Abstract: **187**

LV endocardial wireless pacing for heart failure (WiSE-CRT): What are the parameters relevant for longevity in long term course?

Authors:
M Seifert [1], S Fehrendt [1], V Moeller [1], C Georgi [1], C Butter [1], [1]Heart Center Brandenburg and Immanuel Klinikum - Bernau (Berlin) - Germany,

Topic(s):
Results (Resynchronization therapy)

Citation:
Europace (2017) 19 (Supplement 3), iii19

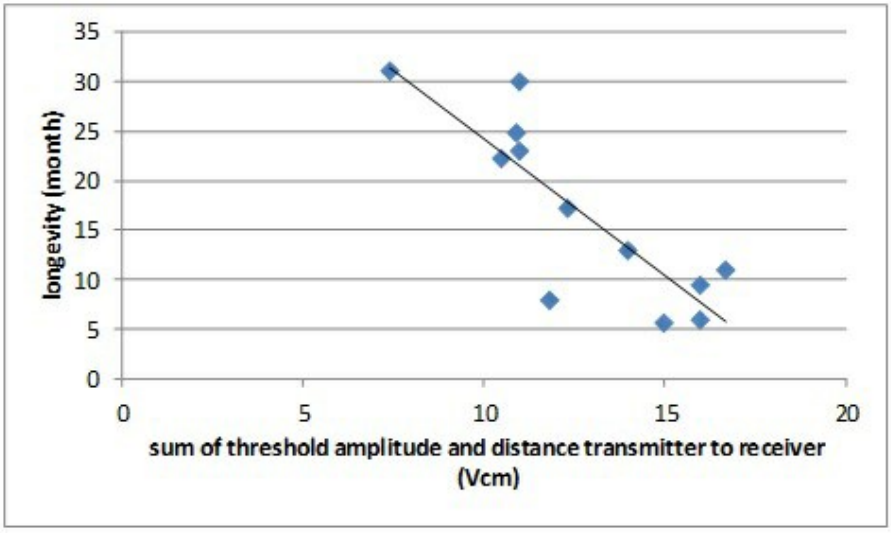
Background: LV endocardial pacing has been shown as feasible and effective compared to conventional CRT in non-responders. Wireless Stimulation of the Endocardium (WiSE) provides endocardial LV stimulation with potential less risk of long term lead associate complications. But device longevity is also a parameter of interest in long term course.

Method: From 2011 to 2016 n=12 patients were successfully implanted with a WiSE-CRT device in our center [? n=10 / ? n=2; age 67±12 (41-87) years; ICM n=5 and NICM n=7; LVEF 22.6±7.2%; QRS width 174±19ms, NT-proBNP 2,005±1,172pg/ml]. All patients were prospective followed up in 3 month interval up to 5 years. 9 these patients had no appropriate CS vein branch and 3 patients had thrombosis in subclavian vein or superior cava vein as reason for WiSE-CRT implantation.

Results: As result from ultrasound screening 6 patients received the transmitter at the sixth, 5 patients at the fifth and 1 patient at the seventh intercostal space. The mean follow up interval was 2.2±1.9 years (min. 0.2 to 5 years). The mean battery longevity was 12.8±6.2 month (min. 6 to 32 month). In all 12 patients 20 battery changes were performed. In all 12 patients the receiver was stable placed endocardial inferolateral or lateral midapical. In the first week after implantation there was a slightly increase of threshold in mean +0.7±2.3V. The longevity was inversely proportional to sum of threshold amplitude and distance transmitter to receiver $r = -0.841$ ($p<0.001$).

Conclusion: The distance transmitter to receiver and threshold amplitude are the main parameters of longevity of the WiSE-CRT battery. Additional the angle between transmitter and receiver could be an important factor of longevity. Further improvements in battery capacity or rechargeable source of energy are needed for implanting this device in large patient collectives.

	baseline	1 week	3 month	6 month	1 year	2 years	5 years
patients (n)	12	12	12	11	7	3	3
distance transmitter to receiver (cm)	8.7±1.7	8.4±2.4	8.2±2.0	8.3±2.3	8.5±2.7	7.8±2.2	7.8±2.2
amplitude (V) min.-max. (V)	3.2±2.0 1-6	4.5±1.9 1-6	4.0±2.0 1-6	4.2±1.9 1-6	5.1±1.5 3-6	4.0±1.7 2-6	3.7±2.1 2-6
impuls duration (ms)	0.3±0.2	0.4±0.4	0.3±0.2	0.4±0.2	0.3±0.2	0.3±0.2	0.3±0.1
BV rate (%)	0	85±22	69±38	80±28	80.7±23	95.2±5.7	95.7±3.8
NTproBNP (pg/ml)	2,005±1,172			2,073±1,882	1,798±1,005	1,715±854	1,951±890


35
30
25
20
15
10
5
0
longevity (month)
0
5
10
15
20
sum of threshold amplitude and distance transmitter to receiver (Vcm)