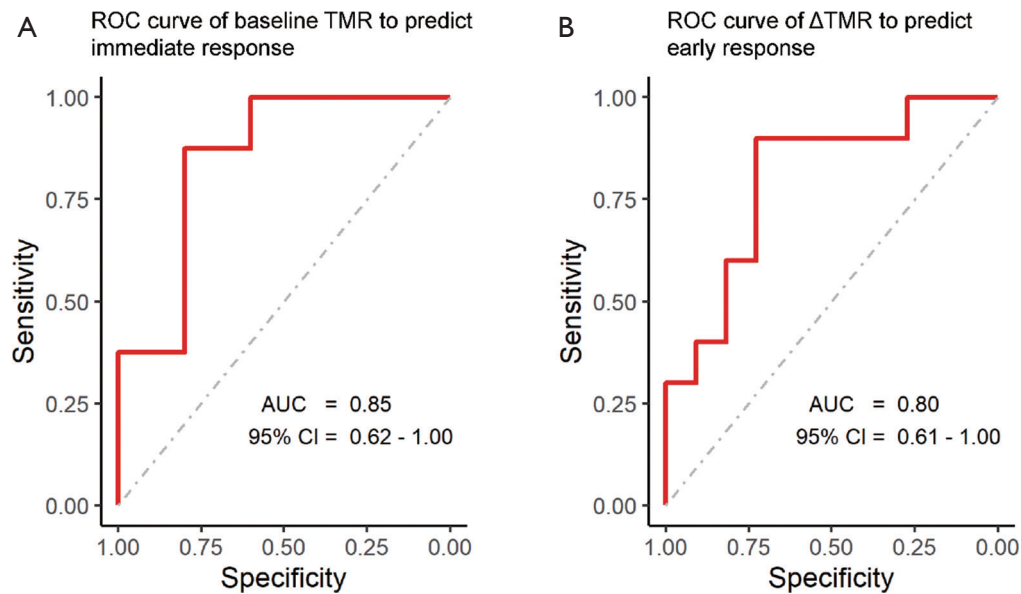


**Table S1** Changes of tumor volume before and after CIRT treatment

Parameters	Hypoxia group (n=21)	Non-hypoxia group (n=8)
Before treatment (mL)	55.95 (25.90, 82.47)	9.16 (3.67, 33.02)
After treatment (mL)	29.94 (15.34, 48.14)	5.61 (1.83, 18.85)
Z value	-2.833	-2.100
P value	0.005	0.03

Data are presented as median (interquartile range). CIRT, carbon ion radiation therapy.



**Figure S1** ROC curves of baseline TMR for predicting immediate response and  $\Delta$ TMR for predicting early response. (A) ROC curve analysis of baseline TMR to predict immediate response. (B) ROC curve analysis of  $\Delta$ TMR to predict early response. ROC, receiver operating characteristic; TMR, tumor-to-muscle ratio; AUC, area under the receiver operating characteristic curve; CI, confidence interval;  $\Delta$ TMR =  $(\text{TMR}_0 - \text{TMR}_1) / \text{TMR}_0 \times 100\%$ , where the  $\text{TMR}_0$  was the parameter just before radiation,  $\text{TMR}_1$  was the parameter after radiation.