

HES IN CARDIAC SURGERY: SAFETY AND EFFICACY DURING EXTRACORPOREAL CIRCULATION.

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Introduction: Many clinical trials showed that the use of hydroxyethyl starch (HES) in critically ill patients with sepsis increased the incidence of AKI and mortality compared to other infusion solutions. We conducted a prospective randomized study analyzing data from patients hospitalized in Intensive Care Unit (ICU) following cardiac surgery, from January 2013 to December 2013, to compare the effects of using 6% HES 130/0.4 and Ringer's Lactate as priming fluid of extracorporeal circulation.

Methods: The patients were divided into two groups. The first group contains the patients who received HES (10 ml/kg), the second group contains the patients who received Ringer's Lactate (20 ml/kg). We analyzed creatinine values, P/F ratio, post-operative bleeding and mortality during hospitalization. The statistical significance of our results was evaluated through the Student's t-test.

Results: We analyzed data from 214 patients (average age 66.7) undergoing elective cardiac surgery. The two groups included 106 and 108 patients respectively. The creatinine values before surgery, after surgery and on the second day after surgery are not significantly different between the two groups. The same holds for the P/F ratio and post-operative bleeding.

	HES Group (mean)	HES Group (95% CI)	Ringer's Lactate Group (mean)	Ringer's Lactate Group (95% CI)
P/F at admission in ICU	324.93	300.45 to 349.41	325.94	302.36 to 349.52
P/F after extubation	268.59	250.45 to 286.73	270.16	250.79 to 289.53
P/F at discharge from ICU	260.96	240.16 to 281.75	241.83	220.92 to 262.75
Creatinine before surgery	1.00	0.94 to 1.07	1.03	0.95 to 1.11
Creatinine after surgery	1.00	0.92 to 1.08	0.96	0.9 to 1.02
Creatinine on the second day after surgery	1.14	0.97 to 1.3	1.19	1.06 to 1.32
Post-operative bleeding	740.27	645.95 to 834.59	705.47	621.04 to 789.89

Table 1 - Collected data

None of the patients in the HES group died, while 4 patients from the second group died. Overall, the use of HES 130/0.4 did not produce more adverse events.

	t-value	p-value
P/F at admission in ICU	0.95	0.40-0.20
P/F after extubation	0.91	0.40-0.20
P/F at discharge from ICU	0.21	>0.80
Creatinine before surgery	0.62	0.80-0.40
Creatinine after surgery	0.39	0.80-0.40
Creatinine on the second day after surgery	0.62	0.80-0.40
Post-operative bleeding	0.59	0.40-0.20

Table 2 - Statistical analysis between the two groups

Conclusions: Our study showed no relevant differences with regard to the examined factors between cardiac surgery patients treated with HES 130/0.4 and Ringer's Lactate.