

Effect of IV hydrocortisone on Physical Therapy Milestones and Pain after TKA: A Randomized Trial

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INTRODUCTION

Currently IV stress dose steroid is accepted practice for bilateral TKA leading to decreased pain 24hours after surgery. It is unclear if IV hydrocortisone improves clinical outcomes in unilateral TKA, where pain and joint stiffness remain significant challenges weeks after surgery. The objective of this study is to determine if there is an association between use of hydrocortisone and following outcomes: (1) physical therapy milestones and (2) variations in pain in patients who underwent TKA.

METHODS

Patients scheduled to have primary TKA between November 2019 and September 2022 were randomized to hydrocortisone or placebo. Patients were stratified as either stiff or normal. Stiffs were defined as having baseline flexion<100 or extension>10. Association between drug and outcomes of interest were evaluated in overall group (hydrocortisone vs. placebo) and subgroups of disease state (stiff vs. normal). All outcomes of interest were assessed using Mann Whitey-U test and the fisher's exact test.

RESULTS

Overall 65 patients were randomized to treatment (35(53.9%) on drug & 30(46.2%) on placebo). Majority of the patients were female (64.6%), average age was 66.3+/-8.7, and BMI was 31.3+/-6.1. We found that those on hydrocortisone were able to meet physical therapy milestones quicker than those on placebo (28 vs. 17;p=0.01). In addition, we found significant difference in pain at rest on POD1 [(2.8 (+/-2.7) vs. 3.8 (+/-2.0));p=0.037. Patients also presented with difference in painDETECT at 6 months [(2.3 +/-2.7) vs. (4.8 +/- 3.9)];p=0.043. Patients were subdivided into drug + stiff vs. drug + non-stiff and placebo + stiff vs. placebo + non-stiff. However, we did not find any significant differences between the subgroups and each outcome of interest.

DISCUSSION

Hydrocortisone was associated with quicker achievement of physical therapy milestones and pain at post-op day 1. Future studies are required to understand the level of promise hydrocortisone has in alleviating pain and inflammation in patients who undergo primary TKA.

CLINICAL SIGNIFICANCE

This study found that patients received hydrocortisone were quicker in meeting physical therapy milestones and having less pain at rest on post-op day 1. This finding provides supporting evidence for a promising treatment for a rare and challenging condition.

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PT Milestones	DRUG		PLACEBO		P-value
	Frequency	Percent	Frequency	Percent	
Independent Transfer (sit-stand)	28	100.0	17	77.27	0.01*
Ambulation of 100 meters	13	46.43	9	40.91	0.70

PAIN (NUMERICAL RATING SCALE) POST-OP DAY 1							
Variables	DRUG			PLACEBO			P-value
	N	Mean	Std Dev	N	Mean	Std Dev	
Overall Pain	33	3.94	2.90	29	4.14	2.18	0.6234
Pain (walking)	31	5.52	2.38	29	5.34	2.38	0.8753
Pain (negotiating stairs)	26	5.88	2.32	22	6.05	2.63	0.8839
Pain (at rest)	33	2.76	2.65	29	3.79	2.02	0.0368*

PAIN DETECT							
Variables	DRUG			PLACEBO			P-value
	N	Mean	Std Dev	N	Mean	Std Dev	
Preop	35	5.91	5.59	30	7.17	5.52	0.2876
6 week	32	5.97	4.43	24	7.13	6.04	0.5663
6 month	19	2.26	2.73	15	4.80	3.93	0.0433*
1 year	16	3.06	3.19	12	3.08	3.23	0.4079