

Table 1: General hemodynamic and ventilatory parameters.

Parameters	Group	Baseline	Endo	FR30 mL/kg	FR60 mL/kg	FR90 mL/kg	NB-10 mL/kg	NB-20 mL/kg	NB-30 mL/kg
CO (L/min)	Endotoxemia group	2.3 ± 0.4	1.9 ± 0.5	3.0 ± 0.3*	3.2 ± 0.4	3.1 ± 0.5	2.0 ± 0.5*	1.8 ± 0.6	1.9 ± 0.3
	Control group	2.4 ± 0.4	2.2 ± 0.3	3.2 ± 0.3 <sup>†</sup>	3.6 ± 0.4 <sup>†</sup>	3.5 ± 0.4	2.7 ± 0.5 <sup>†</sup>	2.0 ± 0.4	2.1 ± 0.5
SVI (mL/m <sup>2</sup> )	Endotoxemia group	25.3 ± 5.3	16.2 ± 6.3* <sup>‡</sup>	25.9 ± 5.0* <sup>‡</sup>	30.1 ± 4.2 <sup>‡</sup>	28.4 ± 5.8	14.6 ± 8.7* <sup>‡</sup>	16.2 ± 8.1 <sup>‡</sup>	16.3 ± 8.0 <sup>‡</sup>
	Control group	26.3 ± 5.3	25.2 ± 4.3	51.3 ± 5.5 <sup>†</sup>	55.2 ± 5.8 <sup>†</sup>	56.2 ± 4.4	44.4 ± 8.2 <sup>†</sup>	30.8 ± 7.6 <sup>†</sup>	32.3 ± 7.6
HR	Endotoxemia group	91.9 ± 13.8	109.7 ± 30.4* <sup>‡</sup>	111.9 ± 15.3 <sup>‡</sup>	104.6 ± 27.1 <sup>‡</sup>	104.1 ± 33.3 <sup>‡</sup>	107.4 ± 38.1	115.7 ± 37.8*	130.2 ± 47.9 <sup>‡</sup>
	Control group	90.0 ± 14.1	92.2 ± 22.1	72.5 ± 10.9	72.5 ± 20.4	70.5 ± 18.4	75.5 ± 27.7	79.5 ± 32.7	75.5 ± 22.7
SAP (mmHg)	Endotoxemia group	150.1 ± 20.7	102.0 ± 15.0* <sup>‡</sup>	129.4 ± 15.6* <sup>‡</sup>	156.3 ± 11.3*	163.6 ± 14.3	137.9 ± 9.4* <sup>‡</sup>	125.6 ± 15.8* <sup>‡</sup>	137.2 ± 16.9
	Control group	152.5 ± 18.4	148.4 ± 13.0	175.5 ± 14.5 <sup>†</sup>	167.5 ± 12.3	172.6 ± 11.3	172.0 ± 8.5	155.0 ± 16.8 <sup>†</sup>	160.5 ± 14.6
DAP (mmHg)	Endotoxemia group	109.9 ± 6.9	83.9 ± 13.1* <sup>‡</sup>	91.9 ± 9.2 <sup>‡</sup>	110.7 ± 8.6*	110.8 ± 8.8	98.0 ± 11.3 <sup>‡</sup>	89.9 ± 12.2*	94.2 ± 9.0
	Control group	105.0 ± 10.3	100.3 ± 11.2	119.7 ± 10.3 <sup>†</sup>	114.0 ± 7.3	118.2 ± 7.5	121.0 ± 8.7	115.2 ± 13.9	117.5 ± 10.8
MAP (mmHg)	Endotoxemia group	126.3 ± 6.1	83.9 ± 13.1* <sup>‡</sup>	104.7 ± 12.1* <sup>‡</sup>	126.6 ± 8.3*	126.4 ± 10.2	110.6 ± 12.5* <sup>‡</sup>	101.1 ± 13.5* <sup>‡</sup>	108.3 ± 15.0
	Control group	121.0 ± 7.1	121.0 ± 13.2	139.5 ± 11.2 <sup>†</sup>	133.0 ± 6.4	140.0 ± 8.3	140.6 ± 8.9	130.7 ± 15.5 <sup>†</sup>	133.5 ± 11.9
GEDI (mL/m <sup>2</sup> )	Endotoxemia group	525.9 ± 75.8	397.6 ± 69.0* <sup>‡</sup>	485.9 ± 72.2* <sup>‡</sup>	562.9 ± 54.9* <sup>‡</sup>	587.6 ± 55.6 <sup>‡</sup>	500.1 ± 77.0* <sup>‡</sup>	459.0 ± 88.9 <sup>‡</sup>	459.2 ± 95.2 <sup>‡</sup>
	Control group	545.8 ± 80.8	585.6 ± 65.6	921.5 ± 72.9 <sup>†</sup>	937.4 ± 63.8	997.6 ± 57.3	754.5 ± 72.3 <sup>†</sup>	662.5 ± 64.9 <sup>†</sup>	671.5 ± 84.9

CVP (mmHg)	Endotoxemia group	5.4 ± 2.1	4.9 ± 2.9	6.1 ± 3.2‡	9.0 ± 3.3*	8.6 ± 3.1	6.9 ± 3.7*	6.3 ± 3.2	5.7 ± 3.1
	Control group	6.2 ± 2.0	5.5 ± 2.1	10.5 ± 2.5†	11.5 ± 1.7	11.0 ± 1.4	7.0 ± 3.1†	6.1 ± 3.0	4.5 ± 3.2
Pmsf (mmHg)	Endotoxemia group	20.6 ± 9.4	26.4 ± 10.9*	19.8 ± 5.6‡	37.1 ± 9.3*‡	34.7 ± 7.4‡	27.2 ± 9.1*	24.3 ± 9.5	24.9 ± 5.4
	Control group	20.2 ± 7.8	20.9 ± 7.2	29.1 ± 8.0	46.3 ± 8.9†	54.2 ± 6.5†	33.8 ± 6.5†	27.1 ± 8.0	18.5 ± 7.8
Rv (mmHg/min <sup>-1</sup> · kg <sup>-1</sup> · L <sup>-1</sup> )	Endotoxemia group	6.6 ± 2.9	12.9 ± 3.6*‡	4.7 ± 1.9*	9.6 ± 4.2*	9.4 ± 3.6‡	10.9 ± 4.3	10.3 ± 4.4	10.5 ± 2.6‡
	Control group	5.9 ± 2.8	7.1 ± 3.2	5.9 ± 2.4	10.5 ± 4.1†	12.5 ± 4.1	9.9 ± 4.2†	9.8 ± 4.3	6.9 ± 4.2
Eh	Endotoxemia group	0.75 ± 0.10	0.80 ± 0.15‡	0.70 ± 0.15*‡	0.75 ± 0.15*	0.71 ± 0.12‡	0.74 ± 0.14‡	0.72 ± 0.15	0.78 ± 0.11
	Control group	0.75 ± 0.10	0.75 ± 0.10	0.64 ± 0.11†	0.74 ± 0.08†	0.76 ± 0.12	0.69 ± 0.08	0.72 ± 0.11	0.74 ± 0.09
SVV (%)	Endotoxemia group	16.5 ± 7.5	20.8 ± 5.0‡	14.8 ± 3.4‡	13.3 ± 5.2‡	10.2 ± 3.3‡	15.0 ± 5.0*‡	17.3 ± 8.4‡	20.5 ± 8.8‡
	Control group	16.0 ± 9.0	15.8 ± 4.3	7.5 ± 3.5†	5.5 ± 4.5	6.5 ± 5.5	9.5 ± 6.7	11.0 ± 8.2	15.5 ± 8.2
EVLWI (mL/kg)	Endotoxemia group	9.6 ± 4.8	12.7 ± 3.7*‡	10.2 ± 4.0‡	10.9 ± 3.8‡	11.7 ± 3.9‡	13.0 ± 2.9*‡	13.8 ± 2.9	13.8 ± 2.7
	Control group	9.5 ± 4.5	10.4 ± 3.5	13.8 ± 4.0†	14.6 ± 2.6	16.1 ± 3.4	18.0 ± 3.8†	15.7 ± 2.7†	14.4 ± 4.7
PVPI	Endotoxemia group	2.2 ± 0.6	4.7 ± 1.4*‡	2.6 ± 0.7*	2.4 ± 0.6	2.4 ± 0.5	3.2 ± 0.8*	3.8 ± 0.8*‡	3.8 ± 0.6‡
	Control group	2.3 ± 0.9	2.4 ± 1.2	2.2 ± 0.4	1.9 ± 0.6	2.0 ± 0.6	3.4 ± 1.1†	3.0 ± 0.8†	2.6 ± 0.5
CFI (1/min)	Endotoxemia group	4.3 ± 1.1	4.3 ± 1.4	6.2 ± 1.7*‡	5.3 ± 1.5*‡	5.1 ± 2.0‡	3.9 ± 0.7*	3.9 ± 1.1	4.3 ± 0.6

	Control group	4.0 ± 1.4	4.1 ± 1.3	3.9 ± 1.5	4.5 ± 1.2 <sup>†</sup>	4.0 ± 1.7	4.2 ± 0.9	3.5 ± 0.9 <sup>†</sup>	3.4 ± 0.5
GEF	Endotoxemia group	19.0 ± 3.0	18.3 ± 4.5	19.0 ± 4.8 <sup>‡</sup>	22.6 ± 6.6	28.1 ± 7.4 <sup>*‡</sup>	16.6 ± 5.7 <sup>‡</sup>	14.9 ± 4.5 <sup>*‡</sup>	15.0 ± 5.0
	Control group	22.5 ± 3.5	20.4 ± 3.4	23.5 ± 4.1	23.5 ± 5.0	23.0 ± 7.2	22.5 ± 6.4	19.0 ± 4.1 <sup>*</sup>	19.5 ± 4.3
PFratio	Endotoxemia group	345.8 ± 74.1	356.8 ± 60.0 <sup>‡</sup>	370.0 ± 72.6	346.5 ± 83.4	364.3 ± 71.2	343.3 ± 83.4	347.8 ± 96.2	378.3 ± 101.0
	Control group	330.8 ± 72.1	321.4 ± 69.2	352.9 ± 63.4	361.4 ± 79.9	340.0 ± 70.6	385.7 ± 81.3	407.1 ± 88.3	436.3 ± 89.5
Fluid balance	Endotoxemia group	1.5 ± 1.5	2.6 ± 1.2 <sup>*‡</sup>	28.3 ± 5.4 <sup>*‡</sup>	59.3 ± 5.4 <sup>*‡</sup>	85.4 ± 7.8 <sup>*‡</sup>	-10.5 ± 2.5 <sup>*</sup>	-20.3 ± 3.5 <sup>*</sup>	-29.7 ± 3.5 <sup>*</sup>
(mL/kg)	Control group	1.3 ± 1.4	1.3 ± 1.3	18.5 ± 4.3 <sup>†</sup>	41.4 ± 4.3 <sup>†</sup>	76.8 ± 5.8 <sup>†</sup>	-10.1 ± 2.8 <sup>†</sup>	-21.1 ± 4.3 <sup>†</sup>	-30.2 ± 4.2 <sup>†</sup>

CFI: Cardiac function index; CO: Cardiac output; Eh: Cardiac efficiency; EVLWI: Extravascular lung water index; GEDI: Global end-diastolic volume index; GEF: Global ejection fraction; MAP: Mean arterial pressure; PFratio: Partial arterial oxygen tension to fraction of inspired oxygen ratio; Pmsf: Mean systemic filling pressure; PVPI: Pulmonary vascular permeability index; SV: Stroke volume; SVV: Stroke volume variation.

\*P < 0.05 vs. previous state in endotoxemia group.

<sup>†</sup>P < 0.05 vs. previous state in control group.

<sup>‡</sup>P < 0.05 LPS group vs. control group.

Table 2: Microdialysis and tissue perfusion.

Parameters	Group	Baseline	Endo	FR30 mL/kg	FR60 mL/kg	FR90 mL/kg	NB-10 mL/kg	NB-20 mL/kg	NB-30 mL/kg
PI	Endotoxemia group	0.8 ± 0.5	0.7 ± 0.4	1.1 ± 0.6*	1.0 ± 0.6‡	0.9 ± 0.4‡	0.5 ± 0.6*‡	0.6 ± 0.6	0.5 ± 0.5*‡
	Control group	0.9 ± 0.4	1.1 ± 0.4	1.4 ± 0.2†	1.6 ± 0.5	2.0 ± 0.4†	1.2 ± 0.5	0.7 ± 0.5	0.9 ± 0.6
pH	Endotoxemia group	7.39 ± 0.05	7.35 ± 0.07‡	7.33 ± 0.07	7.28 ± 0.08*	7.28 ± 0.07	7.30 ± 0.08	7.31 ± 0.08	7.32 ± 0.07‡
	Control group	7.38 ± 0.06	7.43 ± 0.06	7.32 ± 0.05	7.30 ± 0.06	7.31 ± 0.07	7.34 ± 0.06	7.35 ± 0.08	7.36 ± 0.07
ScvO <sub>2</sub> (%)	Endotoxemia group	72.0 ± 13.1	56.8 ± 11.6*‡	77.9 ± 15.2*‡	81.4 ± 9.7‡	73.3 ± 9.6*‡	64.6 ± 8.7*‡	59.6 ± 9.4*‡	68.8 ± 9.7*‡
	Control group	73.7 ± 10.2	74.3 ± 8.5	88.1 ± 6.1†	89.6 ± 8.6	90.7 ± 4.5	91.4 ± 4.5	90.4 ± 4.8	89.3 ± 4.2
PvaCO <sub>2</sub> (mmHg)	Endotoxemia group	6.0 ± 3.6	13.1 ± 9.2*‡	5.1 ± 4.5*‡	3.3 ± 2.2	5.1 ± 5.0	7.6 ± 5.4	9.9 ± 7.6‡	7.6 ± 4.5‡
	Control group	5.2 ± 3.7	2.5 ± 2.2	2.7 ± 2.4	3.5 ± 2.2	3.5 ± 3.0	4.0 ± 2.2	2.5 ± 2.0	4.5 ± 2.1

	group								
Lac (mmol/L)	Endotoxemia	1.8 ± 1.0	4.0 ± 1.2*‡	3.2 ± 1.3*‡	2.7 ± 1.2*‡	2.2 ± 1.0*‡	2.7 ± 1.1*‡	3.2 ± 1.3*‡	3.4 ± 1.5‡
	group								
	Control	1.8 ± 0.8	1.3 ± 1.1	1.1 ± 0.8	0.9 ± 0.6	0.9 ± 0.6	1.0 ± 0.5	1.0 ± 0.4	1.0 ± 0.6
	group								
DO <sub>2</sub> I	Endotoxemia	344.7 ± 78.0	314.0 ± 110.3‡	408.6 ± 75.1*‡	428.4 ± 96.3‡	365.5 ± 90.9*‡	334.3 ± 52.9‡	294.8 ± 68.2‡	343.0 ± 63.6
(L · min <sup>-1</sup> · m <sup>-2</sup> )	group								
	Control	398.9 ± 58.7	403.4 ± 77.3	503.3 ± 75.5†	526.9 ± 72.2	541.0 ± 65.3	484.2 ± 61.4†	381.7 ± 51.6†	388.9 ± 62.3
	group								
L/Pratio	Endotoxemia	27.9 ± 10.4	29.5 ± 3.1	43.4 ± 18.2*‡	39.2 ± 15.9‡	85.7 ± 19.5*‡	27.9 ± 10.9*	26.9 ± 8.2	24.4 ± 12.2
	group								
	Control	28.9 ± 9.1	32.3 ± 6.5	28.4 ± 11.2	30.1 ± 12.3	32.5 ± 13.1	26.4 ± 12.7	18.0 ± 7.3†	19.5 ± 8.7
	group								

DO<sub>2</sub>I: The oxygen delivery index; Lac: Lactate; PvaCO<sub>2</sub>: Venous-arterial CO<sub>2</sub> pressure difference; SvO<sub>2</sub>: Oxygen saturation of mixed venous blood.

\*P < 0.05 vs. previous state in endotoxemia group.

†P < 0.05 vs. previous state in control group.

‡P < 0.05 endotoxemia group vs. control group.