

Supplementary materials

Table S1. Cox regression analysis in young patients (ages 18-44 years at diagnosis) with colorectal cancer.

Figure S1. Landmark analysis of overall survival with a breakpoint at 25 months of surgery for young patients aged 18-44 years vs older patients aged 44-80 years with stage I, stage II, stage III and stage IV colorectal cancer.

Figure S2. Forest plots of multivariate Cox regression analysis for overall survival (OS) in young patients aged 18-44 years and in old patients aged 44-80 years. OS, overall survival.

Figure S3. Kaplan-Meier estimates of overall survival stratified by the use of postoperative chemotherapy for young and older patients with stage I, low-risk stage II and high-risk stage II colorectal cancer.

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Figure S6. Landmark analysis of overall survival with a breakpoint at 25 months of surgery for young patients aged 18-40 years vs older patients aged 40-80 years, and for young patients aged 18-50 years vs older patients

Figure S7. Landmark analysis of overall survival with a breakpoint at 25 months of surgery for young vs older patients after exclusion of patients with deficient mismatch repair.

Table S1. Cox regression analysis in young patients (ages 18-44 years at diagnosis) with colorectal cancer.

Variable	Univariate analysis			Multivariate analysis		
	HR	95% CI	p value ^e	HR	95% CI	p value ^e
For OS within 25 months of surgery^a						
Differentiation: poor vs well/moderate ^b	1.89	0.97-3.69	0.086	1.11	0.55-2.22	0.779
Location: right-sided vs left-sided ^c	2.27	1.12-4.61	0.042	2.74	1.28-5.90	0.025
MMR: proficient vs deficient	2.58	0.75-8.93	0.155			
Perineural invasion: yes vs no	3.45	1.67-7.13	0.003	2.48	1.14-5.36	0.035
Sex: female vs male	0.99	0.52-1.89	0.974			
Vascular invasion: yes vs no	2.24	1.12-4.45	0.042	1.32	0.64-2.72	0.567
TNM stage: III-IV vs I-II	10.48	3.71-29.6	<0.001	8.54	2.92-24.95	<0.001
For OS after 25 months of surgery						
Differentiation: poor vs well/moderate ^b	2.2	0.91-5.32	0.189			
Location: right-sided vs left-sided ^c	NA ^d	NA ^d	0.997			
MMR: proficient vs deficient	6.18	0.80-47.92	0.189			
Perineural invasion: yes vs no	2.20	0.65-7.49	0.360			
Sex: female vs male	0.64	0.27-1.51	0.427			
Vascular invasion: yes vs no	1.52	0.56-4.15	0.481			
TNM stage: III-IV vs I-II	4.81	1.76-13.13	0.014	4.81	1.76-13.13	0.002

Abbreviations: OS, overall survival; HR, Hazard ratio; NA, not applicable.

^a Patients survived over 25 months were assigned with a 25-month survival time and no event occurred in cox-regression analysis.

^b Poor differentiation referred to poorly differentiated adenocarcinoma and special types carcinoma.

^c Left-sided included both left colon and rectum.

^d The maximum likelihood estimate of coefficient was infinity because there was no event in left-sided group.

^e p values were corrected using the Benjamini–Hochberg method.

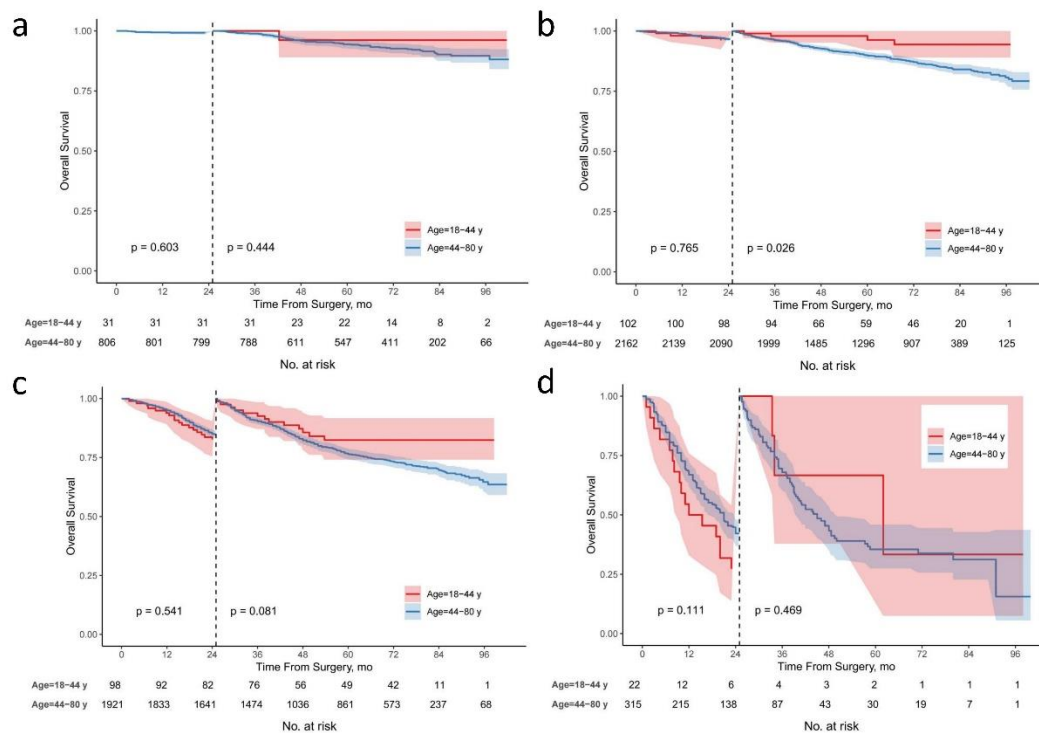


Figure S1. Landmark analysis of overall survival with a breakpoint at 25 months of surgery for young patients aged 18-44 years vs older patients aged 44-80 years with stage I (a), stage II (b), stage III (c) and stage IV colorectal cancer (d).

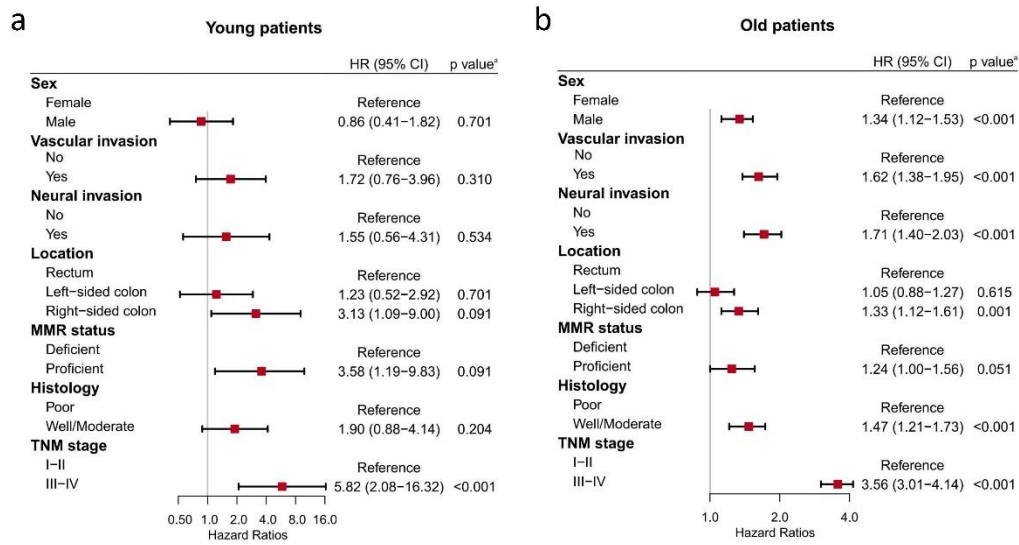


Figure S2. Forest plots of multivariate Cox regression analysis for overall survival (**a**) in young patients aged 18-44 years and (**b**) in old patients aged 44-80 years. HR, Hazard ratio. ^aP values were corrected with Benjamini–Hochberg.

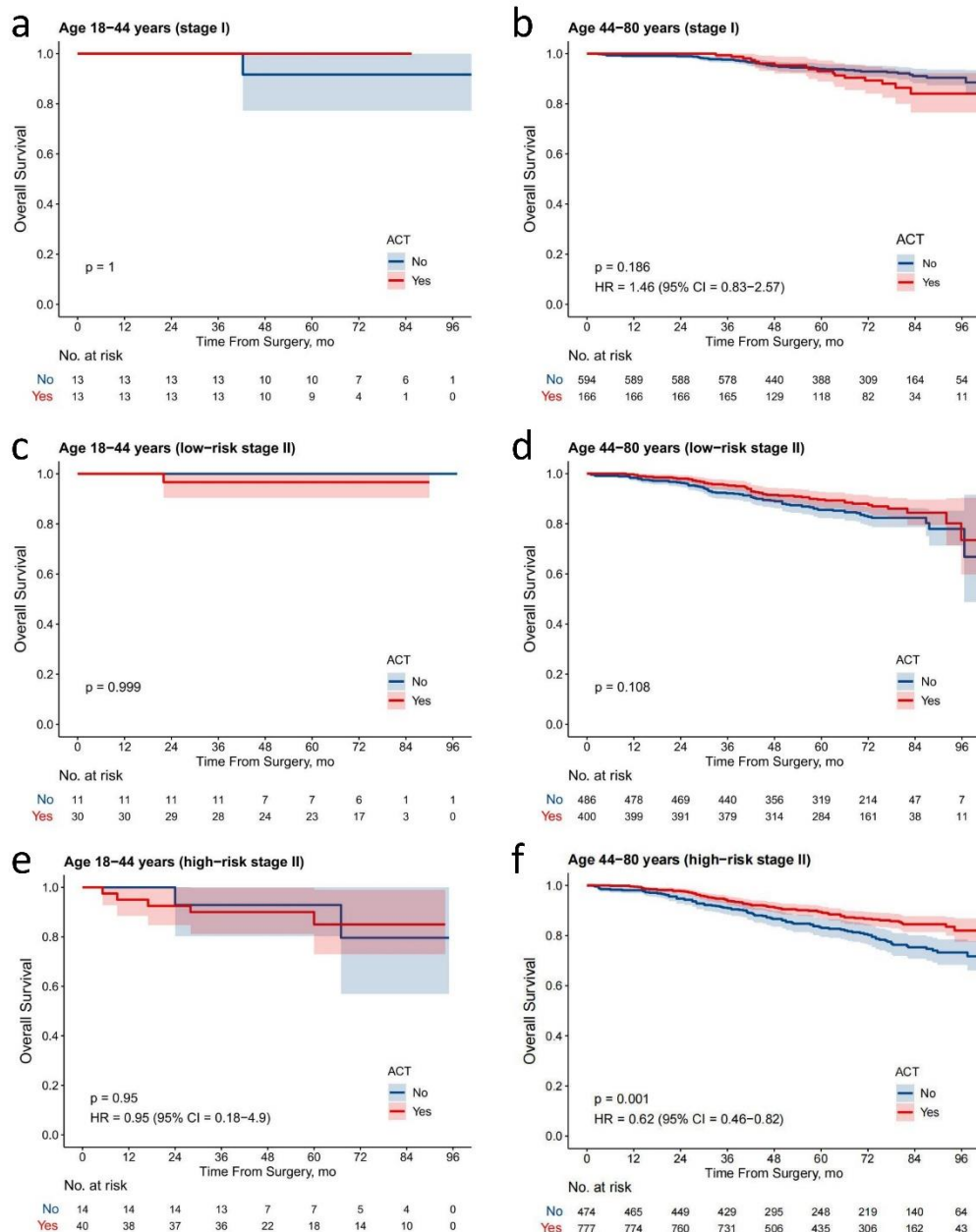


Figure S3. Kaplan–Meier estimates of overall survival stratified by the use of postoperative chemotherapy. For young (a) and older patients (b) with stage I CRC. For young (c) and older patients (d) with low-risk stage II CRC. For young (e) and older patients (f) with high-risk stage II CRC. CRC, colorectal cancer

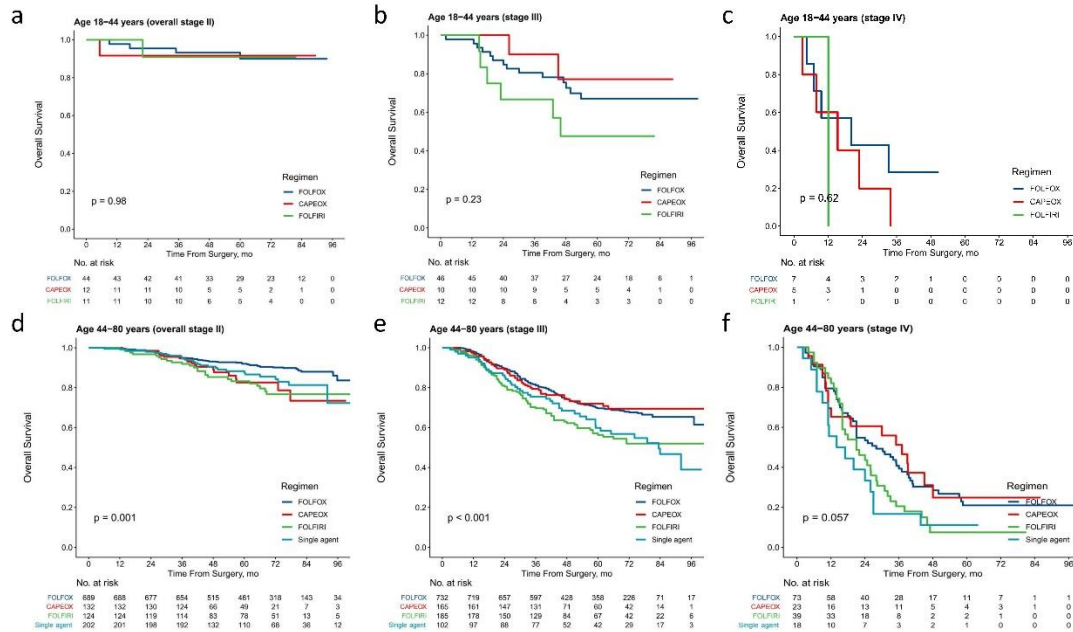


Figure S4. Kaplan-Meier estimates of overall survival stratified by regimens for young patients with stage II (a), stage III (b), and stage IV CRC (c). Kaplan-Meier estimates of overall survival stratified by regimens for older patients with stage II (d), stage III (e), and stage IV CRC (f). As only 3 young patients received single-agent in stage II, only 2 in stage III and only 1 in stage IV, we did not include them in analysis. CRC, colorectal cancer.

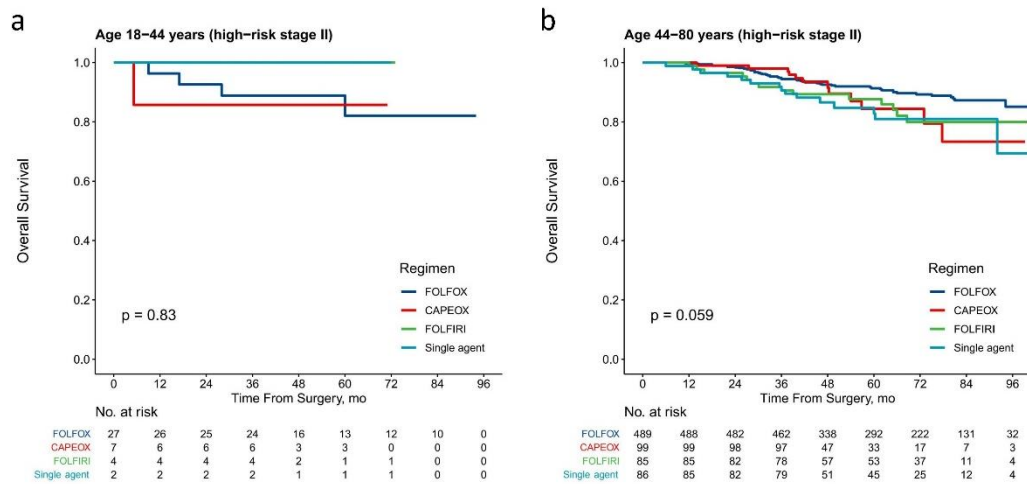


Figure S5. Kaplan-Meier estimates of overall survival stratified by regimens in high-risk stage II for young patients (**a**) and older patients (**b**).

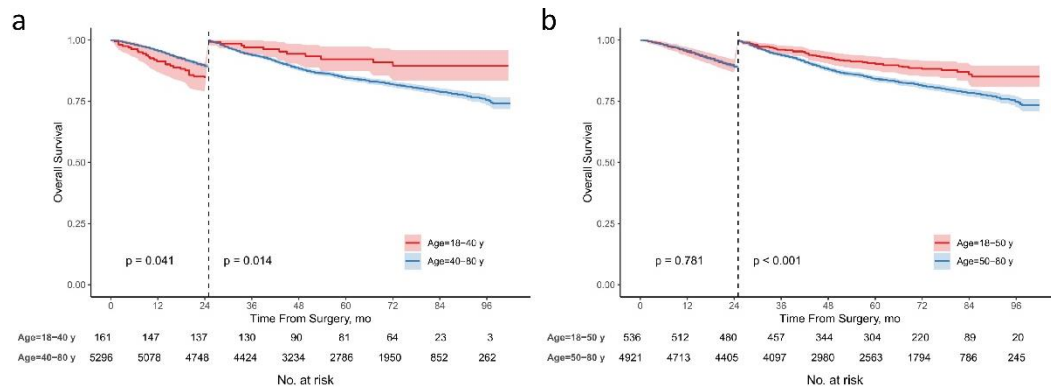


Figure S6. Landmark analysis of overall survival with a breakpoint at 25 months of surgery. **(a)** For young patients aged 18-40 years vs older patients aged 40-80 years. **(b)** For young patients aged 18-50 years vs older patients

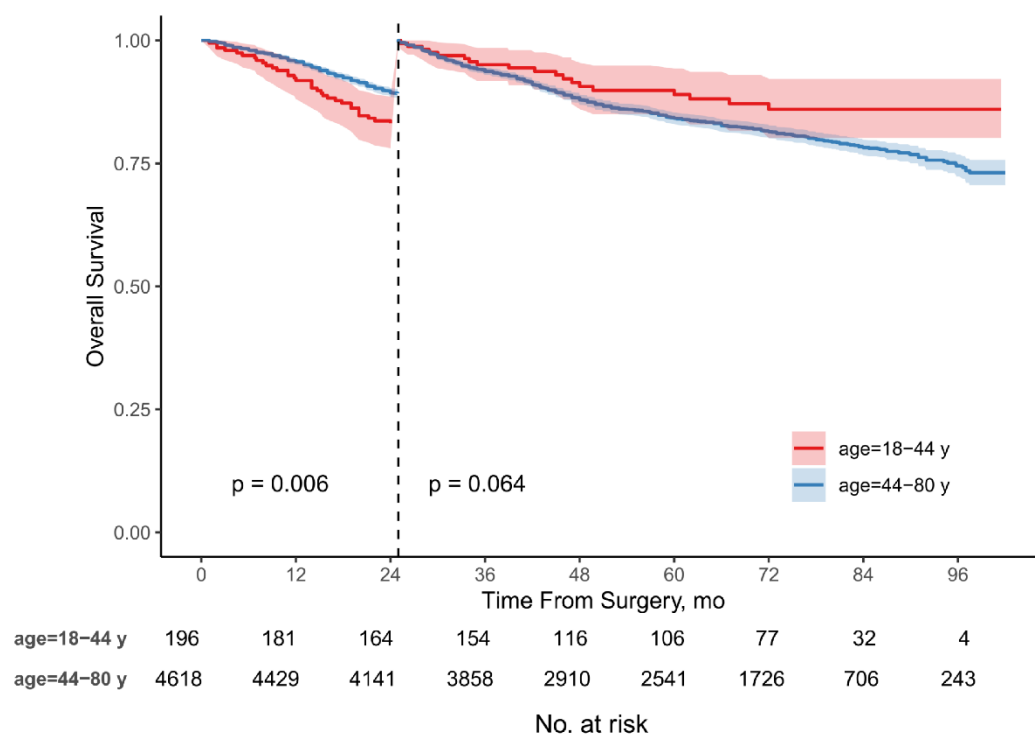


Figure S7. Landmark analysis of overall survival with a breakpoint at 25 months of surgery for young vs older patients after exclusion of patients with deficient mismatch repair (dMMR).