Supplementary

Table S1 The correlation and explanations between neurodevelopment/clinical metrics and radiomics

Neurodevelopment / clinical Metrics	Radiomics features	*t*	P	Relationship explanations	Biological Conclusion
VCI	Wavelet-HHL-glszm-SALGLE	–0.594**	0.001	The texture features of small areas indicate fine texture and higher heterogeneity, is negative correlation with VCI.	The response appeared to show high heterogeneity affects verbal comprehension and expression.
VSI	Wavelet-HHL-glszm-SALGLE	–0.424*	0.031	Similarly, higher heterogeneity is negative correlation with VCI.	High heterogeneity may affect ability to analyze and organize patterns.
FSIQ	wavelet-HHL-glszm-SALGLE	–0.536**	0.005	Similarly, higher heterogeneity is negative correlation with FSIQ.	High heterogeneity may affect the entire ability, language acquisition, reasoning and expression, analysis and organization, thinking and memory
VAI	wavelet-HHL-glszm-SALGLE	–0.471*	0.015	Similarly, higher heterogeneity is negative correlation with VAI.	High heterogeneity may affect the language accepter ability.
NVI	wavelet-LHL-firstorder-Kurtosis	–0.412*	0.037	Similarly, higher heterogeneity is negative correlation with NVI.	High heterogeneity may affect the ability to react and think about pictorial materials.
GAI	wavelet-HHL-glszm-SALGLE	–0.581**	0.002	Similarly, higher heterogeneity is negative correlation with NVI.	High heterogeneity may affect the general cognitive ability.
ORA	wavelet-HLH-glrlm-LRE	–0.448**	0.009	Lower heterogeneity is negative correlation with Overriding aorta.	High heterogeneity may be affected by hypoxic.
McGoon	wavelet-HLH-glrlm-LRE	0.388*	0.034	Lower heterogeneity is positive correlation with McGoon index.	High heterogeneity may be affected by cardiac anomalies and hypoxic.
SpO2	wavelet-HHL-glszm-SALGLE	–0.433*	0.012	Higher heterogeneity is negative correlation with McGoon index.	High heterogeneity may be affected by hypoxic.
VSD	wavelet-HHL-glszm-SALGLE	0.302	0.088	Higher heterogeneity is positive correlation with ventricular septal defect.	High heterogeneity may be affected by cardiac anomalies.
CPB time	wavelet-HHL-glszm-SALGLE	0.349*	0.046	Higher heterogeneity is positive correlation with Cardiopulmonary Bypass time.	High heterogeneity may be affected by hypoxic.
ACC time	wavelet-HHL-glszm-SALGLE	0.397*	0.022	Higher heterogeneity is positive correlation with aortic cross-clamp time.	High heterogeneity may be affected by hypoxic.
ORA	wavelet-HHH-glrlm-RunPercentage	0.401*	0.021	Higher heterogeneity is positive correlation with Overriding aorta.	High heterogeneity may be affected by cardiac anomalies and hypoxic.
McGoon	wavelet-HHH-glrlm-RunPercentage	–0.402*	0.028	Higher heterogeneity is negative correlation with McGoon index.	High heterogeneity may be affected by hypoxic.

*, P<0.05; **, P<0.001.

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Table S2 Correlations of radiomics features with neurodevelopment metrics (FSIQ)

Variables	β	S.E	*t*	P	β (95% CI)
Intercept	186.46	990.85	0.19	0.854	186.46 (–1755.58 to 2128.50)
Original- shape- Max3DD	0.13	0.51	0.26	0.797	0.13 (–0.86 to 1.13)
Wavelet-LLH-firstorder-Maximum	–0.00	0.00	–0.12	0.905	–0.00 (–0.01 to 0.01)
Wavelet-LHL-firstorder-Kurtosis	0.46	3.95	0.12	0.909	0.46 (–7.27 to 8.19)
Wavelet-LHH-firstorder-Mean	–363.68	390.05	–0.93	0.368	–363.68 (–1128.18 to 400.81)
Wavelet-HLH-glrlm-LRE	–14.29	18.28	–0.78	0.448	–14.29 (–50.11 to 21.54)
Wavelet-HHL-firstorder-Median	–104.22	72.80	–1.43	0.176	–104.22 (–246.91 to 38.47)
Wavelet-HHL- glszm- SALGLE	–15165.89	6942.92	–2.18	0.048	–15165.89 (–28773.76 to –1558.02)
Wavelet-HHH- firstorder- Maximum	–0.04	0.05	–0.74	0.472	–0.04 (–0.14 to 0.06)
Wavelet-HHH-firstorder-Mean	–3286.39	2191.04	–1.50	0.158	–3286.39 (–7580.74 to 1007.97)
Wavelet-HHH- glrlm- RunPercentage	–13.93	1576.90	–0.01	0.993	–13.93 (–3104.59 to 3076.73)
Wavelet-LLL- firstorder- Maximum	0.00	0.01	0.27	0.788	0.00 (–0.02 to 0.03)
Wavelet-LLL- glszm- SZNU	0.00	0.00	1.55	0.144	0.00 (–0.00 to 0.00)

Adjust: gender, age.

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