

Supplemental Tables for:

Patient-reported outcomes predict progression-free survival of patients with advanced breast cancer treated with abemaciclib

Sarah Badaoui et al.

Table S1: Summary of patient characteristics by study

	MONARCH 1 No. 132	MONARCH 2 No. 669	MONARCH 3 No. 493	P-value
Actual treatment received				< 0.001
Abemaciclib-150mg + Fulvestrant	0 (0%)	320 (48%)	0 (0%)	
Abemaciclib-150mg + NSAI	0 (0%)	0 (0%)	327 (66%)	
Abemaciclib-200mg	132 (100%)	0 (0%)	0 (0%)	
Abemaciclib-200mg + Fulvestrant	0 (0%)	121 (18%)	0 (0%)	
Fulvestrant-500mg	0 (0%)	223 (33%)	0 (0%)	
NSAI	0 (0%)	0 (0%)	161 (33%)	
Missing	0 (0%)	5 (1%)	5 (1%)	
Randomised study arm				< 0.001
Abemaciclib-150mg + Fulvestrant	0 (0%)	325 (49%)	0 (0%)	
Abemaciclib-150mg + NSAI	0 (0%)	0 (0%)	328 (67%)	
Abemaciclib-200mg	132 (100%)	0 (0%)	0 (0%)	
Abemaciclib-200mg + Fulvestrant	0 (0%)	121 (18%)	0 (0%)	
Placebo + Fulvestrant	0 (0%)	223 (33%)	0 (0%)	
Placebo + NSAI	0 (0%)	0 (0%)	165 (33%)	
Sex: Female	132 (100%)	669 (100%)	493 (100%)	
Age (years)	58 (53 - 67)	60 (51 - 68)	63 (56 - 70)	< 0.001
ECOG-PS				0.6
0	73 (55%)	400 (60%)	296 (60%)	
1+	59 (45%)	264 (39%)	197 (40%)	
Missing	0 (0%)	5 (1%)	0 (0%)	
Histological tumour grade at initial diagnosis				0.003
Low/intermediate	73 (55%)	339 (51%)	269 (55%)	
High	34 (26%)	153 (23%)	76 (15%)	
Unassessable/missing	25 (19%)	177 (26%)	148 (30%)	
Liver tumour site	93 (70%)	176 (26%)	78 (16%)	< 0.001
Bone only disease	1 (1%)	170 (25%)	93 (19%)	< 0.001
Progesterone Receptor Status				0.4
Positive	95 (72%)	510 (76%)	382 (77%)	
Negative	35 (27%)	140 (21%)	106 (22%)	
Missing	2 (2%)	19 (3%)	5 (1%)	

Data are median (IQR) or number of patients (%). P values per Chi-Square test for categorical data and Kruskal-Wallis test for continuous data. NSAI = non-steroidal aromatase inhibitor, ECOG-PS = Eastern Cooperative Oncology Group Performance Status, IQR = interquartile range

Supplemental Tables for:

Patient-reported outcomes predict progression-free survival of patients with advanced breast cancer treated with abemaciclib

Sarah Badaoui et al.

Table S2: Summary of pre-treatment patient-reported outcome values by study

	Reference Value*	MONARCH 1	MONARCH 2	MONARCH 3	P-value
	No. 1,147	No. 132	No. 669	No. 493	
Global health status					0.1
Median (IQR)	66.7 (50 - 83.3)	67 (50 - 83)	67 (50 - 83)	67 (50 - 83)	
Missing		1 (1%)	19 (3%)	18 (4%)	
Physical function					0.08
Median (IQR)	86.7 (73.3 - 93.3)	80 (67 - 93)	80 (67 - 93)	80 (60 - 93)	
Missing		1 (1%)	18 (3%)	19 (4%)	
Role function					0.5
Median (IQR)	66.7 (50 - 100)	83 (67 - 100)	83 (67 - 100)	83 (67 - 100)	
Missing		1 (1%)	18 (3%)	19 (4%)	
Emotional function					0.03
Median (IQR)	66.7 (50 - 83.3)	83 (67 - 92)	75 (58 - 92)	75 (58 - 92)	
Missing		1 (1%)	19 (3%)	19 (4%)	
Cognitive function					0.3
Median (IQR)	83.3 (66.7 - 100)	83 (67 - 100)	83 (67 - 100)	83 (83 - 100)	
Missing		1 (1%)	19 (3%)	20 (4%)	
Social function					0.8
Median (IQR)	83.3 (67 - 100)	100 (67 - 100)	100 (67 - 100)	83 (67 - 100)	
Missing		1 (1%)	18 (3%)	23 (5%)	
Fatigue					0.1
Median (IQR)	33.3 (11.1 - 55.6)	33 (11 - 44)	33 (11 - 44)	33 (22 - 44)	
Missing		1 (1%)	19 (3%)	21 (4%)	
Nausea and vomiting					0.41
Median (IQR)	0 (0 - 16.7)	0 (0 - 0)	0 (0 - 0)	0 (0 - 2)	
Missing		1 (1%)	19 (3%)	19 (4%)	
Pain					0.4
Median (IQR)	33.3 (0 - 50)	33 (17 - 50)	17 (0 - 50)	33 (17 - 50)	
Missing		1 (1%)	18 (3%)	19 (4%)	
Dyspnoea					0.3
Median (IQR)	0 (0 - 16.7)	0 (0 - 33)	0 (0 - 33)	0 (0 - 33)	
Missing		1 (1%)	20 (3%)	22 (4%)	
Insomnia					0.8

Supplemental Tables for:

Patient-reported outcomes predict progression-free survival of patients with advanced breast cancer treated with abemaciclib

Sarah Badaoui et al.

Median (IQR)	33.3 (0 - 66.7)	33 (0 - 33)	33 (0 - 33)	33 (0 - 33)	
Missing		1 (1%)	18 (3%)	20 (4%)	
Appetite loss					0.07
Median (IQR)	0 (0 - 33.3)	0 (0 - 33)	0 (0 - 33)	0 (0 - 33)	
Missing		1 (1%)	19 (3%)	20 (4%)	
Constipation					0.1
Median (IQR)	0 (0 - 33.3)	0 (0 - 33)	0 (0 - 33)	0 (0 - 33)	
Missing		1 (1%)	19 (3%)	19 (4%)	
Diarrhoea					0.6
Median (IQR)	0 (0 - 0)	0 (0 - 0)	0 (0 - 0)	0 (0 - 0)	
Missing		1 (1%)	19 (3%)	20 (4%)	
Financial difficulties					0.6
Median (IQR)	0 (0 - 33.3)	0 (0 - 33)	0 (0 - 33)	0 (0 - 33)	
Missing		1 (1%)	19 (3%)	24 (5%)	

Data are median (IQR) or number of patients (%). P values per Chi-Square test for categorical data and Kruskal-Wallis test for continuous data.

* Reference value according to EORTC QLQ-C30 Tables of Reference Values for Breast Cancer: recurrent/metastatic (p. 70)

Supplemental Tables for:

Patient-reported outcomes predict progression-free survival of patients with advanced breast cancer treated with abemaciclib

Sarah Badaoui et al.

Table S3: Univariable and multivariable association between PROs and PFS for patients treated with abemaciclib

PRO	Univariable					Adjusted [#]			
	n	HR*	95% CI	P	c	n	HR*	95% CI	P
Physical function	878	0.92	0.88 to 0.96	<0.001	0.55	864	0.92	0.88 to 0.97	0.001
Pain	878	1.05	1.02 to 1.09	0.003	0.54	864	1.05	1.01 to 1.09	0.009
Role function	879	0.95	0.92 to 0.98	0.002	0.54	865	0.96	0.92 to 0.99	0.01
Global Health Status	878	0.96	0.92 to 1.00	0.06	0.53	864	0.98	0.94 to 1.02	0.3
Fatigue	877	1.06	1.02 to 1.10	0.003	0.53	863	1.04	1.00 to 1.09	0.04
Appetite loss	878	1.05	1.02 to 1.09	0.004	0.53	864	1.04	1.01 to 1.08	0.03
Nausea and vomiting	878	1.07	1.01 to 1.13	0.01	0.53	864	1.04	0.98 to 1.10	0.2
Insomnia	877	1.03	1.00 to 1.07	0.04	0.52	863	1.03	1.00 to 1.06	0.09
Constipation	877	1.03	1.00 to 1.07	0.09	0.52	863	1.03	0.99 to 1.07	0.1
Emotional function	878	0.99	0.95 to 1.03	0.5	0.52	864	0.99	0.95 to 1.04	0.7
Dyspnoea	876	1.03	0.99 to 1.07	0.1	0.52	862	1.02	0.98 to 1.06	0.3
Financial difficulties	875	1.01	0.98 to 1.04	0.6	0.52	861	1.01	0.98 to 1.04	0.5
Diarrhoea	876	0.96	0.91 to 1.02	0.2	0.52	862	0.96	0.91 to 1.01	0.1
Social function	875	0.98	0.95 to 1.02	0.3	0.51	861	0.99	0.95 to 1.03	0.6
Cognitive function	877	0.97	0.92 to 1.01	0.2	0.51	863	0.97	0.93 to 1.02	0.3

CI=confidence interval, HR=hazard ratio

*HR based on 10-unit increase

[#]Adjusted for ECOG-PS, bone only disease, liver tumour site, progesterone receptor status and histological tumour grade at initial diagnosis

Supplemental Tables for:

Patient-reported outcomes predict progression-free survival of patients with advanced breast cancer treated with abemaciclib

Sarah Badaoui et al.

Table S4: Univariable association between patient-reported physical function, pain and role function with PFS for patients treated with abemaciclib by study

	MONARCH 1					MONARCH 2					MONARCH 3					<i>P[interaction]</i>
	n	HR*	95% CI	P	c	n	HR*	95% CI	P	c	n	HR*	95% CI	P	c	
Physical function	131	0.96	0.87 to 1.07	0.5	0.53	431	0.88	0.82 to 0.93	<0.001	0.58	316	0.96	0.88 to 1.04	0.3	0.53	0.1
Pain	131	1.03	0.95 to 1.12	0.5	0.52	431	1.06	1.01 to 1.11	0.01	0.55	316	1.05	0.98 to 1.11	0.2	0.54	>0.9
Role function	131	0.96	0.89 to 1.04	0.3	0.54	431	0.93	0.89 to 0.98	0.002	0.55	317	0.97	0.91 to 1.03	0.3	0.52	0.7

CI=confidence interval, HR=hazard ratio

*HR based on 10-unit increase

Supplemental Tables for:

Patient-reported outcomes predict progression-free survival of patients with advanced breast cancer treated with abemaciclib

Sarah Badaoui et al.

Table S5: Univariable and multivariable association between patient-reported physical function, role function and pain, with PFS for patients treated with the comparator arms of MONARCH 2 and 3

PRO	Univariable					Multivariable [#]			
	n	HR*	95% CI	P	c	n	HR*	95% CI	P
Physical function	377	1.01	0.95 to 1.07	0.8	0.47	369	1.03	0.96 to 1.10	0.4
Role function	376	1.01	0.97 to 1.06	0.6	0.5	369	0.98	0.93 to 1.03	0.5
Pain	377	1	0.95 to 1.04	0.9	0.47	368	1.03	0.98 to 1.09	0.2

CI=confidence interval, HR=hazard ratio

*HR based on 10-unit increase

[#]Adjusted for ECOG-PS, bone only disease, liver tumour site, progesterone receptor status and histological tumour grade at initial diagnosis

Supplemental Tables for:

Patient-reported outcomes predict progression-free survival of patients with advanced breast cancer treated with abemaciclib

Sarah Badaoui et al.

Table S6: Univariable and multivariable association between patient-reported physical function, role function and pain, with OS for patients treated with abemaciclib

PRO	Univariable					Multivariable [#]				
	n	HR*	95% CI	P	c	n	HR*	95% CI	P	c
Physical function	87	0.8	0.80 to 0.90	<0.00	0.6	86	0.8	0.81 to 0.93	<0.00	0.6
	8	5		1	0	4	7		1	5
Role function	87	0.9	0.86 to 0.94	<0.00	0.5	86	0.9	0.87 to 0.96	<0.00	0.6
	9	0		1	7	5	1		1	4
Pain	87	1.0	1.03 to 1.14	0.001	0.5	86	1.0	1.01 to 1.13	0.02	0.6
	8	8			7	4	7			4

CI=confidence interval, HR=hazard ratio

*HR based on 10-unit increase

[#]Adjusted for ECOG-PS, bone only disease, liver tumour site, progesterone receptor status and histological tumour grade at initial diagnosis

Supplemental Tables for:

Patient-reported outcomes predict progression-free survival of patients with advanced breast cancer treated with abemaciclib

Sarah Badaoui et al.

Table S7: Summary of patient characteristics by patient-reported physical function

	<73.3 No. 407	≥73.3 to 93.3 No. 475	≥ 93.3 No. 374	P-value
Actual treatment received				0.057
Abemaciclib-150mg + Fulvestrant	98 (24%)	121 (25%)	94 (25%)	
Abemaciclib-150mg + NSAI	108 (27%)	110 (23%)	98 (26%)	
Abemaciclib-200mg	44 (11%)	53 (11%)	34 (9%)	
Abemaciclib-200mg + Fulvestrant	29 (7%)	54 (11%)	35 (9%)	
Fulvestrant	59 (14%)	87 (18%)	73 (20%)	
NSAI	68 (17%)	50 (11%)	40 (11%)	
Missing	1 (<1%)	0 (0%)	0 (0%)	
Study				0.034
MONARCH1	44 (11%)	53 (11%)	34 (9%)	
MONARCH2	187 (46%)	262 (55%)	202 (54%)	
MONARCH3	176 (43%)	160 (34%)	138 (37%)	
Sex: Female	407 (100%)	475 (100%)	374 (100%)	
Age (years)	64 (55 - 71)	60 (54 - 69)	59 (52 - 66)	< 0.001
ECOG-PS				< 0.001
0	151 (37%)	292 (61%)	303 (81%)	
1+	256 (63%)	182 (38%)	70 (19%)	
Missing	0 (0%)	1 (<1%)	1 (<1%)	
Histological tumour grade at initial diagnosis				0.77
Low/Intermediate	207 (51%)	257 (54%)	200 (53%)	
High	86 (21%)	88 (19%)	78 (21%)	
Unassessable/Missing	114 (28%)	130 (27%)	96 (26%)	
Liver tumour site	104 (26%)	134 (28%)	98 (26%)	0.65
Bone only disease	96 (24%)	91 (19%)	68 (18%)	0.13
Progesterone Receptor Status				0.19
Positive	299 (73%)	366 (77%)	295 (79%)	
Negative	100 (25%)	104 (22%)	72 (19%)	
Missing	8 (2%)	5 (1%)	7 (2%)	

Data are median (IQR) or number of patients (%). P values per Chi-Square test for categorical data and Kruskal-Wallis test for continuous data.

Supplemental Tables for:

Patient-reported outcomes predict progression-free survival of patients with advanced breast cancer treated with abemaciclib

Sarah Badaoui et al.

Table S8: Summary of patient-reported physical function raw scores by physician- assessed ECOG-PS in patients treated with abemaciclib

	ECOG-PS		P-value
	0 No. 528	1+ No. 370	
Physical Function at Baseline			< 0.001
Low	100 (19%)	179 (48%)	
Intermediate	204 (39%)	133 (36%)	
High	210 (40%)	50 (14%)	
Missing	14 (3%)	8 (2%)	
Trouble with strenuous activity			< 0.001
1	172 (33%)	41 (11%)	
2	203 (38%)	128 (35%)	
3	90 (17%)	118 (32%)	
4	49 (9%)	75 (20%)	
Missing	14 (3%)	8 (2%)	
Trouble taking a long walk			< 0.001
1	220 (42%)	58 (16%)	
2	174 (33%)	121 (33%)	
3	89 (17%)	111 (30%)	
4	31 (6%)	72 (19%)	
Missing	14 (3%)	8 (2%)	
Trouble taking a short walk			< 0.001
1	411 (78%)	190 (51%)	
2	86 (16%)	116 (31%)	
3	12 (2%)	38 (10%)	
4	4 (1%)	16 (4%)	
Missing	15 (3%)	10 (3%)	
Need to stay in bed or a chair			< 0.001
1	357 (68%)	148 (40%)	
2	126 (24%)	119 (32%)	
3	25 (5%)	73 (20%)	
4	4 (1%)	20 (5%)	
Missing	16 (3%)	10 (3%)	
Need help with eating, dressing, washing, or using toilet			< 0.001
1	500 (95%)	309 (84%)	
2	12 (2%)	39 (11%)	
3	1 (<1%)	8 (2%)	
4	0 (0%)	7 (2%)	
Missing	15 (3%)	7 (2%)	

Data are median (IQR) or number of patients (%). P values per Chi-Square test for categorical data and Kruskal-Wallis test for continuous data.

Low physical function < 73.3

Intermediate physical function 73.3 – 93.3

High physical function ≥93.3

Supplemental Tables for:
 Patient-reported outcomes predict progression-free survival of patients with advanced breast cancer treated with abemaciclib
 Sarah Badaoui et al.

Table S9: Association of pre-treatment patient-reported physical function with PFS for the randomised arms of MONARCH 2.

Variable	Abemaciclib arm	Comparator arm	HR [95% CI]	P [interaction]
	m% [95 CI]			
MONARCH 2				0.1
Low physical function	52 [44 to 63]	38 [27 to 53]	0.72 [0.49 to 1.06]	
Intermediate/high physical function	64 [59 to 70]	42 [35 to 51]	0.51 [0.40 to 0.66]	

m% = probability of PFS within first 12 months
 CI=confidence interval, HR=hazard ratio
 Reference = Did not plan to receive abemaciclib treatment
 Low physical function < 73.3
 Intermediate/High physical function ≥73.3

Supplemental Tables for:

Patient-reported outcomes predict progression-free survival of patients with advanced breast cancer treated with abemaciclib

Sarah Badaoui et al.

Table S10: Association of pre-treatment patient-reported physical function with PFS for the randomised arms of MONARCH 3.

Variable	Abemaciclib arm m% [95 CI]	Comparator arm m% [95 CI]	HR [95% CI]	P[interaction]
MONARCH 3				0.03
Low physical function	69 [60 to 79]	65 [54 to 78]	0.77 [0.51 to 1.17]	
Intermediate/high physical function	75 [70 to 82]	53 [44 to 65]	0.43 [0.31 to 0.60]	

m% = probability of PFS within first 12 months
 CI=confidence interval, HR=hazard ratio
 Reference = Did not plan to receive abemaciclib treatment
 Low physical function < 73.3
 Intermediate/high physical function ≥73.3

Supplemental Tables for:

Patient-reported outcomes predict progression-free survival of patients with advanced breast cancer treated with abemaciclib

Sarah Badaoui et al.