

Table 1. Characteristics of patients at the time of enrollment, according to the development of complications during delivery.

	Complicated Delivery (n: 45)	Uncomplicated delivery (n: 350)	P value
Height (m) Mean (SD)	1.64 (0.06)	1.66 (0.06)	0.04
Weight (kg) Mean (SD)	73.33 (12.34)	75.29 (11.97)	0.30
BMI (kg/m²) Mean (SD)	27.38 (4.23)	27.42 (3.99)	0.95
Maternal age (years) Mean (SD)	31.45 (5.79)	31.70 (5.63)	0.78
GA at the enrollment (days) Mean (SD)	276.30 (7.83)	275.17 (7.94)	0.37
GA at the enrollment (week + day)	39 + 3	39 + 2	0.37
Primigravida N (%)	36 (80.00%)	222 (63.43%)	0.04
Nullipara N (%)	42 (93.33%)	253 (72.29%)	<0.01
Multipara N (%)	3 (6.67%)	97 (27.71%)	<0.01
Smokers N (%)	1 (2.22%)	8 (2.29%)	0.62
Cerebroplacental Ratio centile Mean (SD)	49,00 (33,01)	47,82 (32,43)	0.82
Maternal Hemodynamics			
SBP (mmHg) Mean (SD)	116.33 (11.97)	115.88 (12.40)	0.82
DBP (mmHg) Mean (SD)	77.36 (9.51)	74.14 (9.21)	0.03
SVR (dynes.s.cm⁻⁵) Mean (SD)	1368.32 (228.50)	1260.34 (271.94)	0.01
SVRI (dynes.s.cm⁻⁵.m²) Mean (SD)	2544.42 (518.23)	2378.23 (530.54)	0.05
CO (l/min) Mean (SD)	5.38 (0.77)	5.80 (1.20)	0.02
CI (l/min/m²) Mean (SD)	2.92 (0.45)	3.07 (0.63)	0.11
SV (ml) Mean (SD)	68.87 (13.42)	72.12 (15.54)	0.08
INO (Watt/m²) Mean (SD)	1.38 (0.33)	1.40 (0.31)	0.65
FTc (ms) Mean (SD)	390.27 (40.15)	386.39 (42.92)	0.57
PKR Mean (SD)	35.85 (17.53)	32.45 (14.04)	0.14

BMI, body mass index; GA gestational age; SBP, systolic blood pressure; DBP, diastolic blood pressure; HR, heart rate; SVR, systemic vascular resistance; SVRI, systemic vascular resistance index; CO, cardiac output; CI, cardiac index; SV, stroke volume; INO, Smith-Madigan inotropy index; FTc, flow time corrected; PKR, potential to kinetic energy ratio.

Data are shown as mean (SD) or N(%).

Table 2 Univariate binary logistic regression analysis for the prediction of delivery complications

Variable	OR (95% CI)	P
Height	0.01 (0.00-0.81)	0.04
Weight	0.99 (0.96-1.01)	0.29
BMI	0.99 (0.92-1.08)	0.94
Age	0.99 (0.94-1.05)	0.78
GA	1.02 (0.98-1.06)	0.34
Multiparity	0.19 (0.06-0.61)	<0.01
Smoking	1.46 (0.13-13.45)	0.75
CPR	1.00 (0.99 – 1.01)	0.84

BMI, body mass index; GA gestational age; CPR, Cerebroplacental ratio

Table 3 Univariate binary logistic regression analysis with continuous and categorical hemodynamic variables after identification by receiver–operating characteristics curve of cut-off for each parameter for the prediction of delivery complications

Continuous variables			Categorical variables		
Variable	OR (95% CI)	P value	Variable	OR (95% CI)	P value
SBP	1.00 (0.98-1.03)	0.82	SBP>119 mmHg	1.76 (0.94-3.31)	0.08
DBP	1.04 (1.04-1.08)	0.03	DBP>79 mmHg	1.89 (1.01-3.54)	0.04
SVR	1 (1.00–1.00)	0.02	SVR>1135 d.s.cm ⁻⁵	7.87 (2.39-25.92)	<0.01
SVRI	1.00 (1.00 – 1.00)	0.05	SVRI>2291 d.s.cm ⁻⁵ .m ²	1.96 (1.01-3.82)	0.05
CO	0.7 (0.52-0.96)	0.02	CO≤5,6 L/min	2.38 (1.21 – 4.68)	<0.01
CI	0.62 (0.35-1.11)	0.10	CI≤3,1 L/min/m ²	1.69 (0.86-3.33)	0.12
SV	0.98 (0.96-1.00)	0.08	SV≤79 mL	1.78 (0.85-3.72)	0.11
INO	0.77 (0.28-2.13)	0.61	INO≤1,1Watt/m ²	1.43 (0.72-2.87)	0.31
FTc	1 (0.99-1.01)	0.57	FTc>365 ms	1.96 (0.91-4.20)	0.08
PKR	1.01 (0.99-1.03)	0.15	PKR>22	2.31 (0.95-5.64)	0.04

SBP, systolic blood pressure; DBP, diastolic blood pressure; HR, heart rate; SVR, systemic vascular resistance; SVRI, systemic vascular resistance index; CO, cardiac output; CI, cardiac index; SV, stroke volume; INO, Smith-Madigan inotropy index; FTc, flow time corrected; PKR, potential to kinetic energy ratio.

Table 4. Multivariate binary logistic regression of categorical variables for the prediction of delivery complications.

Not adjusted			Adjusted for height		
AUC: 0.744			AUC: 0.764		
	OR (95% CI)	P value		OR (95% CI)	P value
Multiparity	0.19 (0.06-0.65)	<0.01	Multiparity	0.18 (0.05-0.60)	<0.01
SVR>1135 d.s.cm⁻⁵	10.17 (2.68-38.63)	<0.01	SVR>1135 d.s.cm⁻⁵	9.01 (2.39-33.99)	<0.01
PKR>22	0.59 (0.19-1.83)	0.37	PKR>22	0.62 (0.20-1.94)	0.42
FTc>365 ms	2.80 (1.15-6.83)	0.02	FTc>365 ms	2.73 (1.12-6.67)	0.03

SVR, systemic vascular resistance; FTc, flow time corrected; PKR, potential to kinetic energy ratio.