

Comparison of The Effects of Succinated Gelatine and Hydroxy Ethyl Starch (6% 130/0.4) On Bleeding Among Cardiac Surgery Patients

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Background

Volume therapy is often necessary to treat hypovolemia. Especially for the cardiac surgery patients, volume deficit-replacement is more important. There are several causes of hypovolemia and should be treated according to the cause and deficit. Depends on the reason of hypovolemia we can treat it with different fluids such as crystalloids, colloids, blood, plasma,...

All kind of surgeries even the minor one intravenous fluid replacement is necessary and done. But which solution it should be done has controversies. Crystalloids or colloids? In our study we compared two different colloid solutions and especially their effects on bleeding for cardiac surgery patients.

Objectives

This study was to compare the effects of HES 130/0.4 and Modified Fluid Gelatine on coagulation in patients undergoing cardiac surgery.

Material and methods

: Patients were randomized into 2 groups; group I (n:30) and group II (n:30). Group I contains the patients who had modified fluid gelatine infusion and group II contains the patient who had HES 130/0.4 infusion. Both groups had similar demographic characteristics. For both groups patients charts checked and noted preop, - postop 1st hour and postop 1st day hgb, hct, plt, PT, aPTT, INR, BUN, Cr, ALT and AST results. These results were analyzed SPSS statistic package. These two different colloids's effects on coagulation in cardiac surgery patients. We measured the total hgb decrease to compare. And postop 1st hour; we observed that group II patients statistically significant hgb and hct decrease. Apart from our study we also observed that group II patients had statistically significant ALT and Cr abnormal test results which should be discussed for another study. After all according to 1st day lab results hgb and hct were in normal range and there were no differences between HES 130/0.4 and modified fluid gelatin on coagulation. Probably the blood and plasma transfusion in ICU and also postop surgical bleeding usually occurs in the 1st-24 hour.

Results

First 24 hours HES 130/0.4 caused coagulation impairment and significant Hgb and Hct decrease among postcardiac surgery patients. We also found that HES 130/0.4 caused significant ALT and Cr abnormality which should be further studied.

Conclusions

Although postop 1st hour HES 130/0.4 preparation caused more hgb and hct decrease in cardiac surgery patients it was temporary, safe and not dangerous amount. And for the volume replacement therapy new HES preparation was as safe as modified fluid gelatin.

Table 1| Pre-op values

	Group G (n:30)	Group V (n:30)	p
Hb	12.6±1.6	12.4±1.4	0.66
Hct	38.0±4.6	37.8±4.2	0.86
Bun	19.7±4.9	26.1±16.1	0.04
<u>Creatinin</u>	0.9±0.1	1.2±1.0	0.1
ALT	22.6±15.3	27.3±17.3	0.2
AST	23.4±16.1	26.6±19.8	0.4
<u>Plt</u>	239266.6±65437.4	263733.3±88539.4	0.22
PT	12.4±1.1	13.2±1.7	0.04
aPTT	31.2±7.7	31.9±4.2	0.9
INR	0.9±0.1	0.9±0.1	0.8

Mean±SD

Table 2| Post-op 1st hour values

	Group G (n:30)	Group V (n:30)	p
Hb	10.5±1.2	9.2±2.0	0.004*
Hct	31.8±4.0	29.3±3.9	0.01*
<u>Plt</u>	158233.3±54985.6	168933.3±112027.3	0.6
PT	14.1±1.1	16.5±11.9	0.2
aPTT	34.0±5.7	44.8±37.5	0.1
INR	1.1±0.1	1.3±1.4	0.4

* p<0.05 (Mean±SD)

Table 3| Post-op day 1 values

	Group G (n:30)	Group V (n:30)	p
Hb	10.0±1.6	9.7±0.9	0.3
Hct	30.4±4.7	30.0±3.1	0.71
Bun	21.4±8.8	26.7±11.3	0.05
<u>Creatinin</u>	1.1±0.4	1.5±0.7	0.03*
ALT	24.5±15.9	40.3±32.3	0.02*
AST	57.5±34.1	90.1±89.5	0.06
<u>Plt</u>	194666.7±87744.2	197800.0±131587.7	0.9
PT	14.4±3.6	14.3±1.7	0.9
aPTT	33.2±6.0	36.8±14.4	0.2
INR	1.1±0.4	1.0±1.1	0.3

* p<0.05 (Mean±SD)