Supplementary Table S1: Subgroup cohort characteristics

	Preterm-NT (n=14)	Preterm-HTN (n=19)	Term-NT (n=32)	Term-HTN (n=33)
Maternal Demographics & Anthropometrics				
Maternal age at delivery, years	32.4±2.9	35.0±5.5	33.1±3.3	31.9±5.0
BMI at booking, kg/m^2	24.1±4.2	27.7±7.1	23.6±3.5	26.5±4.8
Smokers, n (%)	0(0)	1(5)	0(0)	1(3)
Offspring Birth Characteristics				
Gestational age at delivery, weeks	34.4±1.1	34.4±1.8	40.0±1.3	39.6±1.4
Males, n (%)	7(50)	9(47)	19(59)	13(39)
Birth order[a]	1(1)	1(0)	1(1)	1(0)
Caesarean section, n (%)	4(29)	13(68)	8(25)	11(33)
Patent ductus arteriosus, n (%)	0	0	0	0
Antenatal steroids, n (%)	11(79)	17(89)	0	0
Offspring Physiological Measures at Birth				
Age at assessment, days	4.8±3.8	5.1±3.4	3.4±4.2	3.2±3.7
Head circumference, cms	31.0±1.3	31.6±1.6	35.1±1.4	34.4±1.7
Birthweight, grams	2245±372	2227±640	3562±477	3283±585
Birthweight z-score	-0.05±0.83	-0.15±1.25	0.55±0.91	0.08±1.16
sBP, mmHg	79±18	81±17	82±13	81±12
dBP, mmHg	42±13	45±10	44±9	44±9

Mean±Standard Deviation unless stated otherwise

[a] Median±Interquartile range

BMI indicates body mass index; sBP systolic blood pressure; dBP diastolic blood pressure;
NT normotensive pregnancy and HTN hypertensive pregnancy

Supplementary Table S2: Multivariable Regression Coefficients for Pregnancy Complications and rMSSD at Birth

	rMSSD		
	B	**95% CI**	***p*-value**
Small for gestational age	-0.67	-5.76-4.42	0.79
Maternal preeclampsia	-0.74	-4.26-2.78	0.68
Maternal hypertension	-0.79	-2.54-4.12	0.64

B unstandardized coefficient presented with 95% CI after correcting for postmenstrual age at assessment (gestational age at birth plus age at assessment) and offspring sex

rMSSD root mean square of the difference between adjacent NN intervals

SUPPLEMENTARY MATERIAL

METHODS

Echocardiography

Image Acquisition - Echocardiographic examination at birth was performed on a Philips CX50 ultrasound system and at three month follow up on a Philips iE33 system with an S12-4 transducer. At both time points, a detailed 2D transthoracic echocardiography protocol was followed that included acquisition of a four chamber view optimised for the left ventricle (LV). For the duration of the echocardiogram, the infants were placed in a semi-recumbent position at a 45 degree angle. To enhance image resolution for post processing analysis, the frame rate was increased by minimizing the sector width, the gains and depth were optimised and multiple images of the same view were acquired to enable offline selection of the highest quality loop.

Quantification of Ventricular Dimensions and Mass - Ventricular end diastolic volume (EDV) and mass were obtained by manual contouring of the endo and epicardium using TomTec Image Arena 4.6 from the apical four chamber view. The end diastolic frame was manually selected using the point of mitral valve closure as the marker and contours manually set at the inner endocardial edge and outer epicardial edge within the onset of the pericardium. To maximise reproducibility, the entirety of the septum was contoured for both LV and right ventricular (RV) measurements. The measurement was made at the base of the LV perpendicular to the mitral annulus through the leaflet tips. Ventricular mass and volumes were adjusted for body size based on estimated body surface area, using the Boyd formula, (1) and these values are reported as mass, or volume, index.

***In vivo* microvascular imaging**

Imaging of the axillary small vessel network was performed with Side Stream Dark Field (SSDF) imaging (Microscan, Microvision Medical, Amsterdam), as previously reported for neonates(2). This device emits LED light at a frequency of 530nM, which is absorbed by haemoglobin in the microvasculature to produce a dark blood image against a white/grey background for later off-line analysis. Measurements were performed within four weeks of birth and again at three months of age, on the same side, in a temperature-controlled room, with the infant at rest, either in their mother's arms, or in a crib. Three one-minute video clips of adjacent areas, showing a region of 1mm2, were recorded while the image was monitored to ensure a stable position and steady skin pressure. Analysis was performed off-line using dedicated quantitative software developed for the Microscan (AVA 3.0, MicroVision Medical).(3) Total vessel density (TVD), small vessel density (vessels <20μm, SmVD) and De Backer (DB) score were measured for each video clip, and then the average for the three clips calculated.(4) Analysis was performed by one of three operators (CA, ED, CS) blinded to the clinical background of the clip.

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