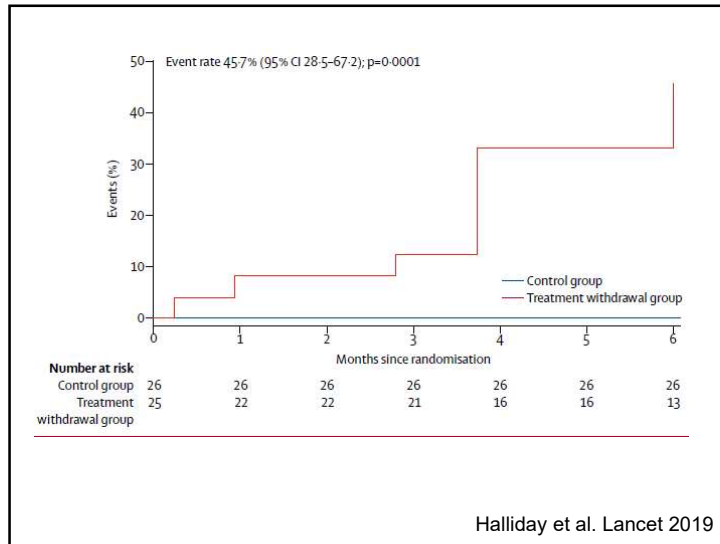
Halliday et al. Lancet 2019

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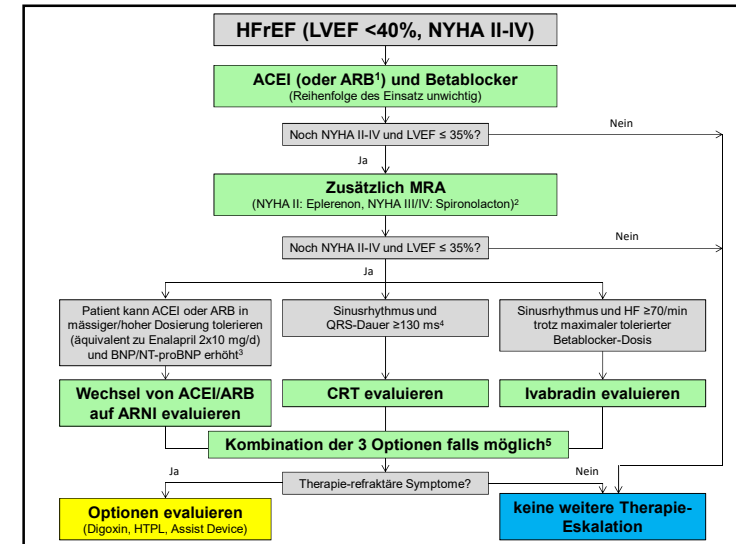


Halliday et al. Lancet 2019

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54

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Modifiziert nach Ponikowski et al. EHJ 2016

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Vielen Dank!

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