

**Supplemental Table 1.** Mean +/- standard deviation of CVR lagtime and maximum CVR (data corresponds with that shown in **Figures 3 and 4**). The number of patients (Pts) and sub-territories included in each group is shown. Wilcoxon rank-sum corrected *p*-values refer to comparison of territories with proximal vessel disease to those without discernible proximal disease (row 1).

<b>Atherosclerosis patients</b>						
<b>Patient category</b>	<b>Pts</b>	<b>Sub-Territories</b>	<b>CVR lagtime (s)</b>	<b>P value</b>	<b>Max CVR (z-statistic)</b>	<b>P value</b>
NO proximal vessel wall lesion or stenosis	16	104	35.0±7.2		10.3±1.3	
Proximal vessel wall lesion or stenosis	15	216	38.2±9.1	0.001	10.2±1.6	0.5
Proximal vessel wall lesion or stenosis, remove infarcted territories	15	209	38.1±9.1	0.002	10.3±1.6	0.7
Proximal vessel wall lesion	14	208	38.5±9.2	<0.001	10.2±1.7	0.4
Proximal vessel wall lesion only	10	110	36.7±9.1	0.05	10.0±1.6	0.05
Proximal stenosis	15	98	40.7±9.0	<0.001	10.4±1.6	0.7
<b>Moyamoya patients</b>						
<b>Patient category</b>	<b>Pts</b>	<b>Sub-Territories</b>	<b>CVR lagtime (s)</b>	<b>P value</b>	<b>Max CVR (z-statistic)</b>	<b>P value</b>
NO proximal vessel wall lesion or stenosis	18	114	35.7±9.7		12.0±2.4	
Proximal vessel wall lesion or stenosis	20	286	45.5±14.2	<0.001	9.8±2.2	<0.001
Proximal vessel wall lesion or stenosis, remove infarcted territories	20	266	45.3±14.2	<0.001	9.9±2.1	<0.001
Proximal vessel wall lesion	20	264	46.6±14.1	<0.001	9.7±2.1	<0.001
Proximal stenosis	20	266	45.1±14.1	<0.001	9.7±2.2	<0.001