

Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

eAppendix. Supplement to Methods Section

36 item Short-Form Health Survey (SF-36)

The SF-36 is a widely validated QOL questionnaire that assesses eight different health subscales: physical functioning (PF); bodily pain (BP); role limitations due to physical health problems (RP); role limitations due to personal or emotional problems (RE); mental health (MH); social functioning (SF); vitality (VI); and general health (GH). For each of the SF-36 subscales, scores are transformed to a scale ranging from 0 to 100 where a higher score indicates a better QOL. The eight subscales can also be grouped into two summary measures: the physical (PCS) and mental (MCS) component summary scores. According to the SF-36 manual, a 5-point difference in score is defined as clinically and socially relevant¹⁰.

EQ-D5 questionnaire

The EQ-D5-3L is another validated generic tool for the assessment of health-related QOL that comprises 5 dimensions and a visual analogue scale: mobility, self-care, activity, pain and anxiety. The visual analogue scale (EQ-VAS) assesses the self-rated overall health status graded 0-100, where 100 is the best health state and 0 the worst^{11,12}.

AF burden calculation

Pre-procedure, if patients indicated they were constantly in AF for the 6 months prior to ablation (78% of patients), their pre-ablation burden was set as 100%. For the rest of the patients, AF burden was calculated by the following equation based on information from the baseline clinical reporting form:

$$\frac{\text{frequency of AF episodes per month} \times \text{average AF episode duration (hours)}}{24 \text{ hours} \times 30.4 \text{ days}} \times 100\%$$

Post-ablation, AF burden was calculated from the totality of Holter recordings as follows:

$$\frac{\text{total duration of AF on all available Holters (hours)}}{\text{total duration of all available Holters (hours)}} \times 100\%$$

It was also calculated from the percentage of weekly TTMs showing AF as follows:

$$\frac{\text{Number of weeks with at least one TTM showing AF}}{\text{Number of weeks of transmission}} \times 100\%$$

The highest post-ablation burden calculated from these two equations was then used for analysis.

These formulae were pre-specified in the statistical analysis plan available as a Supplement with the original publication⁹.

eTable 1. Short Form 36 survey results from baseline to 18 months postablation by randomization

	Baseline (SD)			18 months (SD)*			Change BL-18 mo (95% CI)		
	PVI	PVI+CFAE	PVI+LL	PVI	PVI+CFAE	PVI+LL	PVI	PVI+CFAE	PVI+LL
PF	69.2 (24.2)	69.5 (24.6)	67.0 (25.1)	83.4 (17.6)	83.4 (19.0)	79.1 (21.8)	13.8 (12.3, 15.2)	13.0 (11.1, 14.9)	12.4 (10.4, 14.4)
RP	60.8 (28.0)	56.8 (29.6)	54.0 (30.7)	81.0 (21.6)	79.2 (25.0)	74.4 (25.0)	18.6 (16.0, 21.2)	22.0 (19.2, 24.7)	19.8 (16.8, 22.8)
BP	72.5 (24.0)	71.2 (27.1)	69.4 (27.4)	76.7 (25.3)	80.3 (23.6)	77.6 (24.0)	3.8 (1.2, 6.4)	8.3 (5.6, 10.9)	7.4 (4.8, 10.0)
GH	61.9 (19.1)	57.8 (18.8)	57.5 (20.0)	69.1 (18.4)	69.5 (19.2)	67.2 (21.4)	4.7 (2.9, 6.5)	11.4 (9.5, 13.2)	9.6 (7.6, 11.6)
VI	50.3 (16.8)	48.6 (18.6)	49.2 (19.2)	59.0 (12.9)	63.1 (16.5)	61.6 (16.7)	8.7 (7.2, 10.1)	13.9 (12.2, 15.6)	12.8 (11.1, 14.4)
SF	74.1 (23.2)	70.2 (26.3)	71.3 (26.3)	88.4 (16.2)	84.9 (20.7)	83.2 (20.7)	13.4 (11.0, 15.8)	12.9 (10.6, 15.2)	11.2 (8.7, 13.7)
RE	78.4 (22.8)	69.9 (27.9)	71.3 (28.6)	87.7 (17.9)	85.6 (20.1)	81.0 (24.0)	7.3 (4.9, 9.7)	14.5 (11.9, 17.0)	9.5 (6.8, 12.2)
MH	61.9 (15.7)	61.3 (15.1)	62.3 (15.2)	70.9 (11.8)	70.8 (13.2)	70.4 (13.7)	8.5 (7.0, 10.0)	9.0 (7.7, 10.2)	6.9 (5.6, 8.2)

PVI = pulmonary vein isolation; CFAE = complex fractionated electrograms; LL = linear lesions; PF = physical functioning; RP = role limitation due to physical problems; BP = bodily pain; GH = general health; VI = vitality; SF = social functioning; RE = role limitation due to emotional problems; MH = mental health; SD = standard deviation; 95% CI = 95% confidence interval limits; BL-18 mo = baseline to 18 month comparison

* p < 0.05 using paired t test analysis compared to baseline subscale

eTable 2. Short Form 36 survey results from baseline to 18 months postablation by recurrence

>30 s

	Baseline (SD)		18 months (SD)*		Change BL-18 mo (95% CI)	
	No Recurrence	Recurrence	No Recurrence	Recurrence	No Recurrence	Recurrence
PF	70.6 (23.1)	65.9 (26.2)	85.0 (17.4)	78.4 (21.9)	13.2 (11.4, 15.0)	12.4 (10.3, 14.4)
RP	58.4 (29.8)	54.3 (29.7)	82.5 (21.9)	72.8 (26.1)	23.0 (20.3, 25.7)	18.4 (15.5, 21.2)
BP	72.6 (25.9)	69.0 (27.9)	80.6 (23.1)	77.1 (24.5)	7.5 (5.1, 9.9)	7.3 (4.5, 10.0)
GH	59.6 (18.3)	56.9 (20.1)	71.6 (18.5)	65.6 (21.1)	11.9 (10.0, 13.8)	8.1 (6.1, 10.0)
VI	51.2 (18.4)	47.0 (18.8)	64.0 (15.7)	60.2 (16.6)	12.5 (10.9, 14.1)	13.2 (11.6, 14.8)
SF	72.6 (25.3)	70.1 (26.9)	86.3 (19.0)	83.0 (21.2)	12.1 (9.7, 14.5)	12.3 (9.8, 14.8)
RE	72.6 (27.0)	70.5 (28.7)	86.1 (19.8)	81.7 (23.3)	12.4 (10.0, 14.7)	10.7 (7.9, 13.5)
MH	62.6 (14.9)	61.7 (15.8)	71.4 (12.9)	70.1 (13.5)	7.8 (6.6, 9.0)	8.3 (6.9, 9.7)

S = seconds; PF = physical functioning; RP = role limitation due to physical problems; BP = bodily pain; GH = general health; VI = vitality; SF = social functioning; RE = role limitation due to emotional problems; MH = mental health; SD = standard deviation; 95% CI = 95% confidence interval limits; BL-18 mo = baseline to 18 month comparison
 * p < 0.05 using paired t test analysis compared to baseline subscale

eTable 3. EQ-5D-3L and VAS scores from baseline to 18 months postablation

		Baseline	18 Months	Change from Baseline to 18 Months [95% CI]
Activity	No problems	59.8%	82.0%	22.2% [16.6%, 27.5%]
	Some problems	37.9%	17.6%	-20.3% [-25.6%, -14.7%]
	Extreme problems	2.3%	0.4%	-1.9% [-3.6%, -0.2%]
Pain	No problems	52.0%	68.0%	16.0% [9.9%, 21.9%]
	Some problems	45.8%	31.1%	-14.7% [-20.6%, -8.6%]
	Extreme problems	2.1%	0.9%	-1.3% [-3.0%, 0.5%]
Anxiety	No problems	58.9%	74.7%	15.7% [9.9%, 21.4%]
	Some problems	37.2%	24.0%	-13.1% [-18.7%, -7.4%]
	Extreme problems	3.9%	1.3%	-2.6% [-4.8%, -0.5%]
Mobility	No problems	74.7%	86.1%	11.3% [6.3%, 16.1%]
	Some problems	25.1%	13.9%	-11.1% [-16.0%, -6.2%]
	Extreme problems	0.2%	0.0%	-0.2% [-1.1%, 0.9%]
Self-care	No problems	95.8%	97.6%	1.9% [-0.5%, 4.3%]
	Some problems	3.7%	2.4%	-1.3% [-3.6%, 1.0%]
	Extreme problems	0.5%	0.0%	-0.5% [-1.7%, 0.6%]
EQ-VAS	Mean ± SD Median (Q1, Q3)	65.3 ± 17.9 70.0 (53.0, 80.0)	77.6 ± 14.9 80.0 (70.0, 90.0)	12.1 ± 19.1 10.0 (0.0, 20.0)

eTable 4. EQ-5D-3L and VAS scores from baseline to 18 months postablation by randomization arm

		Baseline			18 Months			Change from Baseline to 18 Months [95% CI]		
		PVI	PVI + Lines	PVI + CFAE	PVI	PVI + Lines	PVI + CFAE	PVI	PVI + Lines	PVI + CFAE
Activity	No problems	66.7%	55.4%	62.5%	81.5%	80.9%	83.3%	14.8% [-2.5%, 30.6%]	25.4% [16.7%, 33.5%]	20.8% [12.4%, 28.7%]
	Some problems	31.7%	41.8%	35.6%	18.5%	18.7%	16.3%	-13.2% [-29.0%, 4.0%]	-23.1% [-31.2%, -14.5%]	-19.3% [-27.1%, -11.0%]
	Extreme problems	1.6%	2.8%	2.0%	0.0%	0.5%	0.5%	-1.6% [-9.7%, 6.8%]	-2.3% [-5.5%, 0.7%]	-1.5% [-4.4%, 1.4%]
Pain	No problems	52.4%	51.0%	53.0%	63.0%	66.5%	70.9%	10.6% [-8.4%, 28.5%]	15.5% [6.1%, 24.4%]	18.0% [8.7%, 26.7%]
	Some problems	47.6%	46.6%	44.7%	35.2%	32.5%	28.6%	-12.4% [-30.1%, 6.6%]	-14.1% [-23.0%, -4.7%]	-16.1% [-24.8%, -6.9%]
	Extreme problems	0.0%	2.4%	2.4%	1.9%	1.0%	0.5%	1.9% [-5.5%, 11.2%]	-1.5% [-4.6%, 1.7%]	-1.9% [-4.9%, 1.1%]
Anxiety	No problems	67.7%	62.8%	53.0%	74.1%	76.6%	72.9%	6.3% [-11.5%, 23.2%]	13.8% [5.0%, 22.1%]	19.9% [10.7%, 28.6%]
	Some problems	29.0%	33.6%	42.7%	25.9%	20.6%	27.1%	-3.1% [-19.9%, 14.4%]	-13.0% [-21.1%, -4.5%]	-15.6% [-24.2%, -6.5%]
	Extreme problems	3.2%	3.6%	4.3%	0.0%	2.9%	0.0%	-3.2% [-12.2%, 5.5%]	-0.7% [-4.5%, 3.3%]	-4.3% [-7.9%, -1.3%]
Mobility	No problems	79.4%	72.4%	75.9%	88.9%	84.2%	87.2%	9.5% [-5.5%, 23.5%]	11.8% [3.9%, 19.4%]	11.3% [3.8%, 18.5%]
	Some problems	20.6%	27.6%	23.7%	11.1%	15.8%	12.8%	-9.5% [-23.5%, 5.5%]	-11.8% [-19.4%, -3.9%]	-10.9% [-18.0%, -3.4%]
	Extreme problems	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0% [-2.5%, 1.9%]	0.0% [-2.5%, 1.9%]	-0.4% [-2.5%, 1.9%]
Self-care	No problems	98.4%	93.6%	97.2%	100.0%	95.7%	99.0%	1.6% [-6.8%, 9.7%]	2.1% [-2.6%, 6.6%]	1.8% [-1.5%, 5.0%]
	Some problems	1.6%	5.6%	2.4%	0.0%	4.3%	1.0%	-1.6% [-9.7%, 6.8%]	-1.3% [-5.7%, 3.3%]	-1.4% [-4.5%, 1.8%]
	Extreme problems	0.0%	0.8%	0.4%	0.0%	0.0%	0.0%	0.0% [-3.2%, 1.5%]	-0.8% [-3.2%, 1.5%]	-0.4% [-2.5%, 1.9%]
EQ-VAS	Mean ± SD Median (Q1, Q3)	67.3 ± 16.8 70.0 (55.0, 80.0)	64.3 ± 19.0 68.0 (50.0, 80.0)	65.7 ± 17.0 70.0 (55.0, 80.0)	76.1 ± 16.0 80.0 (70.0, 87.0)	76.7 ± 15.1 80.0 (70.0, 90.0)	78.9 ± 14.4 80.0 (70.0, 90.0)	9.2 ± 20.7 (51) 10.0 (0.0, 20.0)	12.2 ± 19.4 (204) 10.0 (0.0, 23.0)	12.7 ± 18.5 (200) 10.0 (0.0, 20.0)

eTable 5. EQ-5D-3L and VAS scores from baseline to 18 months postablation by recurrence

>30 s

		Baseline		18 Months		Change from Baseline to 18 Months [95% CI]	
		No recurrence	Recurrence	No recurrence	Recurrence	No recurrence	Recurrence
Activity	No problems	62.2%	57.1%	86.3%	78.1%	24.1% [16.1%, 31.5%]	21.0% [12.8%, 28.9%]
	Some problems	36.3%	39.6%	13.7%	21.1%	-22.6% [-30.0%, -14.6%]	-18.6% [-26.3%, -10.5%]
	Extreme problems	1.5%	3.3%	0.0%	0.8%	-1.5% [-4.1%, 0.9%]	-2.5% [-5.6%, 0.5%]
Pain	No problems	55.2%	49.6%	69.4%	66.8%	14.2% [5.2%, 22.9%]	17.2% [8.4%, 25.5%]
	Some problems	43.3%	47.5%	30.1%	32.0%	-13.2% [-21.8%, -4.2%]	-15.5% [-23.8%, -6.8%]
	Extreme problems	1.5%	2.9%	0.5%	1.2%	-1.1% [-3.7%, 1.6%]	-1.7% [-4.8%, 1.3%]
Anxiety	No problems	60.7%	58.2%	76.7%	72.9%	16.0% [7.4%, 24.2%]	14.7% [6.3%, 22.8%]
	Some problems	35.9%	37.5%	21.9%	25.9%	-14.0% [-22.0%, -5.5%]	-11.5% [-19.5%, -3.3%]
	Extreme problems	3.4%	4.4%	1.4%	1.2%	-2.1% [-5.4%, 1.3%]	-3.1% [-6.6%, 0.1%]
Mobility	No problems	78.2%	71.7%	88.6%	83.8%	10.3% [3.3%, 17.1%]	12.1% [4.7%, 19.2%]
	Some problems	21.8%	27.9%	11.4%	16.2%	-10.3% [-17.1%, -3.3%]	-11.7% [-18.9%, -4.3%]
	Extreme problems	0.0%	0.4%	0.0%	0.0%	0.0% [-2.5%, 1.9%]	-0.4% [-2.3%, 1.6%]
Self-care	No problems	96.6%	94.9%	97.3%	98.0%	0.7% [-3.1%, 4.3%]	3.0% [-0.6%, 6.8%]
	Some problems	3.1%	4.3%	2.7%	2.0%	-0.3% [-3.8%, 3.5%]	-2.3% [-5.9%, 1.2%]
	Extreme problems	0.4%	0.7%	0.0%	0.0%	-0.4% [-2.4%, 1.8%]	-0.7% [-2.9%, 1.3%]
EQ-VAS	Mean ± SD Median (Q1, Q3)	66.6 ± 17.9 70.0 (60.0, 80.0)	64.6 ± 17.7 70.0 (50.0, 80.0)	79.2 ± 14.2 80.0 (70.0, 90.0)	76.2 ± 15.4 80.0 (70.0, 90.0)	12.6 ± 18.5 10.0 (0.0, 20.0)	11.7 ± 19.7 10.0 (0.0, 20.0)