

Table S1 Sensitivity analysis for survival of patients with RLNM by excluding those without tumor size or grade data

Variables	Excluding patients without tumor size data (n=244)		Excluding patients without tumor grade data (n=168)	
	SHR (95% CI) [†]	p	SHR (95% CI)	p
Age, years				
< 30	Reference		Reference	
30–60	2.005 (1.290, 3.12)	0.002	1.829 (1.034, 3.232)	0.038
> 60	1.240 (0.740, 2.08)	0.41	1.089 (0.630, 1.884)	0.76
Sex				
Female	Reference		Reference	
Male	1.167 (0.778, 1.75)	0.46	1.258 (0.806, 1.963)	0.31
Race				
Black	Reference		Reference	
White	0.989 (0.519, 1.89)	0.97	1.075 (0.547, 2.115)	0.83
Others	0.445 (0.186, 1.07)	0.069	0.383 (0.150, 0.976)	0.044
Grade				
Low grade	Reference		Reference	
High grade	1.183 (0.673, 2.08)	0.56	1.254 (0.746, 2.107)	0.39
Unknown	0.625 (0.351, 1.11)	0.11		
Primary site				
Spine and pelvis	Reference		Reference	
Extremities	1.570 (0.979, 2.52)	0.061	1.683 (0.969, 2.922)	0.064
Skull, face and, mandible	1.076 (0.596, 1.94)	0.81	0.931 (0.492, 1.761)	0.83
Distant metastasis				
No	Reference		Reference	
Yes	2.482 (1.639, 3.76)	<0.001	3.182 (1.971, 5.136)	<0.001
Tumor, size				
<6 cm	Reference		Reference	
6–12 cm	1.187 (0.679, 2.07)	0.55	1.089 (0.551, 2.149)	0.81
>12 cm	1.285 (0.752, 2.19)	0.36	1.310 (0.700, 2.453)	0.4
Unknown			1.466 (0.751, 2.861)	0.26
Tumor type				
Ewing sarcoma	Reference		Reference	
Chondrosarcoma	1.050 (0.499, 2.21)	0.9	1.388 (0.647, 2.974)	0.4
Osteosarcoma	1.146 (0.678, 1.94)	0.61	1.035 (0.616, 1.740)	0.9
Other sarcomas	1.116 (0.666, 1.87)	0.68	1.587 (0.865, 2.912)	0.14
Radiotherapy				
No	Reference		Reference	
Yes	0.995 (0.605, 1.64)	0.98	0.813 (0.486, 1.360)	0.43
Surgery				
No	Reference		Reference	
Yes	0.522 (0.340, 0.80)	0.003	0.509 (0.325, 0.796)	0.003

[†] SHR: Sub-distribution hazard ratio; CI: confidence interval.

Table S2 Sensitivity analysis for survival of patients with survival less than three or five months

Variables	Excluding survival less than three months (n=269)		Excluding survival less than five months (n=244)	
	SHR (95% CI) [†]	p	SHR (95% CI)	p
Age, years				
<30	Reference		Reference	
30–60	1.316 (0.827 2.094)	0.25	1.263 (0.756 2.110)	0.37
>60	0.981 (0.597 1.611)	0.94	0.880 (0.514 1.508)	0.64
Sex				
Female	Reference		Reference	
Male	1.084 (0.737 1.595)	0.68	1.149 (0.751 1.758)	0.52
Race				
Black	Reference		Reference	
White	0.834 (0.474 1.467)	0.53	0.730 (0.371 1.436)	0.3
Others	0.323 (0.137 0.760)	0.009	0.276 (0.105 0.723)	0.004
Grade				
Low grade	Reference		Reference	
High grade	1.384 (0.789 2.428)	0.26	1.225 (0.636 2.359)	0.39
Unknown	0.494 (0.272 0.898)	0.023	0.483 (0.249 0.937)	0.017
Primary site				
Spine and pelvis	Reference		Reference	
Extremities	1.218 (0.807 1.837)	0.35	1.327 (0.820 2.147)	0.25
Skull, face and mandible	0.860 (0.520 1.422)	0.56	1.062 (0.619 1.823)	0.83
Distant metastasis				
No	Reference		Reference	
Yes	0.472 (0.307 0.728)	<0.001	2.474 (1.566 3.910)	<0.001
Tumor size				
<6 cm	Reference		Reference	
6–12 cm	1.120 (0.630 1.988)	0.7	1.095 (0.585 2.050)	0.99
>12 cm	1.262 (0.743 2.143)	0.39	1.266 (0.708 2.261)	0.52
Unknown	0.837 (0.463 1.515)	0.56	0.632 (0.320 1.247)	0.22
Tumor type				
Ewing sarcoma	Reference		Reference	
Chondrosarcoma	1.509 (0.786 2.897)	0.22	2.000 (0.958 4.177)	0.06
Osteosarcoma	1.355 (0.846 2.171)	0.21	1.601 (0.924 2.774)	0.09
Other sarcomas	1.135 (0.682 1.889)	0.63	1.204 (0.685 2.118)	0.52
Radiotherapy				
No	Reference		Reference	
Yes	1.176 (0.736 1.878)	0.5	1.208 (0.729 2.001)	0.46
Surgery				
No	Reference		Reference	
Yes	0.472 (0.307 0.728)	<0.001	0.385 (0.230 0.643)	<0.001

[†] SHR: Sub-distribution hazard ratio; CI: confidence interval.

Table S3 Sensitivity analysis for survival of patients aged less than 30 or over 50

Variables	Patients aged less than 30 (n=147)		Patients aged over 50 (n=120)	
	SHR (95% CI) [†]	p	SHR (95% CI)	p
Sex				
Female	Reference		Reference	
Male	0.896 (0.51, 1.56)	0.7	1.240 (0.69, 2.21)	0.47
Race				
Black	Reference		Reference	
White	0.839 (0.29, 2.36)	0.74	0.660 (0.29, 1.49)	0.32
Others [‡]	0.262 (0.05, 1.44)	0.12	0.485 (0.15, 1.48)	0.21
Grade				
Low grade	Reference		Reference	
High grade	1.268 (0.39, 4.06)	0.69	1.244 (0.62, 2.47)	0.53
Unknown	0.611 (0.19, 1.87)	0.39	0.517 (0.22, 1.16)	0.11
Primary site				
Spine and pelvis	Reference		Reference	
Extremities	1.655 (0.97, 2.81)	0.06	1.361 (0.66, 2.80)	0.4
Skull, face and mandible	0.878 (0.37, 2.03)	0.76	1.708 (0.77, 3.75)	0.18
Distant metastasis				
No	Reference		Reference	
Yes	2.168 (1.20, 3.88)	0.009	2.019 (1.15, 3.52)	0.01
Tumor size				
<6 cm	Reference		Reference	
6–12 cm	1.028 (0.38, 2.74)	0.96	2.553 (1.06, 6.12)	0.036
>12 cm	1.228 (0.50, 3.00)	0.65	2.111 (0.82, 5.41)	0.12
Unknown	1.006 (0.38, 2.65)	0.99	1.713 (0.71, 4.10)	0.23
Tumor type				
Ewing sarcoma	Reference		Reference	
Chondrosarcoma	3.373 (1.05, 10.77)	0.04	1.090 (0.26, 4.45)	0.95
Osteosarcoma	1.524 (0.83, 2.77)	0.17	0.591 (0.15, 2.29)	0.45
Other sarcomas	1.091 (0.52, 2.27)	0.78	1.343 (0.35, 5.02)	0.66
Radiotherapy				
No	Reference		Reference	
Yes	1.590 (0.82, 3.08)	0.17	1.079 (0.51, 2.25)	0.84
Surgery				
No				
Yes	0.474 (0.26, 0.84)	0.01	0.398 (0.20, 0.78)	0.008

[†] SHR: Sub-distribution hazard ratio; CI: confidence interval; [‡] American Indian/Alaska Native, Asian/Pacific Islander