

**THE EFFECTS OF DIFFERENT CRYSTALLOID SOLUTIONS ON HEMODYNAMICS, PERIPHERAL  
PERFUSION AND THE MICROCIRCULATION IN EXPERIMENTAL ABDOMINAL SEPSIS**  
Supplemental Digital Content

Diego Orbegozo Cortés, Fuhong Su, Carlos Santacruz, Xinrong He,  
Koji Hosokawa, Jacques Creteur, Daniel De Backer, Jean-Louis Vincent

**Table S1.** Infused volumes, urine output, and fluid balance before baseline and total infused volume after baseline in the different groups

	RL	PL	NS	P
Infused volume before baseline (mL·Kg <sup>-1</sup> )	83 (74-96)	76 (63-88)	83 (77-111)	0.49
Urinary output before baseline (mL·Kg <sup>-1</sup> )	21 (16-40)	17 (14-26)	15 (13-34)	0.31
Fluid balance before baseline (mL·Kg <sup>-1</sup> )	81 (53-97)	59 (39-86)	69 (44-81)	0.43
Total infused volume after baseline (ml·Kg <sup>-1</sup> ·h <sup>-1</sup> )	9.9 (8.7-10.3)	10.5 (9.8-10.7)	10.5 (10.5-11.1)	0.11

All values presented as median (percentiles 25th- 75th).

**Table S2.** Hemodynamic response to fluid challenges in the three groups

VARIABLE	GROUP	Fluid challenge				
		First	Second	Third	Fourth	Fifth
Delta%CI	RL	7(-6-17)	26(19-38)	13(0-14)	17(15-18)	37(26-61)
	PL	5(-2-24)	32(24-39)	37(23-41)	20(14-28)	45(29-52)
	NS	-4(-7-8)	28(24-45)	20(15-56)	22(17-26)	40(36-42)
Delta%MAP	RL	0(-9-3)	10(6-21)	11(8-18)	8(3-13)	18(14-24)
	PL	10(8-10)	7(1-12)	12(4-39)	7(4-16)	15(-5-32)
	NS	4(-1-12)	5(-1-10)	8(5-11)	7(3-9)	18(11-24)

All values presented as median (percentiles 25th- 75th).

**Table S3.** Time course of measured electrolyte levels

VARIABLE	GROUP	TIME (hours)					
		0	4	8	12	16	20
Sodium (mEq/L)	RL	145 (143-149)	144 (143-148)	144 (143-144)	142 (141-144)	145 (141-147)	145 (143-148)
	PL	144 (142-146)	144 (142-145)	145 (140-148)	146 (139-147)	144 (140-147)	144 (142-146)
	NS	145 (144-146)	147 (146-148)†	148 (147-149)*†	150 (148-150)*†	150 (148-150)*†	149 (147-150)*†
Potassium (mEq/L)	RL	4.2 (4.0-4.6)	4.5 (3.9-4.8)	4.2 (4.1-4.4)	4.3 (4.1-4.7)	4.8 (4.6-5.1)	5.1 (4.9-6.1)
	PL	4.6 (4.0-5.0)	3.9 (3.6-4.2)	3.8 (3.3-4.0)*	3.9 (3.4-4.2)*	3.9 (3.3-4.6)	4.9 (4.4-7.0)
	NS	4.3 (4.2-5.5)	4.3 (3.7-4.6)	3.8 (3.6-4.6)	4.7 (4.2-5.0)†	5.9 (5.2-6.5)	6.0 (5.4-6.6)
Chloride (mEq/L)	RL	107 (105-108)	110 (106-111)	111 (108-112)	111 (109-114)	113 (112-114)	114 (113-117)
	PL	108 (105-111)	110 (108-111)	112 (105-113)	113 (106-115)	107 (106-114)	112 (110-114)
	NS	111 (107-112)	115 (112-117)*†	121 (117-123)*†	126 (122-128)*†	127 (124-130)*†	128 (125-130)*†
Magnesium (mEq/L)	RL	0.71 (0.69-0.84)	0.68 (0.65-0.78)	0.64 (0.58-0.70)	0.58 (0.50-0.68)	0.62 (0.50-0.70)	0.62 (0.50-0.73)
	PL	0.79 (0.68-0.84)	0.85 (0.72-0.94)*	0.84 (0.64-0.90)*	0.83 (0.74-0.90)*	0.91 (0.90-0.95)*	0.95 (0.79-1.08)*
	NS	0.76 (0.64-0.79)	0.71 (0.62-0.77)†	0.74 (0.58-0.75)†	0.71 (0.56-0.77)	0.71 (0.64-0.93)*	0.82 (0.76-0.87)*
Ionized calcium (mEq/L)	RL	1.17 (1.14-1.19)	1.14 (1.11-1.16)	1.11 (1.08-1.17)	1.10 (1.04-1.18)	1.06 (1.04-1.15)	1.06 (1.01-1.07)
	PL	1.23 (1.20-1.27)	1.05 (1.03-1.16)*	1.03 (0.96-1.06)*	1.04 (0.96-1.08)*	1.05 (0.98-1.13)	1.02 (0.95-1.06)
	NS	1.20 (1.14-1.22)	1.17 (1.13-1.22)†	1.12 (1.08-1.26)†	1.19 (1.11-1.24)*†	1.19 (1.08-1.23)*†	1.14 (1.06-1.21)†
Phosphorus (mEq/L)	RL	2.05 (1.64-2.60)	2.61 (2.00-2.75)	2.49 (2.07-2.72)	2.25 (1.92-2.63)	2.49 (2.16-2.72)	2.44 (2.26-3.20)
	PL	1.59 (1.16-2.21)	1.79 (1.42-2.47)	1.73 (1.35-2.41)	1.77 (1.30-2.32)	2.18 (1.49-2.81)	2.20 (1.57-3.10)
	NS	1.69 (1.48-1.93)	2.18 (1.72-2.45)	2.13 (2.00-2.84)	2.33 (2.11-2.79)	2.63 (2.31-2.74)	2.85 (2.71-2.98)

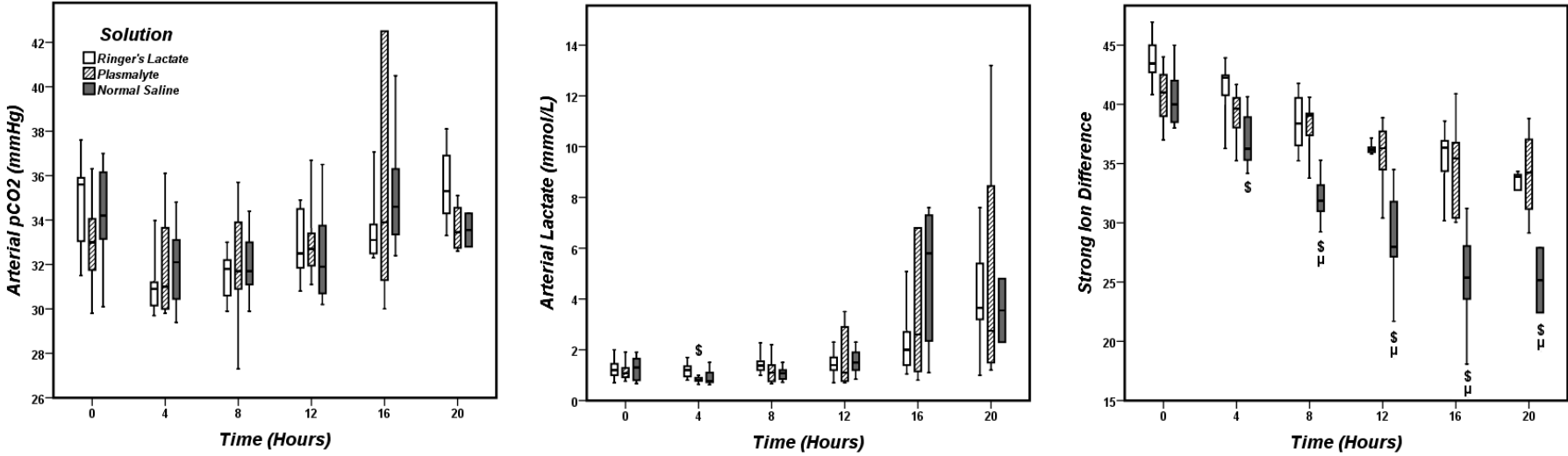
RL, Ringer's lactate; PL, Plasmalyte<sup>R</sup>; NS, normal saline. \* =  $p < 0.05$  vs. RL group, † =  $p < 0.05$  vs. PL group. All values presented as median (percentiles 25th- 75th).

**Table S4.** Time course of fractional excretion of measured electrolytes, creatinine clearance and potassium balance

VARIABLE	GRO UP	TIME (hours)			
		5	10	15	20
Fractional Na <sup>+</sup> Excretion (%)	RL	0.25(0.11-0.86)	0.28(0.12-2.50)	0.23(0.14-0.92)	0.47(0.11-0.79)
	PL	0.72(0.14-1.69)	1.45(0.15-2.00)	1.43(0.20-1.52)	0.43(0.23-1.14)
	NS	0.25(0.17-0.64)	0.45(0.11-1.10)	0.41(0.13-0.74)	0.19(0.16-0.23)
Fractional K <sup>+</sup> Excretion (%)	RL	30.03(24.44-37.49)	24.37(21.08-35.38)	21.74(21.05-28.75)	26.18(19.47-33.12)
	PL	52.05(47.68-67.63)*	58.30(48.28-78.21)*	52.36(36.90-76.41)*	59.38(45.27-61.31)*
	NS	41.55(28.16-62.63)†	32.68(19.64-50.10)†	19.09(16.77-22.66)†	15.06(10.55-19.57)*†
Fractional Cl <sup>-</sup> Excretion (%)	RL	0.81(0.55-1.07)	1.30(0.15-4.01)	1.02(0.21-2.07)	0.88(0.60-1.03)
	PL	1.20(0.84-4.32)	1.38(0.31-2.64)	0.51(0.30-2.03)	0.27(0.19-0.98)
	NS	1.25(0.95-1.81)	1.47(0.47-2.53)	1.11(0.42-1.77)	0.43(0.27-0.59)
Creatinine Clearance (ml/min)	RL	63(53-92)	66(48-86)	46(17-71)	5(3-29)
	PL	74(53-84)	67(55-83)	48(6-73)	18(10-25)
	NS	75(50-97)	52(33-76)	5(3-28)*†	13(3-22)
Cumulative K <sup>+</sup> intake (mmol)	RL	10(7-27)	33(17-37)	42(29-46)	48(46-54)
	PL	28(26-44)*	59(57-99)*	81(62-108)*	110(102-138)*
	NS	20(0-20)†	40(0-60)†	40(0-60)†	30(0-60)†
Cumulative urine K <sup>+</sup> (mmol)	RL	19(18-26)	36(33-48)	54(37-63)	60(38-76)
	PL	41(28-49)*	79(44-100)*	105(47-134)	142(129-146)*
	NS	33(17-50)	48(33-63)	58(36-67)†	67(66-67)†
Cumulative K <sup>+</sup> balance (mmol)	RL	-8(-17-9)	-10(-15-1)	-8(-21-9)	-8(-27-16)
	PL	-12(-15-11)	-1(-20-14)	-24(-36-17)	-20(-42-7)
	NS	-15(-24--13)	-26(-37--3)	-27(-39--4)	-37(-66--7)

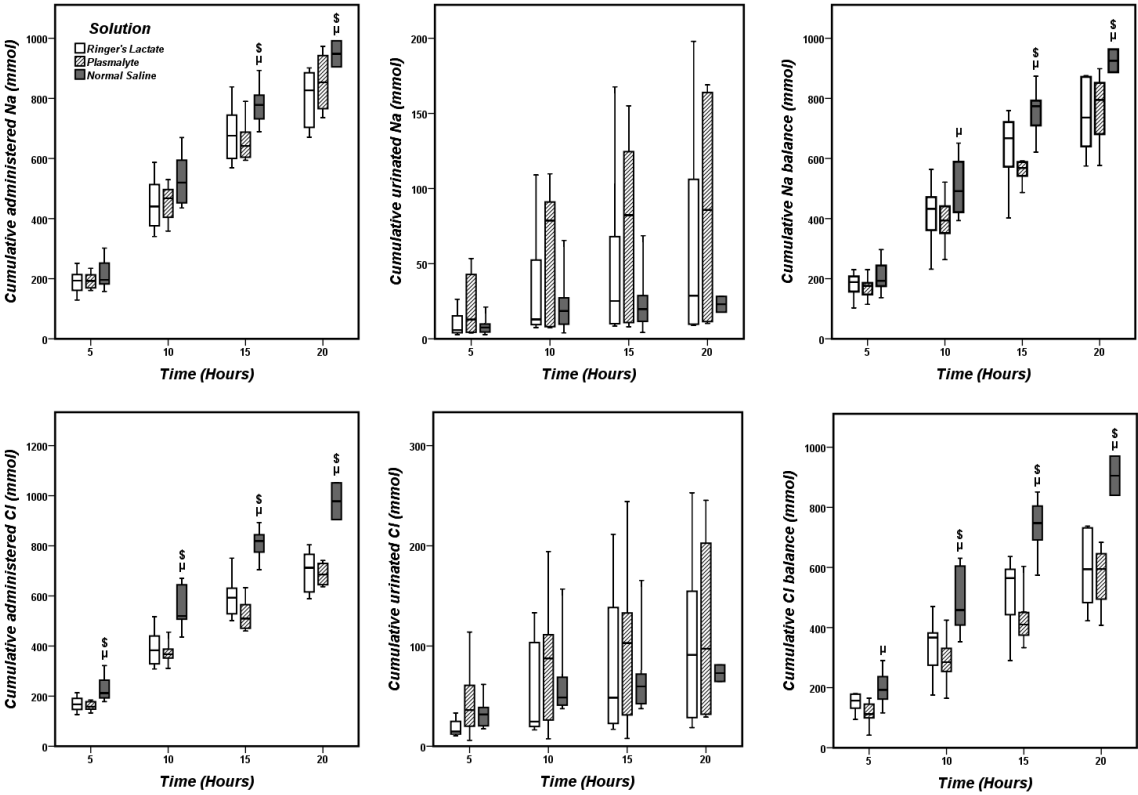
\* = p < 0.05 vs. RL group, † = p < 0.05 vs. PL group. RL, Ringer's lactate; PL, Plasmalyte; NS, normal saline. All values presented as median (percentiles 25th- 75th).

Figure S1. Time course of PCO2, arterial lactate and strong ion difference



\$ = p < 0.05 vs. Ringer's lactate group, μ = p < 0.05 vs. Plasmalyte group

**Figure S2.** Time course of administered  $\text{Na}^+$  and  $\text{Cl}^-$ ,  $\text{Na}^+$  and  $\text{Cl}^-$  excreted in urine and  $\text{Na}^+$  and  $\text{Cl}^-$  balance.



§ = p < 0.05 vs. Ringer's lactate group, μ = p < 0.05 vs. Plasmalyte group