

Supplemental Digital Content 3:

Table 1. pH, PCO₂, and Lactate in the Dialysate Sampled before and after the Acid Injection Site in Eight Pigs Subjected to Acidification

		1 h I	24 h I	24 h II
pH	Pre-acid	7.27 ± 0.10	7.15 ± 0.17	7.01 ± 0.14*
	Post-acid	6.60 ± 0.25	6.45 ± 0.15	6.38 ± 0.39
PCO₂ (mmHg)	Pre-acid	77 ± 21	91 ± 21	98 ± 18
	Post-acid	Out of range	Out of range	Out of range
Lactate (mmol/l)	Pre-acid	10.43 ± 2.63	11.33 ± 2.73	16.22 ± 8.79
	Post-acid	20.32 ± 9.63	20.00 ± 3.73	22.88 ± 8.16

PCO₂ = carbon dioxide partial pressure. Out of range: PCO₂ > 150 mmHg.

* *p* < 0.05 versus “1h I.”

Table 2. Blood Electrolytes through the Extracorporeal Circuit in Eight Pigs Subjected to Acidification

		Baseline I	1 h I	24 h I	Baseline II	24 h II	Baseline III
Na+ (mEq/l)	Pre-dialyzer	137.1 ± 2.6	137.8 ± 4.4	137.6 ± 2.5	137.6 ± 3.7	137.7 ± 4.5	138 ± 4.9
	Post-dialyzer	137.1 ± 2.6	138.6 ± 3.4	138.1 ± 2.7	137.3 ± 2.2	137.1 ± 3.7	138.1 ± 4.8
K+ (mEq/l)	Pre-dialyzer	4.25 ± 0.45	4.05 ± 0.66	3.86 ± 0.28	4.01 ± 0.34	3.87 ± 0.22	4.02 ± 0.29
	Post-dialyzer	4.25 ± 0.45	4.08 ± 0.70	3.84 ± 0.22	4.09 ± 0.31	3.88 ± 0.26	4.01 ± 0.28
Cl- (mEq/l)	Pre-dialyzer	102.1 ± 2.8	102.2 ± 3.8	102.6 ± 3.6	101.9 ± 4.3	101.6 ± 6.3	102.2 ± 4.9
	Post-dialyzer	102.1 ± 2.8	99.8 ± 2.1	99.3 ± 4.2	102.5 ± 4.9	98.4 ± 4.2	102.1 ± 5

Table 3: Electrolytes in Dialysate Sampled before and after the Acid Injection Site in Eight pigs Subjected to Acidification

		1 h I	24 h I	24 h II
Na+ (mEq/l)	Pre-acid	139.1 ± 2.8	139.4 ± 3.6	141 ± 5.1
	Post-acid	138.7 ± 2.2	140.4 ± 3.4	139.3 ± 3.4
K+ (mEq/l)	Pre-acid	4.29 ± 0.62	4.05 ± 0.27	4.09 ± 0.19
	Post-acid	4.36 ± 0.53	4.00 ± 0.26	3.99 ± 0.18
Cl- (mEq/l)	Pre-acid	101.2 ± 3.8	102.4 ± 3.5	101.5 ± 5.7
	Post-acid	101.5 ± 3.7	103.5 ± 2.3	101.3 ± 6.2

Table 4. Hemodynamic of the Eight pigs Subjected to Acidification

	Baseline I	1 h I	24 h I	Baseline II	24 h II	Baseline III
Systolic BP (mmHg)	144 ± 19	135 ± 17	112 ± 15*#	108 ± 4*#	105 ± 6*#	104 ± 10*#
Diastolic BP (mmHg)	97 ± 16	89 ± 13	63 ± 13*#	59 ± 15*#	55 ± 7*#	56 ± 7#
Mean BP (mmHg)	115 ± 15	108 ± 15	81 ± 12*#	78 ± 14*#	74 ± 7*#	72 ± 8*#
HR (beats/min)	94 ± 9	98 ± 9	89 ± 13	93 ± 14	99 ± 17	96 ± 19
PVC (mmHg)	11 ± 3	12 ± 3	10 ± 2	9 ± 2	11 ± 4	12 ± 4
Systolic PAP (mmHg)	33 ± 4	32 ± 3	29 ± 5	30 ± 6	31 ± 4	32 ± 4
Diastolic PAP (mmHg)	21 ± 6	20 ± 3	17 ± 4	16 ± 7	17 ± 4	18 ± 4
Mean PAP (mmHg)	26 ± 4	26 ± 3	24 ± 4	24 ± 6	25 ± 5	26 ± 4
PAOP (mmHg)	12 ± 4	11 ± 3	12 ± 4	10 ± 2	10 ± 2	10 ± 3
CO (l/min)	8.87 ± 2.13	8.54 ± 1.58	7.05 ± 2.41	5.85 ± 0.58	6.57 ± 1.92	5.95 ± 0.66

BP = blood pressure; CO = cardiac output; HR = heart rate; PAOP = pulmonary artery occlusion pressure; PAP = pulmonary artery pressure; PVC = central venous pressure.

* $p < 0.001$ versus “Baseline I”; # $p < 0.05$ versus “1h I.”

Table 5. Hemodynamic Data of the Two Pigs Used as Controls

	Baseline I	8 h I	16 h I	Baseline II	8 h II	16 h II	Baseline III
Systolic BP (mmHg)	124 - 116	96 - 99	90 - 104	89 - 99	82 - 98	100 - 100	84 - 95
Diastolic BP (mmHg)	84 - 72	52 - 57	50 - 60	48 - 54	42 - 45	50 - 45	40 - 44
Mean BP (mmHg)	102 - 89	70 - 74	65 - 77	64 - 71	57 - 62	60 - 64	56 - 62
HR (beats/min)	100 - 78	87 - 74	84 - 78	90 - 81	90 - 78	90 - 82	89 - 96
PVC (mmHg)	9 - 8	11 - 9	11 - 9	11 - 9	11 - 10	10 - 8	10 - 7
Systolic PAP (mmHg)	30 - 22	28 - 24	30 - 25	29 - 24	28 - 25	27 - 26	27 - 22
Diastolic PAP (mmHg)	28 - 14	17 - 14	19 - 16	17 - 14	16 - 12	16 - 15	16 - 13
Mean PAP (mmHg)	25 - 18	24 - 19	25 - 20	22 - 19	21 - 18	21 - 18	22 - 17
PAOP (mmHg)	8 - 11	11 - 8	10 - 7	11 - 6	11 - 8	11 - 6	9 - 9
CO (l/min)	5.4 - 4.1	5 - 4.3	5.1 - 3.2	4.4 - 3.2	5.4 - 4.8	4.6 - 3	4.7 - 3.2

BP = blood pressure; CO = cardiac output; HR = heart rate; PAOP = pulmonary artery occlusion pressure; PAP = pulmonary artery pressure; PVC = central venous pressure.

Table 6. Erythrocyte Metabolites (nmol/mg Hb) and Meta Hb (%)

Step	Group	PYR	ATP	2,3-DPG	Meta Hb
Baseline I	Acid	0.11 ± 0.06	6.45 ± 0.8	20.17 ± 1.32	1.41 ± 0.8
	Sham		7.20 ± 0.4	21.36 ± 5.3	0.59 ± 0.08
24 h I	Acid	0.11 ± 0.05	6.51 ± 0.8	18.99 ± 1.27*	1.08 ± 0.6
	Sham		6.49 ± 0.06	23.71 ± 5.3	0.87 ± 0.28
24 h II	Acid	0.13 ± 0.03	6.75 ± 1	18.15 ± 1.64*	1.3 ± 0.7
	Sham		6.68 ± 0.9	19.57 ± 5.9	1.2 ± 0.29

2,3-DPG = 2,3 diphosphoglycerate; ATP = adenosine triphosphate; Hb = hemoglobin; PYR = pyruvate. Statistical analysis was performed only on the 8 pigs subjected to acidification.

* $p < 0.05$ versus Baseline I.

Table 7. Plasma Determinations

Step	Group	Free Hb (mg/L)	PAO (nmol/mg Hb)
Baseline I	Acid	89.6 ± 37	4.98 ± 0.8
	Sham	78.45 ± 17	5.31 ± 0.1
24 h I	Acid	76.1 ± 19	4.43 ± 0.4
	Sham	84.55 ± 48.8	3.87 ± 0.9
24 h II	Acid	80.2 ± 33	4.6 ± 1.0
	Sham	80.34 ± 4.7	4.69 ± 0.1

Hb = hemoglobin; PAO = total antioxidant power.

Table 8. Erythrocyte enzymatic activities (U/g Hb)

Step	Group	GAPDH	LDH	CAT	GR	AChE
Baseline I	Acid	30.1 ± 6.8	38.7 ± 5.7	71 ± 20.7	3 ± 0.3	8.0 ± 2.1
	Sham			68.1 ± 5.5	2.7 ± 0.5	
24 h I	Acid	36.6 ± 11.7	39.4 ± 7.4	70.9 ± 15.9	2.9 ± 0.4	8.5 ± 1.5
	Sham			67.5 ± 3.2	3 ± 0.9	
24 h II	Acid	31.1 ± 11.5	37.8 ± 6.0	68.6 ± 15.4	2.6 ± 0.3*	8.5 ± 1.7
	Sham			66.2 ± 3.6	2.7 ± 0.5	

AChE = Acetyl cholinesterase; CAT = catalase; GAPDH = glyceraldehyde phosphate dehydrogenase; GR = glutathione reductase; Hb = hemoglobin; LDH = lactate dehydrogenase.

Statistical analysis was performed only on the 8 pigs subjected to acidification, * $p < 0.05$ versus Baseline I.