

Appendix from Lungu et al., “Diagnosis of pulmonary hypertension from magnetic resonance imaging–based computational models and decision tree analysis”

(Pulm. Circ., vol. 6, no. 2, p. 181)

Imaging parameters

MPA imaging parameters: (1) phase contrast (PC): 40 cardiac phases, electrocardiogram gated, matrix dimensions 256×128 , field of view $480 \text{ mm} \times 288 \text{ mm}$, slice thickness 10 mm, repetition time 5.85 milliseconds, echo time 2.87 milliseconds, velocity encoding 150 cm/s, arrhythmia rejection 10%; (2) bSSFP: 40 cardiac phases, electrocardiogram gated, matrix dimensions 256×128 , field of view $480 \text{ mm} \times 288 \text{ mm}$, slice thickness 10 mm, repetition time 3.73 milliseconds, echo time 1.62 milliseconds, bandwidth 125 kHz.

Cardiac short-axis MRI: bSSFP: repetition time 2.8 milliseconds; echo time 1.0 milliseconds, flip angle 50° , matrix dimensions 256×256 , field of view $48 \text{ mm} \times 43.2 \text{ mm}$, bandwidth 125 kHz, slice thickness 8–10 mm.

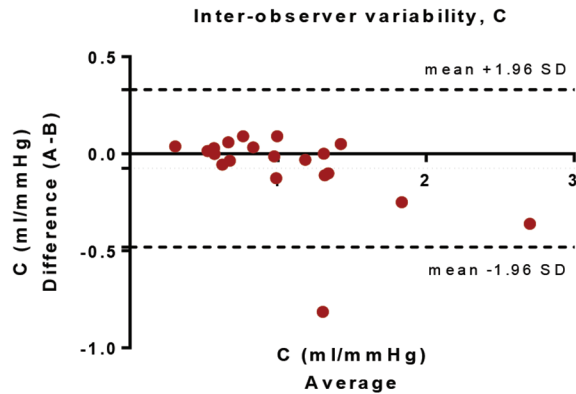
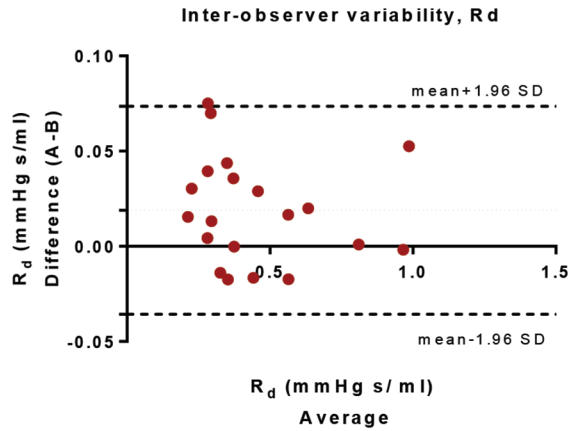
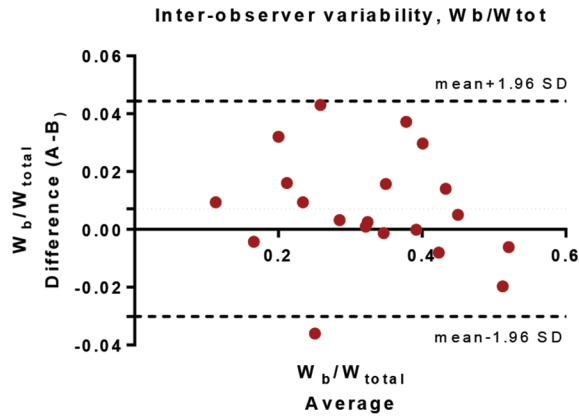
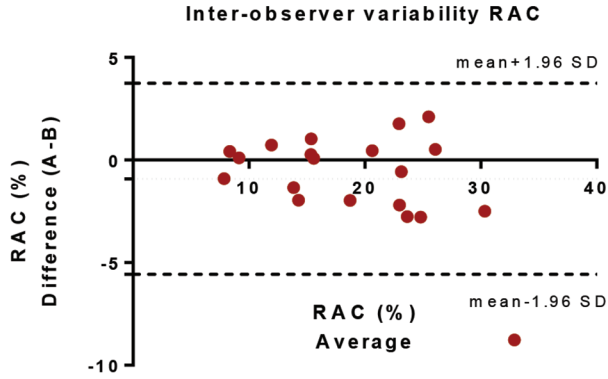


Figure A1. Interobserver variability. Bland-Altman analysis for relative area change (RAC), ratio of wave power (W_b/W_{tot}), distal resistance (R_d), and pulmonary compliance (C) performed on 20 cases selected at random (using MATLAB) from the 72-patient cohort.

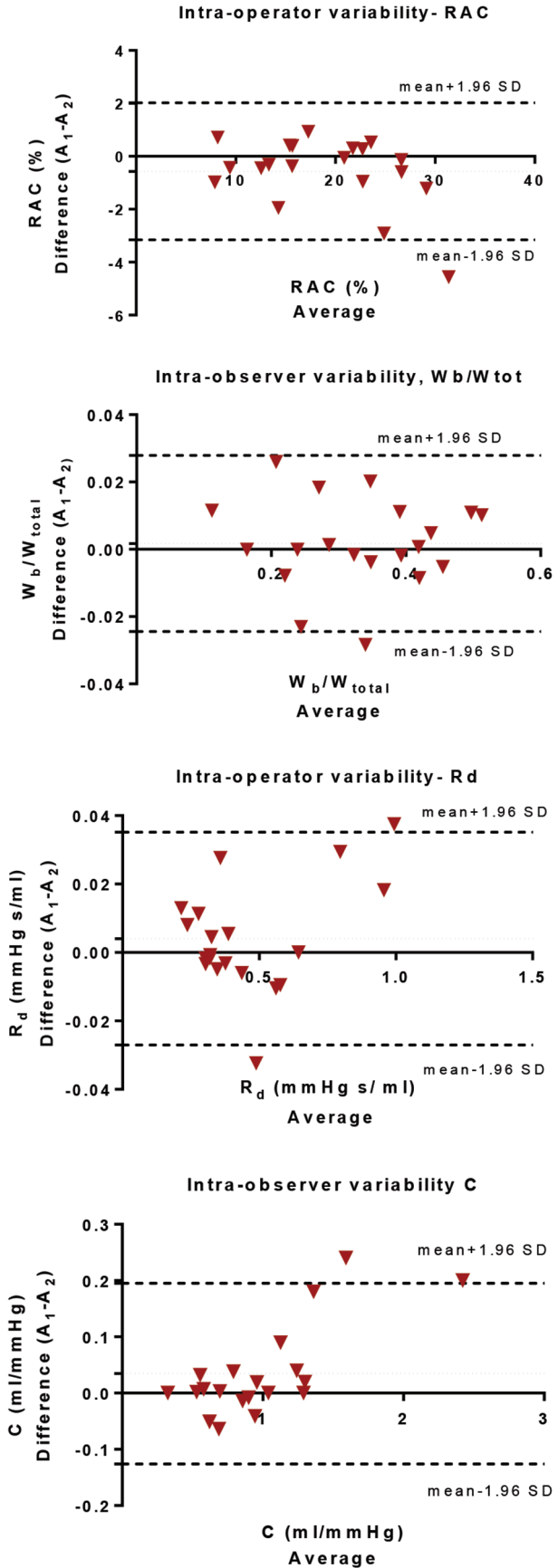


Table A1. Bias and limits of agreement for the intra- and interoperator variability

Variable	Intraoperator			Interoperator		
	Bias	SD of bias	95% CI	Bias	SD of bias	95% CI
RAC, %	-0.57	1.32	-3.16 to 2.02	-0.91	2.38	-5.56 to 3.74
W_b/W_{tot}	0.002	0.01	-0.03 to 0.03	0.007	0.019	-0.03 to 0.044
R_d , mmHg s/mL	0.004	0.02	-0.03 to 0.04	0.019	0.027	-0.04 to 0.073
C , mL/mmHg	0.034	0.08	-0.13 to 0.19	-0.07	0.206	-0.48 to 0.331

Note: SD: standard deviation; CI: confidence interval; RAC: relative area change; W_b/W_{tot} : ratio of wave power; R_d : distal resistance; C : pulmonary compliance.

Figure A2. Intraobserver variability. Bland-Altman analysis for relative area change (RAC), ratio of wave power (W_b/W_{tot}), distal resistance (R_d), and pulmonary compliance (C) performed on 20 cases selected at random (using MATLAB) from the 72-patient cohort.

Table A2. Intraclass correlation coefficients (ICCs) using a 2-way mixed model for consistency and absolute agreement

Variable and model type	Intraoperator		Interoperator			
	A1, A2		A1, B1		A2, B1	
	ICC	95% CI	ICC	95% CI	ICC	95% CI
RAC (%)						
Consistency	0.982	0.956–0.993	0.943	0.858–0.977	0.96	0.903–0.984
Absolute agreement	0.98	0.947–0.992	0.943	0.858–0.977	0.9	0.903–0.984
W_b/W_{tot}						
Consistency	0.993	0.982–0.997	0.986	0.965–0.994	0.987	0.966–0.995
Absolute agreement	0.993	0.983–0.997	0.985	0.961–0.994	0.986	0.966–0.994
R_d , mmHg s/mL						
Consistency	0.998	0.994–0.999	0.993	0.82–0.997	0.992	0.98–0.997
Absolute agreement	0.998	0.994–0.999	0.99	0.959–0.997	0.99	0.971–0.996
C, mL/mmHg						
Consistency	0.985	0.962–0.994	0.931	0.834–0.972	0.901	0.768–0.96
Absolute agreement	0.983	0.955–0.993	0.926	0.821–0.97	0.887	0.719–0.955

Note: $P < 0.001$. CI: confidence interval; RAC: relative area change; W_b/W_{tot} : ratio of wave power; R_d : distal resistance; C: pulmonary compliance.