

**Supplementary table 1. Perfusion and VAI parameters in ETP and PP diagnosed within 9 months of completing CCRT**

Imaging parameters	ETP (n=28)	PP (n=14)	<i>P</i> value
rCBV	1.99 ± 0.82	1.30 ± 0.54	.003
Relative vessel size index	105.61 ± 37.23	78.31 ± 40.13	.05
Peak shift	-0.001 ± 0.37	0.42 ± 0.80	.09
Arterial dominancy score	1.43 ± 0.68	2.07 ± 0.46	.001

Note: *P* value from independent sample t test.

Abbreviations: VAI = Vessel architectural imaging, ETP = Early tumor progression, PP = Pseudoprogression, rCBV = relative cerebral blood volume.

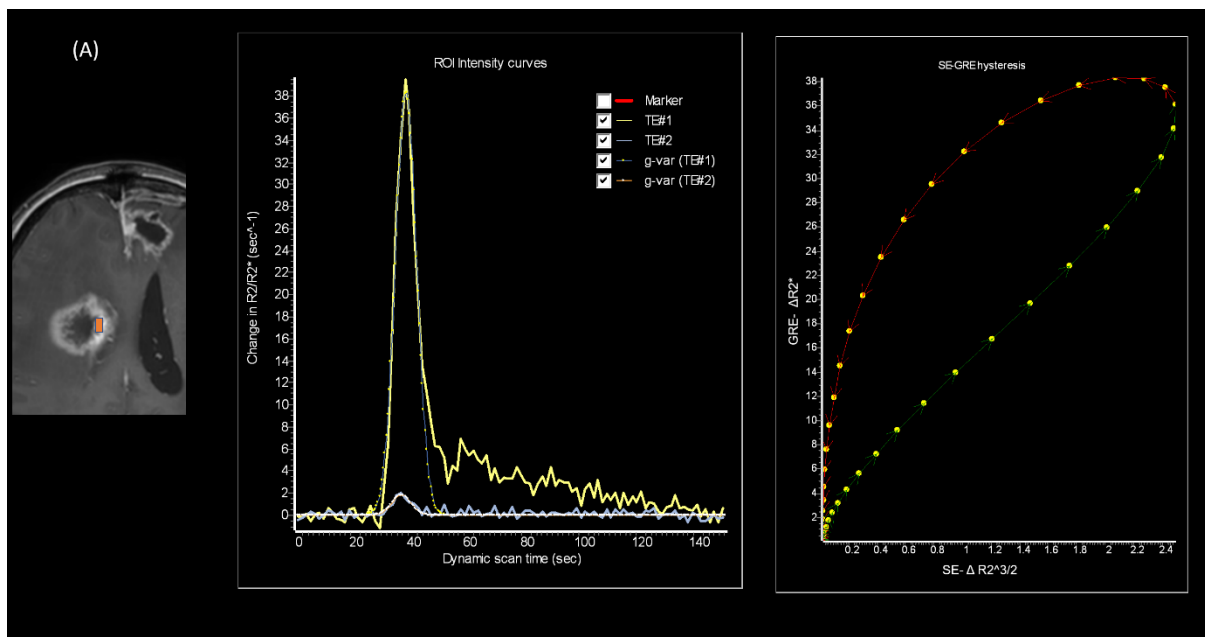
**Supplementary table 2. Diagnostic performance of individual and combined imaging parameters from perfusion and VAI in differentiating PP from ETP diagnosed within 9 months of completing CCRT**

<b>Individual parameters</b>	<b>AUC</b>	<b>Criterion</b>	<b>95% CI</b>	<b>Sensitivity</b>	<b>Specificity</b>	<b>Accuracy</b>
rCBV	0.73	$\leq 1.74$	0.57–0.86	53.6	92.9	66.7
Relative vessel size index	0.68	$\leq 86.7$	0.50–0.87	64.3	71.4	66.7
Peak shift	0.60	$> 0.345$	0.41–0.80	92.8	35.7	73.8
Arterial dominance score	0.78	$> 1$	0.64–0.91	67.8	92.8	76.2
<b>Individual parameters</b>	<b>AUC</b>	<b>Criterion</b>	<b>95% CI</b>	<b>Sensitivity</b>	<b>Specificity</b>	<b>Accuracy</b>
rCBV + Relative vessel size index	0.73	NA	0.57–0.88	50.0	92.8	64.3
rCBV+ Peak shift	0.78	NA	0.63–0.93	96.4	50.0	80.9
rCBV + Arterial dominance score	0.86	NA	0.75–0.98	82.1	85.7	83.3

Abbreviations: VAI = Vessel architectural imaging, PP = Pseudoprogression, ETP = Early tumor progression, AUC = area under the receiver operating characteristics curve, CI = confidence interval, rCBV = relative cerebral blood volume.

**Supplementary figure 1.** (A) Early tumor progression. The time curves (right) shows TE#2 (spin-echo) peak preceding TE#1 (gradient-echo) peak. The fitted curves are plotted with  $\Delta R2^{3/2}$  along the x-axis and  $\Delta R2^*$  along the y-axis resulting in the counter-clockwise rotation corresponding to venous dominance. (B) Pseudoprogession. The time curves (right) shows TE#1 (gradient-echo) peak preceding TE#2 (spin-echo) peak. The fitted curves are plotted with  $\Delta R2^{3/2}$  along the x-axis and  $\Delta R2^*$  along the y-axis resulting in the clockwise rotation corresponding to arterial dominance.

(A)



(B)

