

Supplementary table 1. Logarithm-transformed maternal serum angiogenic factors levels at 4 time points during pregnancy by maternal blood pressure at 11-14weeks in the NORA cohort.

Angiogenic factors	Time points	Normal BP		Elevated BP				Hypertension (stage 1 and stage 2)			
		N	mean (95%CI) *	N	mean (95%CI) *	Mean difference (95%CI) *†	P value †	N	mean (95%CI) *	Mean difference (95%CI) *‡	P value ‡
sFlt-1 (pg/ml)	11-14 weeks	746	3.20 (3.19, 3.21)	98	3.24 (3.20, 3.27)	0.04 (-0.01, 0.08)	0.096	75	3.24 (3.20, 3.29)	0.05 (-0.01, 0.10)	0.079
	18-22 weeks	745	3.23 (3.22, 3.25)	98	3.24 (3.20, 3.29)	0.01 (-0.04, 0.06)	0.824	75	3.28 (3.23, 3.33)	0.05 (-0.01, 0.11)	0.139
	28-32 weeks	730	3.22 (3.20, 3.23)	92	3.23 (3.19, 3.27)	0.01 (-0.04, 0.06)	0.868	70	3.31 (3.26, 3.36)	0.09 (0.03, 0.15)	0.001
	≥34 weeks	659	3.41 (3.40, 3.43)	82	3.45 (3.41, 3.50)	0.04 (-0.02, 0.10)	0.201	57	3.52 (3.47, 3.58)	0.11 (0.04, 0.17)	0.000
PlGF (pg/ml)	11-14 weeks	746	1.57 (1.56, 1.58)	98	1.54 (1.50, 1.58)	-0.03 (-0.08, 0.01)	0.243	75	1.55 (1.50, 1.59)	-0.02 (-0.07, 0.03)	0.593
	18-22 weeks	745	2.43 (2.41, 2.44)	98	2.39 (2.35, 2.43)	-0.03 (-0.08, 0.02)	0.261	75	2.39 (2.34, 2.44)	-0.03 (-0.09, 0.03)	0.364
	28-32 weeks	730	2.79 (2.77, 2.81)	92	2.76 (2.70, 2.83)	-0.02 (-0.10, 0.05)	0.718	70	2.73 (2.66, 2.80)	-0.06 (-0.14, 0.03)	0.270
	≥34 weeks	659	2.58 (2.55, 2.60)	82	2.51 (2.43, 2.58)	-0.07 (-0.17, 0.02)	0.178	57	2.53 (2.44, 2.63)	-0.05 (-0.16, 0.07)	0.585
sFlt-1/ PlGF ratio	11-14 weeks	746	1.63 (1.61, 1.65)	98	1.70 (1.65, 1.74)	0.07 (0.01, 0.13)	0.013	75	1.70 (1.64, 1.75)	0.07 (0.01, 0.13)	0.042
	18-22 weeks	745	0.81 (0.79, 0.83)	98	0.85 (0.80, 0.90)	0.05 (-0.02, 0.11)	0.201	75	0.89 (0.83, 0.95)	0.08 (0.01, 0.15)	0.027

28-32 weeks	730	0.43 (0.40, 0.46)	92	0.46 (0.39, 0.54)	0.03 (-0.06, 0.13)	0.643	70	0.58 (0.49, 0.66)	0.15 (0.04, 0.25)	0.005
≥34 weeks	659	0.84 (0.80, 0.87)	82	0.95 (0.84, 1.05)	0.11 (-0.02, 0.24)	0.100	57	0.99 (0.87, 1.12)	0.16 (0.01, 0.31)	0.044

BP, blood pressure; CI, confidence interval.

\*Means (95%CI) were adjusted for maternal race, smoking during pregnancy, maternal body mass index at blood test and gestational weeks at blood test from models with logarithm-transformed serum angiogenic factors levels as outcomes;

†statistically significant difference between normal BP and elevated BP groups.

‡statistically significant difference between normal BP and hypertension group.

Supplementary table 2. Maternal serum angiogenic factors levels during pregnancy by preeclampsia in women with different BP status in early pregnancy.

Angiogenic factors	Time points	Normal BP			Elevated BP			Hypertension (stage 1 and stage 2)		
		PE	Non-PE	<i>P</i> value	PE	Non-PE	<i>P</i> value	PE	Non-PE	<i>P</i> value
		(n=6)	(n=744)		(n=3)	(n=95)		(n=12)	(n=63)	
		mean	mean		mean	mean		mean	mean	
		(95%CI) *	(95%CI) *		(95%CI) *	(95%CI) *		(95%CI) *	(95%CI) *	
sFlt-1 (pg/ml)	11-14 weeks	1514 (1096, 2089)	1622 (1549, 1660)	0.718	1778 (1096, 2884)	1622 (1514, 1778)	0.756	1349 (1122, 1622)	1660 (1549, 1820)	0.048
	18-22 weeks	1698 (1175, 2512)	1738 (1660, 1778)	0.925	1479 (813, 2692)	1660 (1514, 1862)	0.692	1738 (1288, 2291)	1738 (1514, 1995)	0.960
	28-32 weeks	3090 (2188, 4365)	1698 (1622, 1738)	<0.001	1995 (1148, 3467)	1549 (1413, 1698)	0.388	3020 (2188, 4074)	1622 (1445, 1862)	<0.001
	≥34 weeks	6026 (3548, 10233)	2630 (2512, 2692)	0.002	3715 (2042, 6607)	2692 (2399, 2951)	0.295	6026 (3802, 9550)	2951 (2570, 3388)	0.005
PlGF (pg/ml)	11-14 weeks	29.5 (21.4, 41.7)	37.2 (36.3, 38.0)	0.199	32.4 (20.0, 53.7)	36.3 (33.1, 38.9)	0.716	24.6 (19.1, 30.9)	35.5 (32.4, 39.8)	0.005
	18-22 weeks	208.9 (144.5, 309.0)	269.2 (263.0, 281.8)	0.191	182.0 (114.8, 288.4)	239.9 (218.8, 257.0)	0.257	151.4 (120.2, 190.6)	234.4 (213.8, 263.0)	0.001
	28-32 weeks	269.2 (158.5, 457.1)	631.0 (602.6, 660.7)	0.002	323.6 (166.0, 645.7)	562.3 (501.2, 645.7)	0.118	182.0 (120.2, 269.2)	588.8 (489.8, 691.8)	<0.001
	≥34 weeks	169.8 (67.6, 426.6)	380.2 (363.1, 407.4)	0.083	208.9 (85.1, 512.9)	316.2 (269.2, 371.5)	0.372	147.9 (66.1, 323.6)	323.6 (257.0, 416.9)	0.059
sFlt-1/ PlGF ratio	11-14 weeks	50.1 (33.1, 77.6)	42.7 (41.7, 44.7)	0.454	53.7 (28.8, 100.0)	45.7 (40.7, 50.1)	0.591	56.2 (42.7, 74.1)	46.8 (41.7, 52.5)	0.235

18-22 weeks	8.1 12.9)	(5.0, 6.5 (6.2, 6.6)	0.323	8.1 15.9)	(4.2, 7.1 (6.3, 7.9)	0.674	11.2 16.2)	(7.9, 7.4 (6.3, 8.5)	0.029
28-32 weeks	11.5 21.9)	(6.0, 2.7 (2.5, 2.8)	<0.001	6.0 15.1)	(2.4, 2.8 (2.4, 3.2)	0.093	16.6 28.2)	(9.8, 2.8 (2.2, 3.6)	<0.001
≥34 weeks	35.5 120.2)	(10.5, 6.8 (6.3, 7.4)	0.008	17.8 64.6)	(4.9, 8.5 (6.8, 10.7)	0.269	40.7 114.8)	(14.5, 9.1 (6.6, 12.6)	0.008

BP, blood pressure; CI, confidence interval; PE, preeclampsia.

\*Means (95%CI) were adjusted for maternal race, smoking during pregnancy, maternal body mass index at blood test and gestational weeks at blood test from models with logarithm-transformed serum angiogenic factors levels as outcomes; presented as geometric means.

Supplementary table 3. Associations of maternal blood pressure at 11-14weeks with serum angiogenic factors levels during pregnancy.

Variable	Time points	Log sFlt-1		Log PIGF		Log sFlt-1/ PIGF ratio	
		$\beta$ (95% CI) *	<i>P</i> value	$\beta$ (95% CI) *	<i>P</i> value	$\beta$ (95% CI) *	<i>P</i> value
Systolic blood pressure (10mmHg)	11-14 weeks	0.01 (0.004, 0.03)	0.009	-0.01 (-0.02, 0.0004)	0.057	0.03 (0.01, 0.04)	< 0.001
	18-22 weeks	0.01 (-0.01, 0.02)	0.227	-0.02 (-0.03, -0.004)	0.011	0.02 (0.01, 0.04)	0.003
	28-32 weeks	0.01 (-0.001, 0.02)	0.068	-0.02 (-0.04, -0.002)	0.031	0.03 (0.01, 0.06)	0.007
	$\geq 34$ weeks	0.02 (0.01, 0.03)	0.009	-0.02 (-0.05, 0.001)	0.059	0.04 (0.01, 0.07)	0.011
Diastolic blood pressure (10mmHg)	11-14 weeks	0.02 (0.01, 0.04)	0.002	-0.01 (-0.03, 0.001)	0.069	0.04 (0.02, 0.05)	< 0.001
	18-22 weeks	0.02 (0.004, 0.04)	0.014	-0.01 (-0.02, 0.01)	0.388	0.03 (0.01, 0.05)	0.008
	28-32 weeks	0.04 (0.02, 0.05)	< 0.001	-0.02 (-0.04, 0.004)	0.104	0.05 (0.03, 0.08)	< 0.001
	$\geq 34$ weeks	0.04 (0.02, 0.06)	< 0.001	-0.02 (-0.05, 0.01)	0.134	0.06 (0.02, 0.10)	0.003
Mean arterial pressure (10mmHg)	11-14 weeks	0.02 (0.01, 0.04)	0.002	-0.02 (-0.03, -0.001)	0.043	0.04 (0.02, 0.06)	< 0.001
	18-22 weeks	0.02 (0.001, 0.03)	0.044	-0.01 (-0.02, 0.01)	0.506	0.02 (0.002, 0.04)	0.030
	28-32 weeks	0.03 (0.01, 0.04)	0.001	-0.02 (-0.05, 0.001)	0.058	0.05 (0.02, 0.08)	0.001
	$\geq 34$ weeks	0.04 (0.02, 0.05)	< 0.001	-0.03 (-0.06, -0.003)	0.029	0.07 (0.03, 0.11)	< 0.001

Abbreviations: CI, confidence interval.

\*Adjusted for maternal race, smoking during pregnancy, maternal body mass index at blood test and gestational weeks at blood test.