

Table 1. Demographic and baseline characteristics of the patients

	HL	RL	p	HL/HES+	HL/HES -	p
No of patients	109	99		66	43	
Age, year	54.91 $\pm$ 7.92	55.73 $\pm$ 7.07	> 0.05	55.64 $\pm$ 7.57	53.79 $\pm$ 8.39	> 0.05
Sex ratio (F/M)	5/104	4/95	> 0.05	3/63	2/41	> 0.05
On pump / Off pump	23/86	19/80	> 0.05	14/52	9/34	> 0.05
(%)	21.1	19.19		21.2	20.93	
CPB time*, min	86.70 $\pm$ 31.42	85.42 $\pm$ 21.29	> 0.05	89.64 $\pm$ 30.85	82.11 $\pm$ 33.59	> 0.05
Aortic cross clamping*, min	68.13 $\pm$ 23.86	66.47 $\pm$ 18.39	> 0.05	70.50 $\pm$ 20.55	64.44 $\pm$ 29.22	> 0.05
Weight, kg	67.55 $\pm$ 9.51	69.23 $\pm$ 9.83	> 0.05	67.10 $\pm$ 9.54	68.23 $\pm$ 9.52	> 0.05
Height, cm	161.57 $\pm$ 22.74	162.652 $\pm$ 17.56	> 0.05	162.59 $\pm$ 20.87	160.02 $\pm$ 25.53	> 0.05
BMI, kg/m2	24.9 $\pm$ 3.01	25.6 $\pm$ 3.16	> 0.05	24.59 $\pm$ 3.07	25.39 $\pm$ 2.89	> 0.05
EF, %	53.60 $\pm$ 12.37	54.16 $\pm$ 12.55	> 0.05	55.67 $\pm$ 12.80	50.42 $\pm$ 11.07	0.03
No of grafts	3.31 $\pm$ 0.79	3.26 $\pm$ 0.88	> 0.05	3.42 $\pm$ 0.77	3.14 $\pm$ 0.80	> 0.05
Hemorrhage, ml	617.69 $\pm$ 461.41	562.16 $\pm$ 281.72	> 0.05	656.29 $\pm$ 497.77	557.02 $\pm$ 395.76	> 0.05
Administration time, hour in the ICU**	2.54 $\pm$ 1.97	2.22 $\pm$ 1.80	> 0.05	2.00 $\pm$ 1.35	3.38 $\pm$ 2.46	0.001

Note: * for on pump patients

** : Delay between arrival in ICU and time of resuscitation fluid administration

Table 2b: Baseline Values of Hemodynamic Parameters (Before the administration of Fluids):

Significant differences were observed in all of hemodynamic parameters observed, implying that baseline values for all hemodynamic parameters are the same in HL and RL groups.

Parameter		N	TI	P
MAP (mmHg)	HL	58	88.62 ± 15.46	$P > 0.05$
	RL	51	89.39 ± 14.79	
HR (beat/min)	HL	58	74.93 ± 16.81	$P > 0.05$
	RL	51	77.82 ± 17.05	
CI (l/min/m ²)	HL	58	$2.3690 \pm .7044$	$P > 0.05$
	RL	51	$2.4157 \pm .6595$	
SVRI (dynes/cm ⁵ m ²)	HL	58	2920.98 ± 994.77	$P > 0.05$
	RL	51	$28.02.67 \pm 901.68$	
PVRI (dynes/cm ⁵ m ²)	HL	58	180.43 ± 103.33	$P > 0.05$
	RL	51	215.16 ± 115.02	
CVP (mmHg)	HL	58	9.64 ± 3.06	$P > 0.05$
	RL	51	10.29 ± 3.45	
PCWP (mmHg)	HL	58	11.91 ± 4.26	$P > 0.05$
	RL	51	11.53 ± 4.93	

Table 2c. Mean Arterial Pressure in HL and RL groups

MAP, hour	HL (mmHg)			RL (mmHg)		
1	84.39	±	1.62	87.99	±	1.59
2	90.97	±	1.53	89.64	±	1.50
3	86.37	±	1.51	88.52	±	1.53
4	85.84	±	1.32	87.92	±	1.61
5	84.80	±	1.16	84.12	±	1.26
6	84.02	±	1.17	83.10	±	1.20
12	81.28	±	1.11	78.73	±	1.16
Analysis of Variance (ANOVA)	p=0.797					

Table 3. Heart Rate in HL and RL groups

HR, hour	HL (beats/min)			RL (beats/min)		
1	75.53	±	1.65	74.82	±	1.67
2	82.72	±	1.83	80.56	±	1.72
3	88.16	±	1.96	84.10	±	1.74
4	89.42	±	1.56	87.53	±	1.64
5	90.11	±	1.52	88.91	±	1.46
6	90.36	±	1.55	88.90	±	1.35
12	90.74	±	1.41	91.26	±	1.49
ANOVA	p=0.418					

Table 4. Cardiac Index in HL and RL groups

CI, hour	HL (l/min/m ²)			RL (l/min/m ²)		
1	2.41	±	0.07	2.27	±	0.07
2	2.71	±	0.08	2.42	±	0.06
3	2.81	±	0.07	2.59	±	0.07
4	2.86	±	0.06	2.73	±	0.07
5	2.91	±	0.07	2.76	±	0.07
6	2.93	±	0.06	2.88	±	0.07
12	3.09	±	0.06	2.90	±	0.06
ANOVA	p=0.018					

Table 5. Systemic Vascular Resistance Index in HL and RL groups

SVRI, hour	HL			RL		
1	2797.61	±	105.21	2874.22	±	92.55
2	2685.77	±	104.81	2832.03	±	94.30
3	2372.10	±	77.16	2612.06	±	83.98
4	2286.39	±	65.45	2439.30	±	74.00
5	2245.23	±	63.24	2325.21	±	76.26
6	2216.50	±	64.18	2205.56	±	64.22
12	2025.28	±	55.11	2066.41	±	58.69
ANOVA	p=0.214					

Table 6. Pulmonary Vascular Resistance Index in HL and RL groups

PVRI, hour	HL			RL		
1	306.75	±	15.84	379.62	±	19.48
2	272.50	±	13.07	334.45	±	16.47
3	268.33	±	14.25	311.74	±	13.65
4	263.16	±	11.74	290.38	±	12.61
5	249.05	±	12.26	295.77	±	13.85
6	231.08	±	10.04	239.08	±	11.41
12	213.12	±	11.23	226.13	±	12.04
ANOVA	p=0.002					

Table 7. Central Venous Pressure in HL and RL groups

CVP, hour	HL (mmHg)			RL (mmHg)		
1	8.93	±	0.29	9.57	±	0.33
2	9.23	±	0.31	9.27	±	0.24
3	9.05	±	0.30	9.32	±	0.24
4	8.83	±	0.31	8.80	±	0.24
5	8.49	±	0.30	8.47	±	0.30
6	7.70	±	0.28	7.82	±	0.27
12	7.76	±	0.30	7.32	±	0.28
ANOVA	p=0.778					

Table 8. Pulmonary Capillary Wedge Pressure in HL and RL groups

PCWP, hour	HL (mmHg)			RL (mmHg)		
1	11.11	±	0.41	10.92	±	0.49
2	11.39	±	0.41	12.20	±	0.46
3	11.14	±	0.43	11.42	±	0.44
4	10.94	±	0.39	11.10	±	0.40
6	10.58	±	0.42	11.18	±	0.41
12	11.00	±	0.44	10.91	±	0.39
ANOVA	p=0.537					

Table 9b. Mean Arterial Pressure in HES+ and HES- groups

MAP, hour	HL/HES+ (mmHg)			HL/HES- (mmHg)		
1	83,29	±	2,13	86,07	±	2,50
2	89,62	±	1,96	93,05	±	2,44
3	84,26	±	1,88	89,60	±	2,45
4	83,56	±	1,65	89,35	±	2,10
5	82,62	±	1,39	88,14	±	1,94
6	81,80	±	1,23	87,42	±	2,21
12	79,26	±	1,21	84,40	±	2,04
ANOVA	p=0.011					

Table 10. Heart Rate in HES+ and HES- groups

HR, hour	HL/HES+ (beats/min)			HL/HES- (beats/min)		
1	76.21	±	2.18	74.49	±	2.52
2	84.71	±	2.59	79.67	±	2.35
3	88.85	±	2.20	87.09	±	3.66
4	90.67	±	2.13	87.51	±	2.20
5	91.23	±	2.09	88.40	±	2.15
6	91.02	±	1.98	89.35	±	2.51
12	90.92	±	1.90	90.47	±	2.10
ANOVA	p=0.404					

Table 11. Cardiac Index in HES+ and HES- groups

CI, hour	HL/HES+ (l/min/m ²)			HL/HES- (l/min/m ²)		
1	2.33	±	0.07	2.53	±	0.13
2	2.69	±	0.10	2.75	±	0.12
3	2.81	±	0.08	2.82	±	0.12
4	2.92	±	0.08	2.76	±	0.10
5	2.99	±	0.09	2.80	±	0.11
6	2.99	±	0.08	2.84	±	0.09
12	3.17	±	0.08	2.97	±	0.10
ANOVA	p=0.558					

Table 12. Systemic Vascular Resistance Index in HES+ and HES- groups

SVRI, hour	HL/HES+			HL/HES-		
1	2819.20	±	136.12	2764.47	±	167.60
2	2679.77	±	142.40	2694.98	±	153.10
3	2326.35	±	92.51	2442.33	±	135.23
4	2182.23	±	75.36	2446.28	±	115.86
5	2125.86	±	74.08	2428.44	±	108.22
6	2139.86	±	78.83	2334.12	±	107.46
12	1952.77	±	72.67	2136.58	±	82.23
ANOVA	p=0.228					

Table 13. Pulmonary Vascular Resistance Index in HES+ and HES- groups

PVRI, hour	HL/HES+			HL/HES-		
1	313.58	±	20.81	296.28	±	24.55
2	251.12	±	16.56	305.33	±	20.49
3	274.30	±	19.74	259.16	±	19.85
4	263.79	±	15.42	262.19	±	18.25
5	249.68	±	16.14	248.07	±	18.97
6	219.44	±	15.50	248.95	±	15.85
12	215.41	±	12.57	209.60	±	16.39
ANOVA	p=0.714					

Table 14. Central Venous Pressure in HES+ and HES- groups

CVP, hour	HL/HES+ (mmHg)			HL/HES- (mmHg)		
1	8.41	±	0.40	9.70	±	0.38
2	8.73	±	0.42	9.98	±	0.46
3	8.56	±	0.37	9.77	±	0.50
4	8.33	±	0.42	9.58	±	0.41
5	8.03	±	0.42	9.16	±	0.40
6	7.25	±	0.38	8.37	±	0.39
12	7.27	±	0.39	8.49	±	0.45
ANOVA	p=0.006					

Table 15. Pulmonary Capillary Wedge Pressure in HES+ and HES- groups

PCWP, hour	HL/HES+ (mmHg)			HL/HES-(mmHg)		
1	10.27	±	0.53	12.37	±	0.58
2	11.44	±	0.53	11.33	±	0.65
3	10.59	±	0.52	11.95	±	0.72
4	10.08	±	0.52	12.23	±	0.54
6	10.05	±	0.59	11.37	±	0.54
12	10.66	±	0.58	11.51	±	0.66
ANOVA	p=0.025					

Table 16. Hourly urinary output in HL and RL groups

Urine output, hour	HL (ml/h)			RL (ml/h)		
1	217.39	±	24.30	202.77	±	20.55
2	242.76	±	20.46	249.61	±	26.19
3	205.25	±	17.19	216.22	±	18.64
4	183.91	±	16.13	170.13	±	13.85
5	126.22	±	12.48	133.75	±	11.11
6	117.42	±	10.65	114.75	±	10.48
7	121.40	±	11.00	115.88	±	10.57
8	100.59	±	8.02	124.35	±	12.94
9	96.19	±	6.93	124.68	±	11.51
10	89.85	±	7.46	122.42	±	10.91
11	74.61	±	7.35	113.53	±	10.66
12	86.69	±	8.76	106.41	±	11.14
ANOVA	p=0.204					

Note:

T1: The first measurement after arrival in the ICU, prior to any treatments;

T2: 1 hour after T1, etc

Table 17. Cumulative total fluid losses in HL and RL groups

Total output, hour	HL (ml)			RL (ml)		
1	325.57	±	25.87	290.49	±	22.79
2	644.75	±	43.78	619.17	±	40.82
3	900.91	±	50.80	901.30	±	53.59
4	1121.09	±	56.46	1116.77	±	60.36
5	1275.60	±	60.85	1289.04	±	65.20
6	1393.02	±	63.03	1403.79	±	69.86
7	1544.42	±	66.19	1547.17	±	71.99
8	1674.44	±	68.36	1691.47	±	73.48
9	1794.22	±	69.29	1835.77	±	74.70
10	1912.14	±	69.83	1980.97	±	76.87
11	2007.26	±	71.12	2109.09	±	79.65
12	2113.10	±	71.65	2233.98	±	82.15
ANOVA	p=0.755					

Table 18. Cumulative total fluid infusion in HL and RL groups

Total input, hour	HL (ml)			RL (ml)		
1	122.91	±	14.95	236.06	±	26.73
2	233.39	±	26.59	510.20	±	44.71
3	357.70	±	38.20	777.47	±	50.77
4	511.43	±	47.31	1025.15	±	62.37
5	641.43	±	50.36	1295.96	±	75.44
6	803.14	±	59.30	1552.02	±	93.33
7	895.41	±	61.32	1724.39	±	97.69
8	996.55	±	64.04	1907.83	±	105.08
9	1108.93	±	63.57	2090.15	±	110.52
10	1184.93	±	66.61	2223.48	±	117.25
11	1254.59	±	66.89	2328.84	±	122.98
12	1319.70	±	71.30	2430.35	±	122.61
ANOVA	p<0.0001					

Table 19. Cumulative fluid balance in HL and RL groups

Balance, hour	HL (ml)			RL (ml)		
1	-202.66	±	29.56	-64.73	±	36.02
2	-847.41	±	68.04	-683.90	±	67.08
3	-543.20	±	53.92	-151.63	±	69.94
4	-609.66	±	60.05	-125.03	±	82.67
5	-634.17	±	65.45	-33.07	±	93.00
6	-589.89	±	70.23	100.55	±	108.05
7	-649.01	±	69.90	110.05	±	106.00
8	-677.90	±	71.37	130.54	±	111.20
9	-685.28	±	69.77	149.83	±	111.63
10	-727.20	±	68.95	115.50	±	114.10
11	-752.67	±	70.94	68.14	±	113.32
12	-793.40	±	71.37	42.71	±	114.73
ANOVA	p < 0.0001					

Table 20. Hourly urinary output in HES+ and HES- groups

Urine output hour	HL/HES+ (ml/h)			HL/HES- (ml/h)		
1	223.25	±	29.55	204.82	±	43.39
2	264.05	±	25.20	197.14	±	33.93
3	207.15	±	20.59	201.18	±	31.72
4	179.75	±	19.24	192.82	±	29.98
5	138.00	±	16.98	100.96	±	13.85
6	129.75	±	14.17	91.00	±	13.11
7	135.97	±	14.95	90.18	±	11.17
8	110.95	±	10.32	78.39	±	11.23
9	107.17	±	8.77	72.68	±	9.81
10	90.37	±	8.24	88.75	±	15.66
11	77.52	±	9.92	68.39	±	9.16
12	90.00	±	11.11	79.61	±	14.00
ANOVA	p=0.0396					

Note: T1: The first measurement after arrival in the ICU, prior to any treatments; T2: 1 hour after T1, etc

Table 21. Cumulative total fluid losses in HES+ and HES- groups.

Total output, hour	HL/HES+ (ml)			HL/HES- (ml)		
1	340.50	±	32.11	293.57	±	43.48
2	684.38	±	53.34	559.82	±	75.48
3	938.03	±	61.14	821.36	±	91.04
4	1154.45	±	67.57	1049.61	±	103.07
5	1322.87	±	72.91	1174.32	±	109.81
6	1452.62	±	74.66	1265.32	±	115.07
7	1620.17	±	79.30	1382.11	±	116.16
8	1764.03	±	82.04	1482.46	±	117.50
9	1896.95	±	82.55	1574.07	±	118.66
10	2015.98	±	83.30	1689.61	±	119.15
11	2114.58	±	85.30	1777.29	±	119.48
12	2225.42	±	85.52	1872.43	±	120.82
ANOVA	p=0.076					

Table 22. Cumulative total fluid infusion in HES+ and HES- groups

Total input, hour	HL/HES+ (ml)			HL/HES- (ml)		
1	137.27	±	18.82	92.14	±	23.50
2	268.30	±	33.24	158.57	±	40.99
3	424.63	±	46.33	214.29	±	60.08
4	616.60	±	56.47	286.07	±	70.55
5	775.60	±	58.75	353.93	±	70.92
6	963.93	±	66.32	458.57	±	92.57
7	1060.93	±	69.61	540.71	±	92.51
8	1195.93	±	70.50	569.29	±	91.34
9	1339.93	±	65.16	613.93	±	87.92
10	1410.77	±	70.74	701.00	±	93.68
11	1484.10	±	71.23	762.79	±	91.71
12	1578.77	±	75.09	764.57	±	91.32
ANOVA	p < 0.0001					

Table 23. Cumulative fluid balance in HES+ and HES- groups

Balance, hour	HL/HES+ (ml)			HL/HES- (ml)		
1	-203.23	±	37.85	-201.43	±	46.28
2	-887.62	±	84.62	-761.25	±	113.83
3	-513.40	±	67.74	-607.07	±	87.91
4	-537.85	±	72.53	-763.54	±	102.96
5	-547.27	±	79.47	-820.39	±	109.22
6	-488.68	±	81.82	-806.75	±	126.67
7	-559.23	±	83.11	-841.39	±	123.00
8	-568.10	±	84.09	-913.18	±	124.38
9	-557.02	±	81.32	-960.14	±	119.27
10	-605.22	±	80.09	-988.61	±	120.03
11	-630.48	±	83.84	-1014.50	±	119.67
12	-646.65	±	83.62	-1107.86	±	116.07
ANOVA	p=0.040					

Table 24. The use of concomitant medication.

	HL		RL		
	No. of Pts	%	No. of Pts	%	p
<i>Inotropic drugs use</i>					
Dobutamine	34	31	30	30	> 0.05
Millrinone	30	28	39	39	0.0480
Norepinephrine	20	23	23	18	>0.05
<i>Vasodilator drug use</i>					
NTG	88	76	75	81	> 0.05

Table 25: Cardiac index baseline values (CI at 1) before administration of fluid

Group Statistics					
	Fluid	N	Mean	Std. Deviation	Std. Error Mean
CI hour 1	RL	51	2.4157	.6595	9.235E-02
	Kalsolac	58	2.3690	.7044	9.250E-02

P = 0.723

Table 26: Cardiac Index in Group of Patients with Baseline Values

		N	Mean	Std. Deviation	Std. Error
CI hour 1	RL	51	2.4157	.6595	9.235E-02
	Kalsolac	58	2.3690	.7044	9.250E-02
	Total	109	2.3908	.6810	6.523E-02
CI hour 2	RL	51	2.5608	.6213	8.700E-02
	Kalsolac	58	2.6655	.7594	9.971E-02
	Total	109	2.6165	.6970	6.676E-02
CI hour 3	RL	51	2.7137	.7094	9.933E-02
	Kalsolac	58	2.8483	.7771	.1020
	Total	109	2.7853	.7458	7.144E-02
CI hour 4	RL	51	2.7863	.6585	9.221E-02
	Kalsolac	58	2.8121	.6513	8.552E-02
	Total	109	2.8000	.6518	6.243E-02
CI hour 5	RL	51	2.7588	.6328	8.861E-02
	Kalsolac	58	2.9086	.7074	9.289E-02
	Total	109	2.8385	.6747	6.462E-02
CI hour 6	RL	51	2.8784	.7012	9.819E-02
	Kalsolac	58	2.9328	.6642	8.722E-02
	Total	109	2.9073	.6791	6.505E-02
CI hour 12	RL	51	2.9471	.5700	7.982E-02
	Kalsolac	58	3.1638	.6340	8.325E-02
	Total	109	3.0624	.6119	5.861E-02

Table 27: One-Way ANOVA for Cardiac Index in Patients With Baseline Values ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
CI hour 1	Between Groups	5.924E-02	1	5.924E-02	.127	.723
	Within Groups	50.032	107	.468		
	Total	50.091	108			
CI hour 2	Between Groups	.298	1	.298	.610	.436
	Within Groups	52.173	107	.488		
	Total	52.470	108			
CI hour 3	Between Groups	.491	1	.491	.882	.350
	Within Groups	59.585	107	.557		
	Total	60.077	108			
CI hour 4	Between Groups	1.806E-02	1	1.806E-02	.042	.838
	Within Groups	45.862	107	.429		
	Total	45.880	108			
CI hour 5	Between Groups	.609	1	.609	1.342	.249
	Within Groups	48.549	107	.454		
	Total	49.158	108			
CI hour 6	Between Groups	8.010E-02	1	8.010E-02	.172	.679
	Within Groups	49.734	107	.465		
	Total	49.814	108			
CI hour 12	Between Groups	1.275	1	1.275	3.483	.065
	Within Groups	39.161	107	.366		
	Total	40.436	108			

Table 28: Increase of CI over baseline values in HL group, Paired Samples Test - SPSS

		Paired Differences						t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
					Lower	Upper				
Pair 1	CI hour 1 - CI hour 2	-.2966	.6694	8.789E-02	-.4726	-.1205		-3.374	57	.001
Pair 2	CI hour 1 - CI hour 3	-.4793	.8555	.1123	-.7042	-.2544		-4.267	57	.000
Pair 3	CI hour 1 - CI hour 4	-.4431	.7655	.1005	-.6444	-.2418		-4.408	57	.000
Pair 4	CI hour 1 - CI hour 5	-.5397	.6816	8.949E-02	-.7189	-.3604		-6.030	57	.000
Pair 5	CI hour 1 - CI hour 6	-.5638	.7840	.1029	-.7699	-.3577		-5.477	57	.000
Pair 6	CI hour 1 - CI hour 12	-.7948	.7587	9.962E-02	-.9943	-.5953		-7.979	57	.000

Table 29: Increase of CI over baseline values in HL group, Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	CI hour 1 - CI hour 2	-.1451	.5349	7.490E-02	-.2955	5.347E-03	-1.937	50	.058
Pair 2	CI hour 1 - CI hour 3	-.2980	.7620	.1067	-.5123	-8.3732E-02	-2.793	50	.007
Pair 3	CI hour 1 - CI hour 4	-.3706	.6664	9.332E-02	-.5580	-.1832	-3.971	50	.000
Pair 4	CI hour 1 - CI hour 5	-.3431	.8031	.1125	-.5690	-.1173	-3.051	50	.004
Pair 5	CI hour 1 - CI hour 6	-.4627	.8307	.1163	-.6964	-.2291	-3.978	50	.000
Pair 6	CI hour 1 - CI hour 12	-.5314	.6156	8.620E-02	-.7045	-.3582	-6.164	50	.000

Table 30: One Way Anova on increase of Cardiac Index
versus baseline values SPSS ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
CI2 1	Between Groups	.622	1	.622	1.672	.199
	Within Groups	39.846	107	.372		
	Total	40.468	108			
CI3 1	Between Groups	.892	1	.892	1.349	.248
	Within Groups	70.745	107	.661		
	Total	71.637	108			
CI4 1	Between Groups	.143	1	.143	.275	.601
	Within Groups	55.608	107	.520		
	Total	55.751	108			
CI5 1	Between Groups	1.048	1	1.048	1.910	.170
	Within Groups	58.724	107	.549		
	Total	59.772	108			
CI6 1	Between Groups	.277	1	.277	.426	.515
	Within Groups	69.533	107	.650		
	Total	69.810	108			
CI1 21	Between Groups	1.884	1	1.884	3.894	.051
	Within Groups	51.758	107	.484		
	Total	53.642	108			

Table 2a Hemodynamic parameter

Parameter	T1 *	T2	T3	T4	T5	T6	T12
MAP (mmHg)	HL 84.39 ± 1.62	90.97 ± 1.53	86.37 ± 1.51	85.84 ± 1.32	84.80 ± 1.16	84.02 ± 1.17	81.28 ± 1.11
	RL 87.99 ± 1.59	89.64 ± 1.50	88.52 ± 1.53	87.92 ± 1.61	84.12 ± 1.26	83.10 ± 1.20	78.73 ± 1.16
HR (beat/min)	HL 75.53 ± 1.65	82.72 ± 1.83	88.16 ± 1.96	89.42 ± 1.56	90.11 ± 1.52	90.36 ± 1.55	90.74 ± 1.41
	RL 74.82 ± 1.67	80.56 ± 1.72	84.10 ± 1.74	87.53 ± 1.64	88.91 ± 1.46	88.90 ± 1.35	91.26 ± 1.49
CI (l/min/m ²) ^a	HL 2.41 ± 0.07	2.71 ± 0.08	2.81 ± 0.07	2.86 ± 0.06	2.91 ± 0.07	2.93 ± 0.06	3.09 ± 0.06
	RL 2.27 ± 0.07	2.42 ± 0.06	2.59 ± 0.07	2.73 ± 0.07	2.76 ± 0.07	2.88 ± 0.07	2.90 ± 0.06
SVRI (dyne s/cm ⁵ m ²)	HL 2797.61 ± 105.21	2685.77 ± 104.81	2372.10 ± 77.16	2286.39 ± 65.45	2245.23 ± 63.24	2216.50 ± 64.18	2025.28 ± 55.11
	RL 2874.22 ± 92.55	2832.03 ± 94.30	2612.06 ± 83.98	2439.30 ± 74.00	2325.21 ± 76.26	2205.56 ± 64.22	2066.41 ± 58.69
PVRI (dyne s/cm ⁵ m ²) ^a	HL 306.75 ± 15.84 ^b	272.50 ± 13.07	268.33 ± 14.25	263.16 ± 11.74	249.05 ± 12.26	231.08 ± 10.04	213.12 ± 11.23
	RL 379.62 ± 19.48	334.45 ± 16.74	311.74 ± 13.65	290.38 ± 12.61	295.77 ± 13.85	239.08 ± 11.41	226.13 ± 12.04
CVP (mmHg)	HL 8.93 ± 0.29	9.23 ± 0.31	9.05 ± 0.30	8.83 ± 0.31	8.49 ± 0.30	7.70 ± 0.28	7.76 ± 0.30
	RL 9.57 ± 0.33	9.27 ± 0.24	9.32 ± 0.24	8.80 ± 0.24	8.47 ± 0.30	7.82 ± 0.27	7.32 ± 0.28
PCWP (mmHg)	HL 11.11 ± 0.41	11.39 ± 0.41	11.14 ± 0.43	10.94 ± 0.39	±	10.58 ± 0.42	11.00 ± 0.44
	RL 10.92 ± 0.49	12.20 ± 0.46	11.42 ± 0.44	11.10 ± 0.40	±	11.18 ± 0.41	10.91 ± 0.39

Note: T1: The first measurement, 1 hour after arrival in the ICU; T2: 1 hour after T1, etc; Data are means ± SEM; Statistical comparisons: two ways ANOVA for repeated measures: a significantly different from RL (p<0.05); Student t-test: b significantly different from RL (p<0.05).

Table 9a. Hemodynamic parameters

Parameter		T1	T2	T3	T4	T5	T6	T12
MAP (mm Hg) ^a	HES+	83.29±2.13	89.62±1.96	84.26±1.88	83.56±1.65	82.62±1.39	81.80±1.23	79.26±1.21
	HES-	86.07±2.50	93.05±2.44	89.60±2.45	89.35±2.10	88.14±1.94	87.42±2.21	84.40±2.04
HR (beat/min)	HES+	76.21±2.18	84.71±2.59	88.85±2.20	90.67±2.13	91.23±2.09	91.02±1.98	90.92±1.90
	HES-	74.49±2.52	79.67±2.35	87.09±3.66	87.51±2.20	88.40±2.15	89.35±2.51	90.47±2.10
CI (l/min/m ²)	HES+	2.33±0.07	2.69±0.10	2.81±0.08	2.92±0.08	2.99±0.09	2.99±0.08	3.17±0.08
	HES-	2.53±0.13	2.75±0.12	2.82±0.12	2.76±0.10	2.80±0.11	2.84±0.09	2.97±0.10
SVRI (dyne s/cm ⁵ m ²)	HES+	2819.20±136.12	2679.77±142.40	2326.35±92.51	2182.23±75.36	2125.86±74.08	2139.86±78.83	1952.77±72.67
	HES-	2764.47±167.60	2694.98±153.10	2442.33±135.23	2446.28±115.86	2428.44±108.22	2334.12±107.46	2136.58±82.23
PVRI (dyne s/cm ⁵ m ²)	HES+	313.58±20.81	251.12±16.56	274.30±19.47	263.79±15.42	249.68±16.14	219.44±15.50	215.41±12.57
	HES-	296.28±24.55	305.33±20.49	259.16±19.85	262.19±18.25	248.07±18.97	248.95±15.85	209.60±16.39
CVP (mm Hg) ^a	HES+	8.41±0.40 ^b	8.73±0.42	8.56±0.37	8.33±0.42	8.03±0.42	7.25±0.38	7.27±0.39
	HES-	9.70±0.38	9.98±0.46	9.77±0.50	9.58±0.41	9.16±0.40	8.37±0.39	8.49±0.45
PCWP (mm Hg) ^a	HES+	10.27±0.53 ^b	11.44±0.53	10.59±0.52	10.08±0.52	±	10.05±0.59	10.66±0.58
	HES-	12.37±0.58	11.33±0.65	11.95±0.72	12.23±0.54	±	11.37±0.54	11.51±0.66

Note: T1: The first measurement after arrival in the ICU, prior to any treatments; T2: 1 hour after T1, etc; Data are means ± SEM. Statistical comparisons: two ways ANOVA for repeated measures: a significantly different from RL (p<0.05); Student t-test: b significantly different from RL (p<0.05)