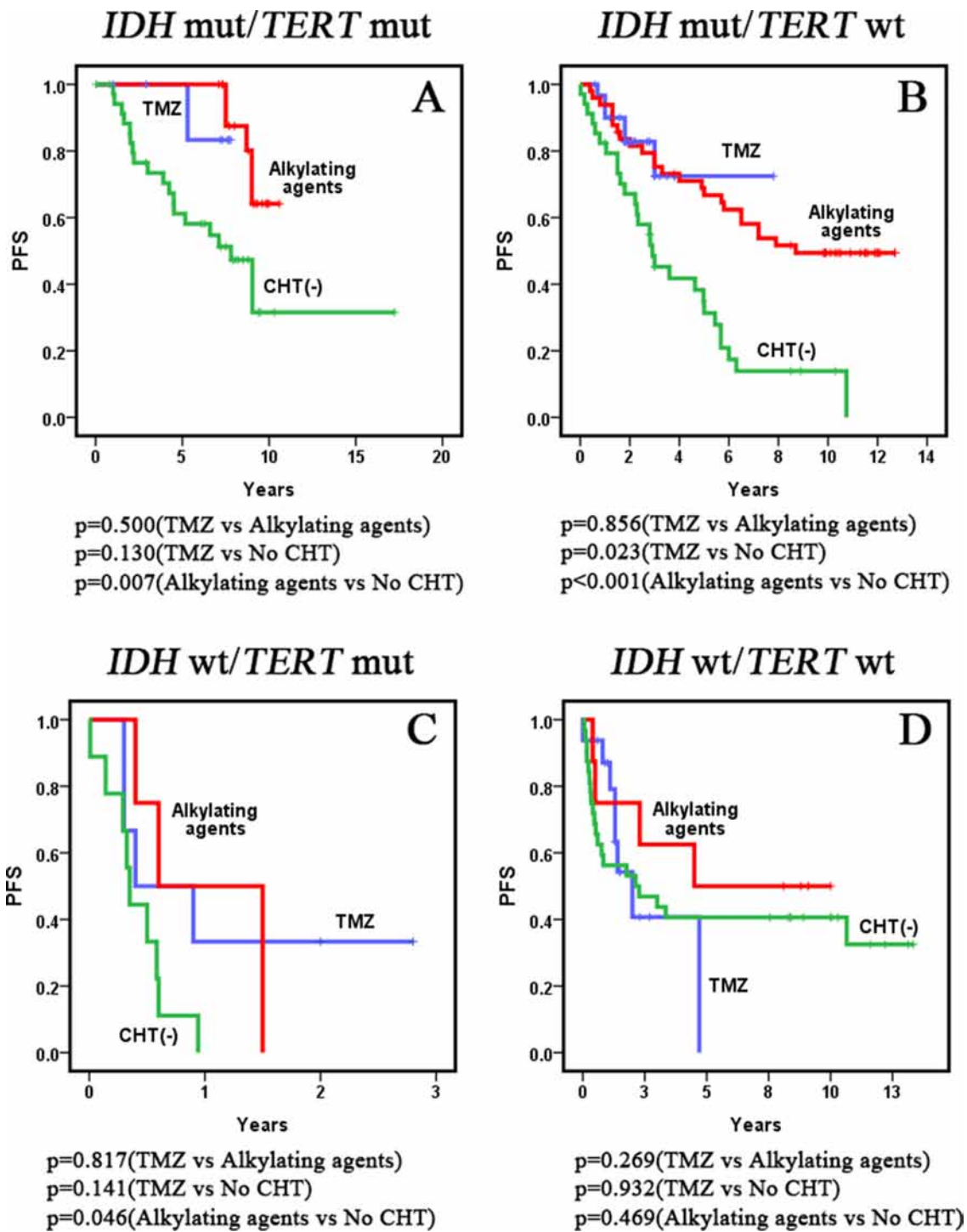


SUPPLEMENTARY FIGURES AND TABLES



Supplementary Figure S1: Kaplan-Meier survival curves (univariate analysis) of different chemotherapy schemes for PFS in subgroups of WHO grade II and III diffuse gliomas defined by *IDH* and *TERT* promoter mutations. In *IDH* mut/*TERT* mut **A**, *IDH* mut/*TERT* wt **B**, *IDH* wt/*TERT* mut **C**, and *IDH* wt/*TERT* wt **D**, subgroups, the PFS of patients who received TMZ (blue) did not differ significantly from the PFS of those who received other alkylating agents (red).

Supplementary Table S1. Univariate analysis of pathological factors for PFS and OS in patients with WHO grade II and III diffuse gliomas who received adjuvant therapies (Group A, $n = 246$) and who did not (Group B, $n = 49$) after first surgery

Adjuvant therapies	Molecular markers	<i>N</i>	Median PFS (years)	<i>p</i> -value	Median OS (years)	<i>p</i> -value
RT and/or CHT		246				
	<i>IDH</i>					
	<i>IDH</i> mut	189	9.0	<0.001	NR	<0.001
	<i>IDH</i> wt	57	1.8		2.6	
	<i>TERT</i> promoter					
	<i>TERT</i> mut	93	9.0	0.072	NR	0.046
	<i>TERT</i> wt	153	5.7		7.8	
No RT nor CHT		49				
	<i>IDH</i>					
	<i>IDH</i> mut	27	2.9	0.702	9.7	0.497
	<i>IDH</i> wt	22	0.5		0.6	
	<i>TERT</i> promoter					
	<i>TERT</i> mut	19	2.0	0.706	9.7	0.851
	<i>TERT</i> wt	30	2.3		3.6	

p values in bold were considered statistically significant

IDH mut : *IDH* mutant; *IDH* wt: *IDH* wild-type; *TERT* mut: *TERT* promoter mutant;
TERT wt *TERT* promoter wild-type; RT: radiation therapy; CHT: chemotherapy;
PFS: progression-free survival; OS: overall-survival; NR: not reached

Supplementary Table S2. Univariate analysis of adjuvant therapies for PFS and OS in patients with *IDH* mutated WHO grade II and III diffuse gliomas ($n = 216$), *IDH* wild-type lower grade gliomas ($n = 79$), *TERT* promoter mutated WHO grade II and III diffuse gliomas ($n = 112$) and *TERT* promoter wild-type WHO grade II and III diffuse gliomas ($n = 183$)

<i>IDH</i> or <i>TERT</i> status	Adjuvant therapies	<i>N</i>	Median PFS (years)	<i>p</i> -value	Median OS (years)	<i>p</i> -value
<i>IDH</i> mut	RT	216				
	Yes	178	9	<0.001	NR	0.004
	No	38	3.6		7.8	
	CHT					
	Yes	142	NR	<0.001	NR	0.001
	No	74	5		8.8	
<i>IDH</i> wt	RT	79				
	Yes	53	1.8	0.774	2.5	0.844
	No	26	0.6		1.8	
	CHT					
	Yes	38	2	0.273	2.6	0.480
	No	41	0.8		1.8	
<i>TERT</i> mut	RT	112				
	Yes	87	9	0.016	NR	0.080
	No	25	2.9		9.7	
	CHT					
	Yes	65	NR	0.010	NR	0.094
	No	47	4.5		9.7	
<i>TERT</i> wt	RT	183				
	Yes	144	5.7	0.034	9.1	0.032
	No	39	3		5	
	CHT					
	Yes	115	7.9	<0.001	11.9	0.003
	No	68	2.8		4.8	

p values in bold were considered statistically significant

IDH mut : *IDH* mutant; *IDH* wt: *IDH* wild-type; RT: radiation therapy; CHT: chemotherapy; PFS: progression-free survival; OS: overall-survival

Supplementary Table S3. Univariate analysis of adjuvant therapies for PFS and OS in subgroups of WHO grade II and III diffuse gliomas defined by *IDH* and *TERT* promoter mutations

<i>IDH/TERT</i> status	Adjuvant therapies	<i>N</i>	Median PFS (years)	<i>p</i> -value	Median OS (years)	<i>p</i> -value
<i>IDH</i> mut/ <i>TERT</i> mut		91				
	RT					
	Yes	72	NR	0.020	NR	0.160
	No	20	4.8		11.3	
	CHT					
	Yes	54	NR	0.015	NR	0.219
<i>IDH</i> mut/ <i>TERT</i> wt		125				
	RT					
	Yes	107	6.3	0.001	11.9	0.013
	No	18	2.9		4.7	
	CHT					
	Yes	89	8.7	<0.001	11.9	0.001
<i>IDH</i> wt/ <i>TERT</i> mut		20				
	RT					
	Yes	15	0.6	0.015	1.8	<0.001
	No	5	0.3		0.4	
	CHT					
	Yes	11	0.9	0.015	2.5	<0.001
<i>IDH</i> wt/ <i>TERT</i> wt		58				
	RT					
	Yes	37	2.3	0.925	4.8	0.769
	No	21	4.7		5.0	
	CHT					
	Yes	26	4.5	0.403	5	0.578
No	32	2.1		3.9		

p values in bold were considered statistically significant

IDH mut : *IDH* mutant; *IDH* wt: *IDH* wild-type; *TERT* mut: *TERT* promoter mutant;

TERT wt: *TERT* promoter wild-type; RT: radiation therapy; CHT: chemotherapy PFS: progression-free survival; OS: overall-survival; NR: not reached

Supplementary Table S4. Univariate analysis of different strategies in chemotherapy for PFS and OS in subgroups of WHO grade II and III diffuse gliomas defined by *IDH* and *TERT* promoter mutations

<i>IDH/TERT</i> status	CHT protocol	<i>N</i> ^a	Median PFS (years)	<i>p</i> -value
<i>IDH</i> mut/ <i>TERT</i> mut		63		
	TMZ	8	NR	0.500 ^b (TMZ vs Alkylating agents)
	Alkylating agents	19	NR	0.130 ^b (TMZ vs No CHT)
	No CHT	36	7.8	0.007^b (Alkylating agents vs No CHT)
<i>IDH</i> mut/ <i>TERT</i> wt		114		
	TMZ	31	NR	0.856 ^b (TMZ vs Alkylating agents)
	Alkylating agents	49	8.7	0.023 ^b (TMZ vs No CHT)
	No CHT	34	2.9	<0.001^b (Alkylating agents vs No CHT)
<i>IDH</i> wt/ <i>TERT</i> mut		19		
	TMZ	6	0.4	0.817 ^b (TMZ vs Alkylating agents)
	Alkylating agents	4	0.6	0.141 ^b (TMZ vs No CHT)
	No CHT	9	0.3	0.046 ^b (Alkylating agents vs No CHT)
<i>IDH</i> wt/ <i>TERT</i> wt		56		
	TMZ	16	2	0.269 ^b (TMZ vs Alkylating agents)
	Alkylating agents	8	4.5	0.932 ^b (TMZ vs No CHT)
	No CHT	32	2.1	0.469 ^b (Alkylating agents vs No CHT)

p values in bold were considered statistically significant

^aThose cases with unavailable chemotherapy protocols were excluded

^bTo correct for multiple comparisons, a Bonferroni adjusted *p* value of 0.05/3 (3 = number of times of comparisons) = 0.017 was adopted as the significance threshold