

How do we find heart failure patients? The experience of Hannover Medical School

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BAROSTIM THERAPY SUMMIT

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September 30th, 2017 • Radisson Blu, Berlin, Germany



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Indications for Cardiac Resynchronisation Therapy

Optimal medical therapy

LVEF $\leq 35\%$

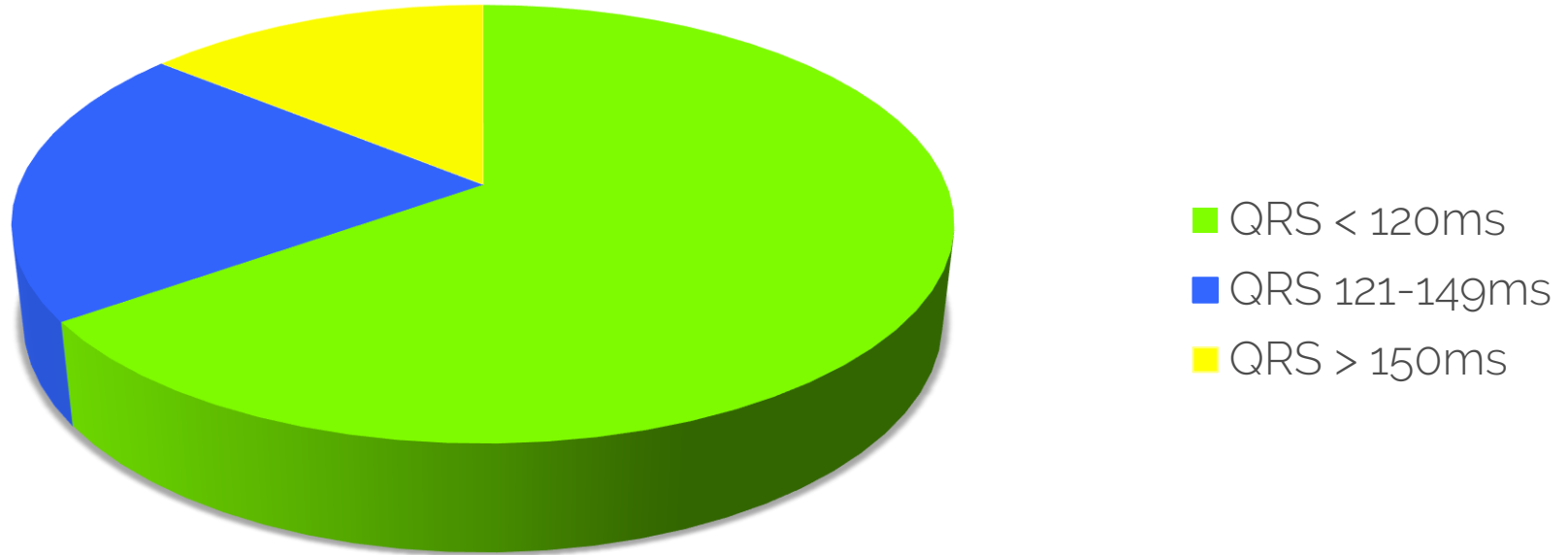
NYHA II – (amb) IV

Life expectancy $>1a$

LBBB	$>150ms$	I A
LBBB	130-149ms	I B
Non –LBBB	$>150ms$	II A
Non-LBBB	130-149ms	II B
Any QRS-morphology	$<130ms$	III

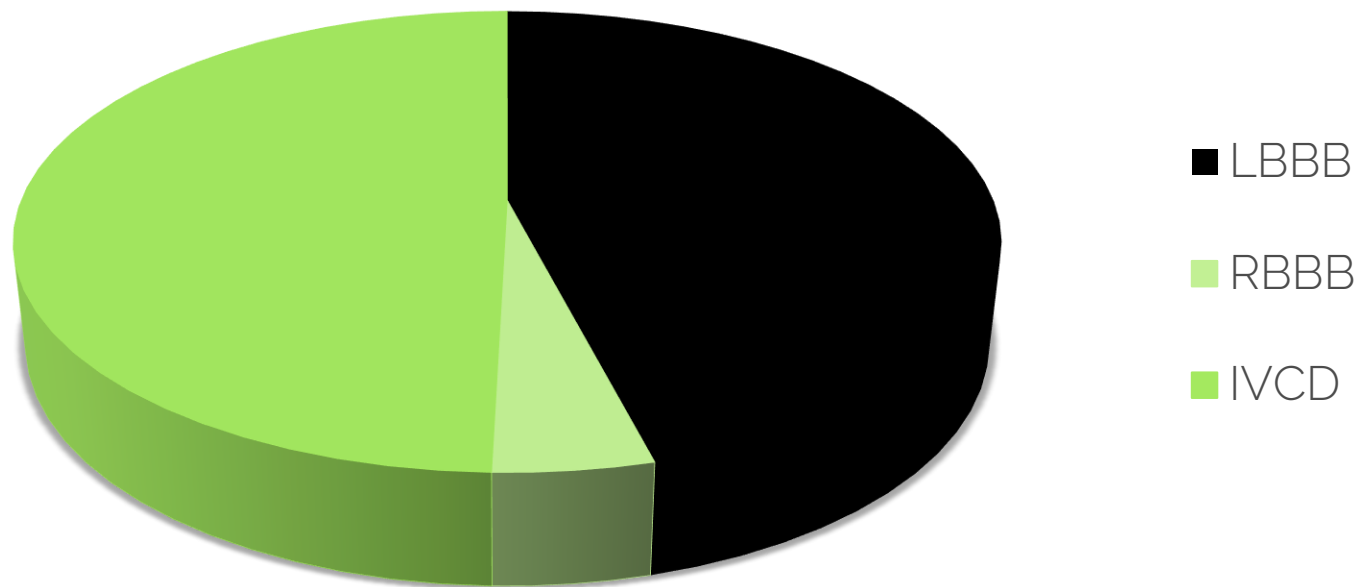
QRS Duration in Patients with LVEF <35% (n=2678)

Patients LVEF <35%

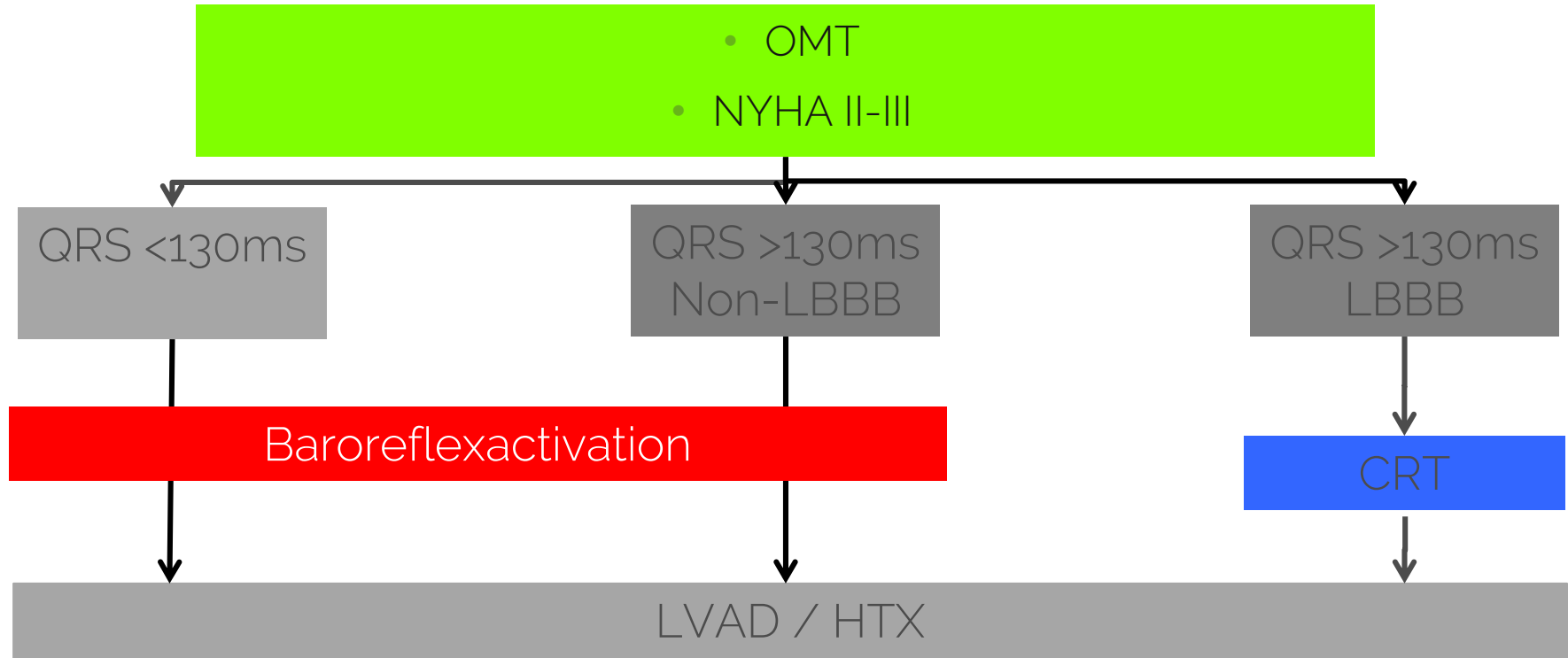


LVEF <35%: QRS morphology >120ms

Patients with QRS >120ms



Electrical heart failure management



MHH's designated screening coordinator leads the screening process across departments

Out-patient clinic:

- Heart failure clinic (Cardiology)
- Transplant clinic (Cardiac surgery)
- Arrhythmia clinic (!)
- General cardiac clinic

In-hospital:

- Heart Failure unit
- CCU
- General Cardiac ward
- Cath lab staff meeting
- Echo lab

Identification Workflow

- Screening (ward/outpatient clinic using screening table)

B	C	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Doppler	BeAT-HF (CVRx Barostim neo) Screening	NYHA > II in 3 Mon	QRS (ms)	SM	CRT	LSB	GFR (ml/min)	NT pro BNP (ng/l)	EF (%)	Datum TTE	GE	ACE/Sartan	Entresto	Medis β-Blocker	Spiro	Diuretikum
YX		0	196	0	1	1	NA	nein	31	25.10.2016	ICM	1	0	1	1	1

First contact with patient

- Giving information about therapy concept
- Explaining the operation
- Showing information material (concept of BAT)

Organisation of admission appointment

- Coordination of cardiac surgery /cardiology

Clinical diagnostics

- Duplex/doppler sonography
- Echocardiography

Contact cardiologist

- Lack of knowledge in the out-patient setting

Screening at MHH

AVERAGE PATIENT PROFILE WITHIN 6-MONTH PERIOD

Patient Profile: In- and out-patients with initially symptomatic heart failure NYHA III-IV, LVEF <35%

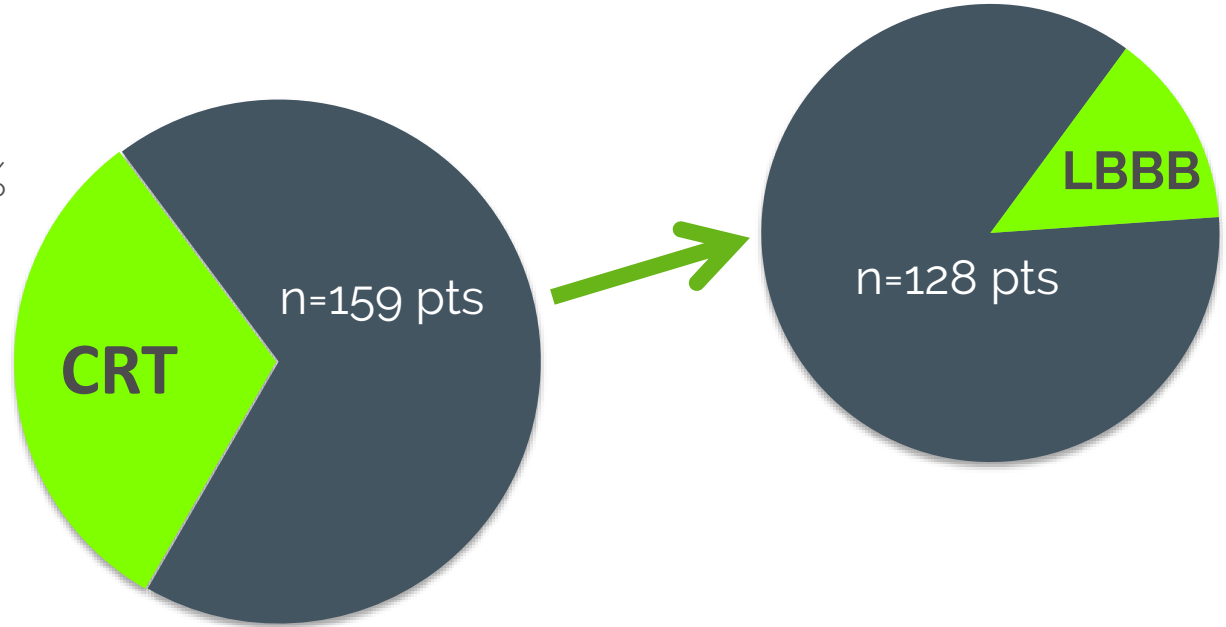
- N=216 patients: 69% males, Mean age 70 ± 11 years
- Etiology: ICM 62%, NICM 38%
- Mean NYHA $2,4 \pm 0,75$ (NYHA $\geq$ III: 120 patients)
- Mean LVEF $28,5 \pm 9,7$ %
- Mean QRS-duration 129 ± 49 ms
- Mean NTproBNP 8047 ± 6245 pg/ml

Screening at MHH

MEDICATION AND ECG

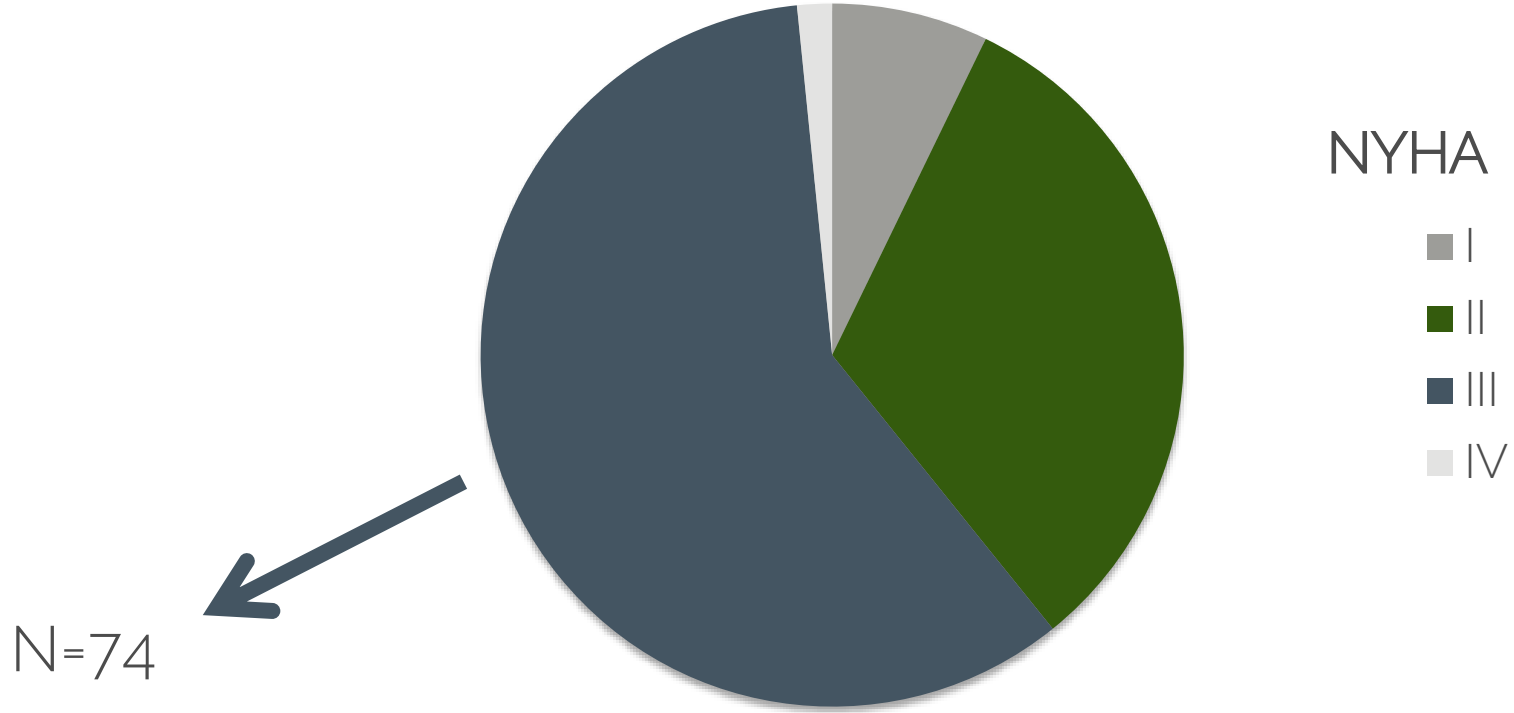
Heart failure medication:

- RAS inhibition: 95%
- Betablocker: 93%
- MR-Antagonist: 86%
- Diuretics: 80%



Screening at MHH

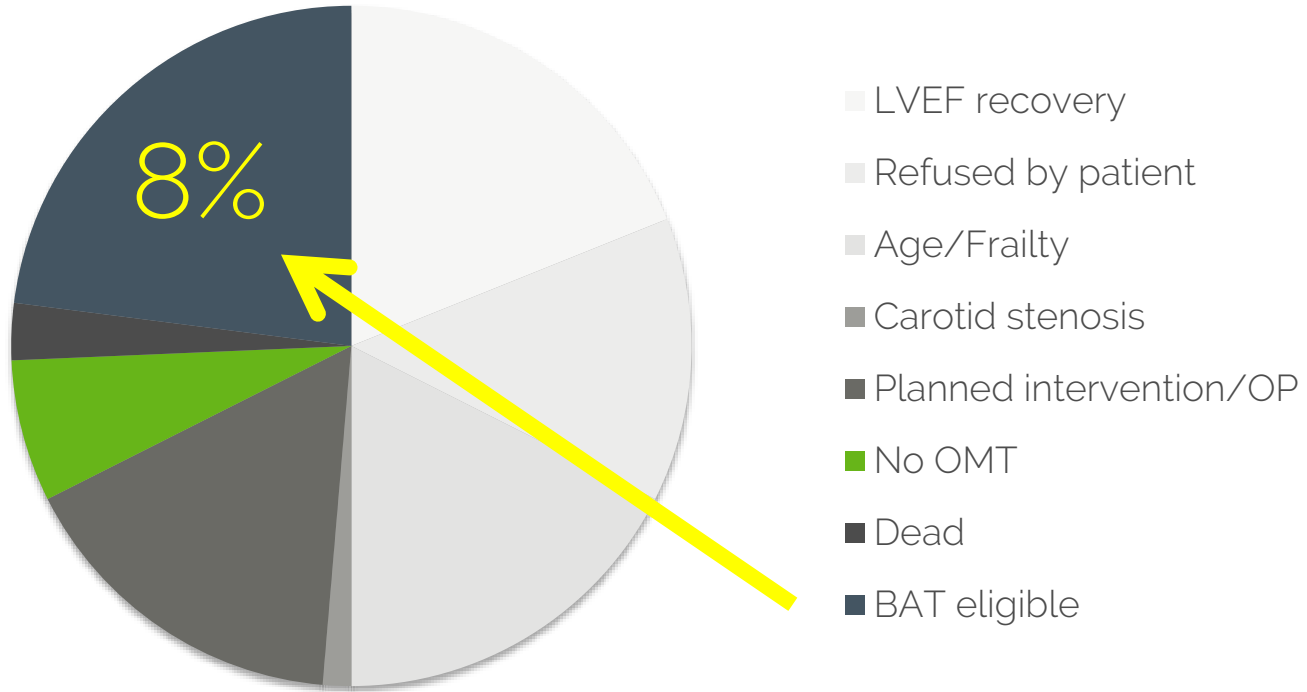
NYHA IN FOLLOW-UP



Screening at MHH

BAT ELIGIBILITY

N=74



Top reasons why patients do not get BAT

- CRT
- Patient's consent/ family's consent/ cardiologist's consent
- Intended intervention: ablation, cardiac catheter
- Frailty

BAT in Heart Failure at MHH

Pat No	Sex	Age	NYHA	CRT	LVEF	Implantation	Complications
1	m	69	III	no	31	2014	-
2	m	70	III	yes	28	2014	-
3	m	57	III	no	29	2015	wound healing
4	f	69	III	yes	32	2016	-
5	m	68	III	no	27	2016	-
6	f	76	III	yes	25	2017	-
7	f	75	III	no	20	2017	-
8	m	75	III	no	17	2017	hematoma/revision
9	m	55	III	no	20	2017	-

Clinical Case

52 YEAR-OLD MALE

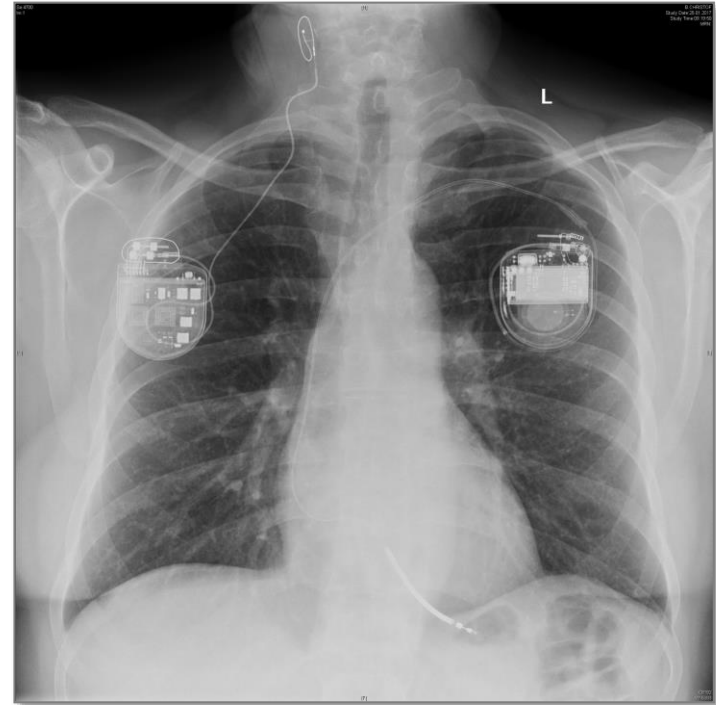
- Chronic Ischemic Cardiomyopathy
- LVEF 29%
- Medication:
 - Ramipril 10mg/d
 - Spironolacton 25mg/d
 - Metoprololsucc 142,5mg/d
 - Torasemid 10mg/d
 - Atorvastatin 40mg/d
 - ASS 100mg/d
- RR 105/68mmHg
- NYHA III
- 6MWT: 290m



Activation and titration of the device

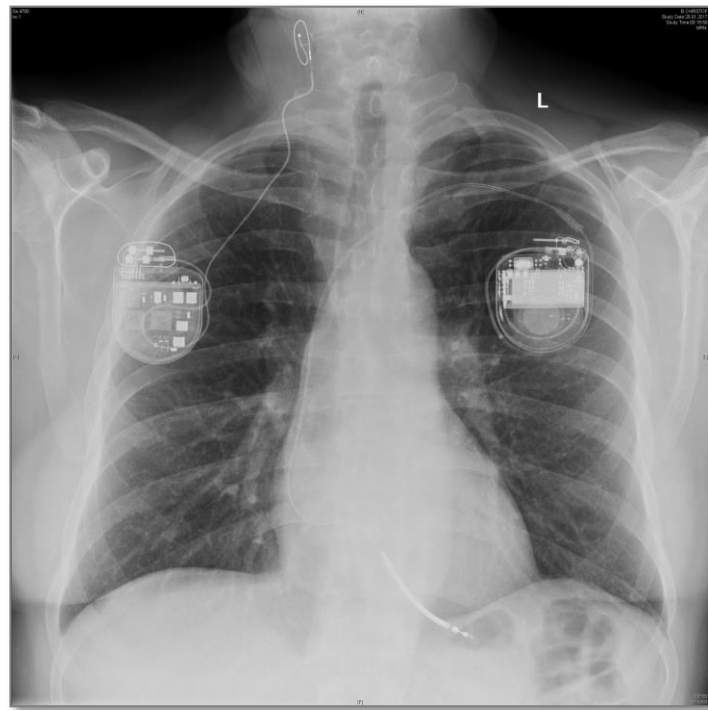
Patientenreaktionsprotokoll

Protokollzeit	Ableitung	Batterie	Ampl.	Compliance	Imp.	Freq.	Dauer [min]	Batterie-Laufzeit	Verordn. Zeit	RD	HR
1:50:48 PM	Rechts:	65	5	Bestanden	572	20	---	103.0	00:05	92/59	69
1:52:03 PM	Rechts:	65	5	Bestanden	572	20	---	103.0	01:20		
1:52:25 PM	Rechts:	65	5	Bestanden	577	40	---	81.4	00:22	98/67	72
1:54:00 PM	Rechts:	65	5.6	Bestanden	577	40	---	76.5	01:35		
1:54:15 PM	Rechts:	80	5	Bestanden	577	40	---	73.6	00:15		
1:54:18 PM	Rechts:	80	5.4	---	583	40	---	-	00:02		
1:54:21 PM	Rechts:	80	5.8	---	577	40	---	-	00:04		
1:54:28 PM	Rechts:	80	6	Bestanden	583	40	---	64.8	00:07		
1:54:34 PM	Rechts:	80	6	Bestanden	583	60	---	51.6	00:05	94/56	74
1:58:41 PM	Rechts:	80	6	Bestanden	583	60	---	51.6	04:12		
1:58:46 PM	Rechts:	80	6.4	Bestanden	577	60	---	49.5	00:05		
1:58:50 PM	Rechts:	80	6.8	Bestanden	577	60	---	46.4	00:04		
2:00:59 PM	Rechts:	80	7	Bestanden	577	60	---	44.7	02:08	96/53	69
2:01:10 PM	Rechts:	80	7	Bestanden	577	60	---	44.5	02:19		
2:01:15 PM	Rechts:	80	7.4	Bestanden	583	60	---	42.4	00:05		
2:01:20 PM	Rechts:	80	7.6	Bestanden	583	60	---	41.4	00:05		
2:01:28 PM	Rechts:	80	8	Bestanden	577	60	---	39.3	00:08	92/57	68
2:04:16 PM	Rechts:	80	8	Bestanden	577	60	---	39.6	02:55		
2:04:32 PM	Rechts:	95	8	Bestanden	583	60	---	34.3	00:16		
2:05:53 PM	Rechts:	95	8	Bestanden	583	60	---	34.3	01:37		
2:05:58 PM	Rechts:	80	8.2	Bestanden	577	60	---	37.7	00:05		
2:06:04 PM	Rechts:	80	8.4	Bestanden	577	60	---	37.0	00:06		
2:06:30 PM	Rechts:	80	8.6	Bestanden	583	60	---	35.8	00:26	102/59	69

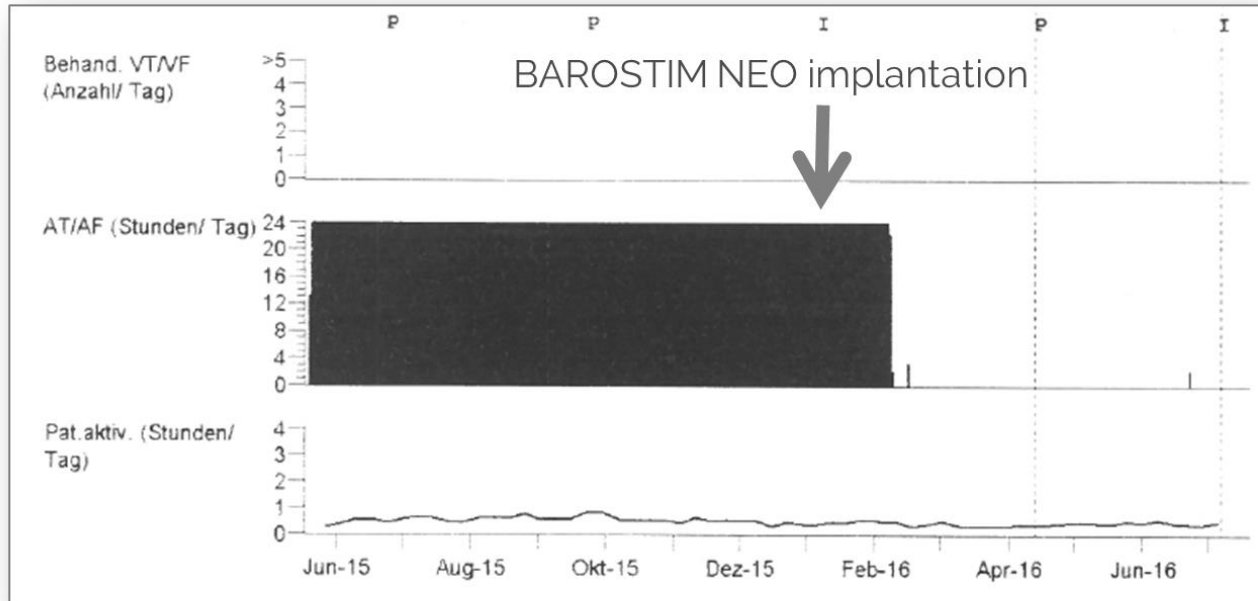


BAT Follow-up after 6 months

- LVEF 29% → 38%
- NYHA III → NYHA II
- 6MWT: + 77m



Antiarrhythmic effects?



Summary

- In- and out-patient screening for potential candidates
- Close follow-up of candidates to optimize therapy
- Close contact with cardiologists (lacking of knowledge)
- ...

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Thank you.



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