

Supplementary Online Content

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eTable 1. Covariates Used in Mixed-Model Analyses

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

eTable 1. Covariates Used in Mixed-Model Analyses

#	Covariate	TMK	TPK	TLK	TKK
1	Baseline questionnaire-score ^a	x	x	x	x
2	Status of progression	x	x	x	x
3	Time	x	x	x	x
4	Baseline-score by time	x	x	x	x
5	Age ^a	x	x	x	x
6	BMI ^a	x	x	x	x
7	Sex (m vs. f) ^a	n/a	x	x	x
8	ECOG Performance Status (≥ 1 vs. 0) ^a	x	x	x	x
9	Charlson Comorbidity Index (≥ 1 vs. 0)	x ^b	x ^b	x ^a	x ^a
10	Metastases (M1 vs. M0) ^b	x	x	x	x
11	Treatment regimen (time dependent) ^c	CT HT	FOL GEM+Nab GEM other	CAR CIS other	FFI FFO other
12	HR-status (pos. vs. neg.) ^a	x	n/a	n/a	n/a
13	HER2-status (pos. vs. neg.) ^a	x	n/a	n/a	n/a
14	EGFR-alteration (yes vs. no) ^a	n/a	n/a	x	n/a
15	Smoking status (smoker vs. never-smoker) ^a	n/a	n/a	x	n/a
16	(K)RAS-status (wildtype vs. mutation) ^a	n/a	n/a	n/a	x
17	Location of primary tumor (right vs. left)	n/a	n/a	n/a	x

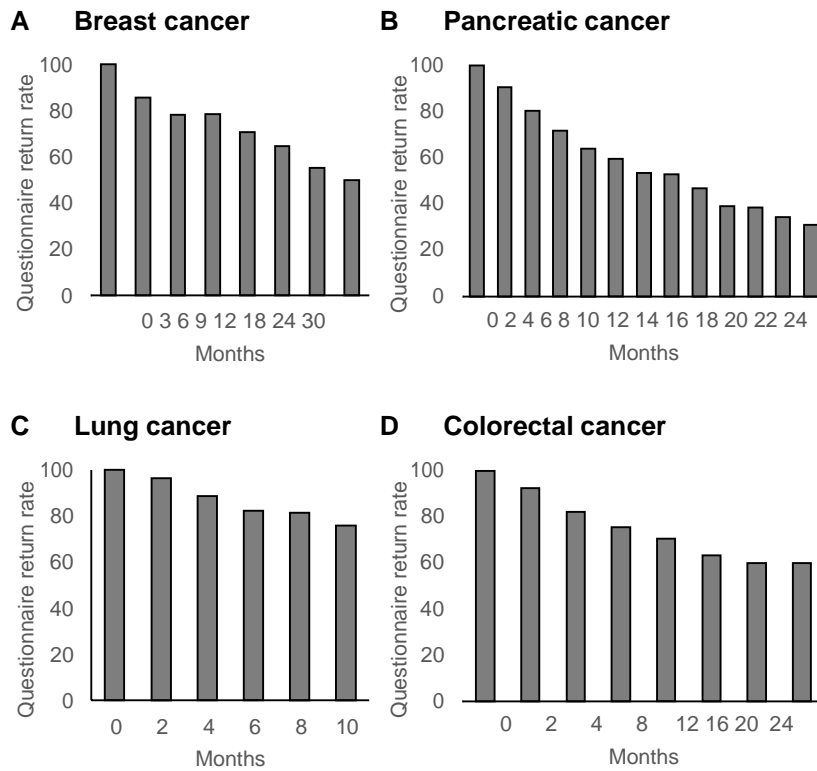
^a at enrollment (start of treatment)

^b at diagnosis

^c this covariate considers different treatment regimen over time (e.g. per line of treatment)

Abbreviations: BMI, body mass index | CAR+X, carboplatin | CIS+X, cisplatin | CT, chemotherapy | ECOG, European Cooperative Oncology Group | EGFR, epidermal growth factor receptor | FFI, FOLFIRI+X | FFO, FOLFOX+X | FOL, FOLFIRINOX | GEM+Nab, gemcitabine + nab-paclitaxel | GEM, gemcitabine | HER2, human epidermal growth factor receptor 2 | HR, hormone receptor | HT, endocrine therapy | (K)RAS, Kirsten rat sarcoma viral oncogene.

eFigure. Questionnaire Return Rate



Questionnaire return rate of patients alive, who had received the respective questionnaire. First time point (0) corresponds to the first questionnaire at start of treatment. **(A)** Patients with breast cancer **(B)** Patients with pancreatic cancer **(C)** Patients with lung cancer **(D)** Patients with colorectal cancer.

eTable 2. Additional Patient and Tumor Characteristics

Characteristic, n (%)	Breast Cancer (n=464)	Lung Cancer (n=341)	Colorectal Cancer (n=702)
Hormone receptor status			
HR-positive	354 (76.3%)		
HR-negative	104 (22.4%)		
Unknown	6 (1.3%)		
HER2-receptor status			
HER2-positive	116 (25.0%)		
HER2-negative	327 (70.5%)		
Unknown	21 (4.5%)		
Smoking status			
Smoker (current or former)		274 (80.4%)	
Never smoker		37 (10.9%)	
Unknown		30 (8.8%)	
<i>EGFR</i> -mutation			
Yes		25 (7.3%)	
No		140 (41.1%)	
Unknown		176 (51.6%)	
<i>(K)RAS</i> -status			
<i>(K)RAS</i> mutation			369 (52.6%)
<i>(K)RAS</i> wildtype			333 (47.4%)
Primary tumor location			
Left			496 (70.7%)
Right			206 (29.3%)

eTable 3. Subsequent Disease Progressions

Breast cancer (FACT-G & HADS)						
Scale	2 nd Disease Progression		3 rd Disease Progression		4 th Disease Progression	
	n	Estimate (95% CI)	n	Estimate (95% CI)	n	Estimate (95% CI)
PWB	94	1.94 (-1.8-5.7)	16	7.58 (0.4-14.8)	6	-8.89 (-21.0-3.2)
FWB	95	3.98 (0.6-7.3)	16	0.82 (-5.7-7.3)	7	-4.05 (-14.7-6.5)
Depression	87	3.10 (0.0-6.2)	15	-0.76 (-6.8-5.3)	7	0.52 (-9.1-10.1)
Global QoL	92	1.22 (-1.2-3.7)	16	3.59 (-1.1-8.3)	6	-5.21 (-13.0-2.6)
EWB	95	2.97 (-0.3-6.3)	16	7.82 (1.4-14.2)	7	-7.40 (-17.7-2.9)
Anxiety	87	1.92 (-1.1-5.0)	15	4.38 (-1.6-10.3)	7	-15.84 (-25.1--6.6)
SWB	94	-1.89 (-5.1-1.3)	16	-2.39 (-8.5-3.8)	6	-1.07 (-11.3-9.2)

Pancreatic cancer (EORTC QLQ-C15)						
Scale	2 nd Disease Progression		3 rd Disease Progression		4 th Disease Progression	
	n	Estimate (95% CI)	n	Estimate (95% CI)	n	Estimate (95% CI)
Appetite loss	144	7.88 (1.6-14.1)	22	20.27 (6.7-33.8)	1	42.91 (-14.6-100.0)
Pain	147	10.10 (5.0-15.2)	22	11.64 (0.5-22.8)	1	16.96 (-29.6-63.5)
PF	139	10.65 (6.4-14.9)	20	14.51 (5.0-24.0)	1	57.78 (20.7-94.9)
Fatigue	140	9.08 (4.6-13.6)	19	15.93 (5.6-26.3)	1	8.88 (-30.8-48.5)
Global QoL	145	10.77 (7.0-14.6)	22	11.90 (3.7-20.2)		
Constipation	144	6.59 (1.0-12.2)	22	9.36 (-2.7-21.4)	1	1.61 (-49.0-52.2)
Insomnia	142	2.65 (-2.7-8.0)	22	16.28 (4.7-27.9)		
Nausea	146	7.28 (2.3-12.2)	22	-2.84 (-13.7-8.0)	1	2.48 (-43.2-48.1)
EF	143	9.53 (5.0-14.1)	22	6.58 (-3.2-16.3)	1	12.19 (-29.1-53.5)
Dyspnoea	145	4.72 (-0.3-9.7)	21	7.45 (-3.7-18.6)	1	77.02 (31.1-100.0)

Lung Cancer (EORTC QLQ-C30)						
Scale	2 nd Disease Progression		3 rd Disease Progression		4 th Disease Progression	
	n	Estimate (95% CI)	n	Estimate (95% CI)	n	Estimate (95% CI)
Appetite loss	59	16.24 (6.7-25.8)	8	-11.14 (-33.4-11.1)	1	-23.32 (-84.3-37.7)
PF	59	10.61 (5.2-16.0)	8	-0.68 (-12.8-11.4)	1	-4.23 (-36.8-28.4)
Fatigue	59	8.42 (2.3-14.5)	8	9.01 (-4.7-22.8)	1	-43.06 (-80.5--5.6)
SF	60	10.95 (3.8-18.1)	8	5.99 (-10.6-22.6)	1	-9.96 (-54.6-34.7)
Pain	60	8.68 (0.7-16.6)	8	8.64 (-9.7-26.9)	1	-41.75 (-91.8-8.3)
Global QoL	57	11.58 (5.9-17.3)	7	1.47 (-12.2-15.1)	1	1.17 (-34.0-36.3)
EF	60	9.63 (3.9-15.4)	8	-2.53 (15.8-10.8)		
CF	60	11.70 (5.7-17.7)	8	8.59 (-5.2-22.4)	1	-31.83 (-68.9-5.2)
RF	58	13.60 (6.4-20.8)	8	7.83 (-8.4-24.1)	1	0.92 (-43.2-45.0)
Nausea	60	2.22 (-4.1-8.5)	8	9.33 (-5.3-23.9)	1	-18.05 (-58.6-22.5)
Dyspnoea	55	6.84 (-0.9-14.6)	7	6.45 (-11.9-24.8)		
Insomnia	59	13.86 (5.6-22.1)	8	-12.90 (-32.0-6.2)		
Constipation	58	11.00 (1.9-20.1)	8	2.43 (-18.9-23.8)	1	-11.81 (-69.7-46.1)
Diarrhoea	56	1.88 (-4.9-8.7)	8	-13.95 (-30.0-2.1)	1	3.03 (-41.6-47.6)

Colorectal Cancer (EORTC QLQ-C30)						
Scale	2 nd Disease Progression		3 rd Disease Progression		4 th Disease Progression	
	n	Estimate (95% CI)	n	Estimate (95% CI)	n	Estimate (95% CI)
Appetite loss	148	12.29 (6.6-18.0)	32	9.60 (-1.5-20.7)	5	-3.83 (-28.3-20.6)
PF	151	9.92 (6.6-13.3)	32	5.84 (-0.8-12.4)	5	-21.13 (-35.5--6.8)
Nausea	151	2.77 (-1.0-6.6)	32	7.37 (-0.2-14.9)	5	-14.91 (-31.8-2.0)
Fatigue	151	7.96 (3.9-12.0)	32	7.84 (-0.1-15.8)	5	-1.79 (-19.2-15.6)
Constipation	148	5.44 (0.4-10.5)	31	-2.55 (-12.6-7.5)	5	14.92 (-7.1-36.9)
Dyspnoea	149	8.58 (3.4-13.7)	32	-3.82 (-13.8-6.2)	5	-12.78 (-34.3-8.8)
Pain	152	10.25 (5.3-15.2)	34	-0.12 (-9.5-9.3)	5	-12.28 (-33.8-9.2)
Global QoL	150	7.54 (3.9-11.2)	34	3.85 (-3.1-10.8)	5	-9.35 (-25.3-6.6)
SF	151	9.20 (4.7-13.7)	34	6.39 (-2.3-15.0)	5	-22.44 (-42.0--2.9)
RF	147	11.02 (6.2-15.9)	32	2.35 (-7.0-11.7)	5	-13.55 (-34.3-7.2)
EF	151	6.16 (2.6-9.7)	34	3.31 (-3.5-10.1)	5	0.94 (-14.6-16.4)
CF	151	5.18 (1.6-8.7)	34	-3.03 (-9.8-3.7)	5	-5.46 (-20.5-9.6)
Diarrhoea	151	3.02 (-3.0-9.0)	32	7.82 (-3.9-19.5)	5	-2.23 (-28.2-23.7)
Insomnia	150	7.58 (2.3-12.8)	31	2.03 (-8.5-12.5)	5	-3.72 (-26.5-19.1)

n = number of questionnaires filled in by patients after the respective progression and before a subsequent disease progression.
Abbreviations: CF, cognitive functioning; CI, confidence interval; EF, emotional functioning; EWB, emotional well-being; FWB, functional well-being; PF, physical functioning; PWB, physical well-being; QoL, quality of life; RF, role functioning; SF, social functioning; SWB, social well-being.