

Introduction

The effects and use of intra-operative steroids is relatively unknown and remains controversial. There have been conflicting studies demonstrating the efficacy of intraoperative steroids on post-operative dysphagia and inflammation; while others demonstrate no improvement in outcomes.(1-4) The aim of this is to determine if the use of intra-operative steroid effect post-operative complications and length of hospital stay after spine surgery.

Methods

The medical records of 1200 adult (=18 years old) patients undergoing spine surgery at Duke University Medical Center from 2008 to 2010 were retrospectively reviewed. There were 495 (41.25%) patients who were administered intra-operative steroids, and 705 (58.75%) who were not (No-Steroid: n=705; Steroid: n=495). Patient demographics, comorbidities, and post-operative complication rates were collected on each patient. The primary outcomes investigated in this study were post-operative complications, specifically length of hospital stay and infection rates.

Results: Table 1			
Preoperative Baseline Variables	No-Steroids (n=705)	Steroids-Use (n=495)	P-Value
Age at Surgery(Years)	58.07±12.93	56.71±12.95	0.0735
Male(%)	52.20	42.02	0.0005*
BMI(kg/m²)	29.57±7.00	29.64±6.75	0.8521
Diabetes(%)	19.01	15.76	0.1462
Home Insulin Use(%)	6.52	5.66	0.6261
Chronic Steroid Use(%)	6.95	13.74	0.0002*
Smoker(%)	18.44	20.00	0.5028
COPD(%)	1.99	1.82	0.8360
CHF(%)	2.70	3.44	0.4940
AFib (%)	4.69	3.85	0.5652
PVD(%)	2.41	4.25	0.0932
HTN(%)	51.77	48.69	0.3188
Preoperative Variables			
Results: Table 2			
Variables	No-Steroids (n=705)	Steroids-Use (n=495)	P-Value
Operative Time (min)	217.65±107.54	228.97±96.30	0.0614
EBL(mL)	586.63±998.68	555.94±957.21	0.6004
Median # of Fusion Levels [IQR]	2[1-4]	2[1-4]	0.3300
Posterior Approach(%)	73.62	68.48	0.0592
Anatomical Location			
Occipital-Cervical	1.58	0.67	0.2409
Occipital-Thoracic	0.08	0.17	0.5724
Cervical	14.00	12.00	0.0449*
Cervical-Thoracic	3.67	3.42	0.2084
Thoracic	4.25	2.67	0.6451
Thoracic-Lumbar	4.92	2.83	0.3808
Thoracic-Sacral	2.00	1.33	0.8703
Lumbar	18.75	11.08	0.0632
Lumbar-Sacral	9.50	7.08	0.6935
Operative Variables and Surgical Anatomical Location			

Results: Table 3			
Postoperative Variables	No-Steroids (n=705)	Steroids-Use (n=495)	P-Value
LOS(Days)	6.06±6.76	5.04±4.86	0.0025*
UTI(%)	10.37	6.88	0.0397*
Pneumonia(%)	3.98	3.24	0.5366
Deep Surgical Site Infection(%)	1.70	2.42	0.4071
Superficial Surgical Site Infection(%)	0.85	1.62	0.2775
Other Infection (non-wound related)(%)	9.22	6.06	0.0460*
Sepsis	2.42	3.13	0.5966
Acute Renal Failure(%)	0.57	0.61	0.9738
Post-Op Delirium	1.84	1.82	0.9738
DVT(%)	0.85	0.40	0.4818
PE(%)	1.28	1.01	0.7887
Post-Op A-Fib	6.53	4.25	0.0905
MI(%)	2.27	0.81	0.0658
Stroke(%)	1.56	0.81	0.2998
Cardio Pulmonary Arrest(%)	1.28	0.40	0.1371
30-Day Readmission rate(%)	10.80	9.11	0.3810
Post-Operative Complications and 30-Day Readmission Rate			

Conclusions

Our study demonstrates that patients who receive intra-operative steroids have lower length of hospital days and infection rates after spine surgery. More studies are necessary to further understand the efficacy of intra-operative steroid use.

Learning Objectives

By the conclusion of this session, participants should be able to:

1) Describe the importance of the use of intraoperative steroids on infection rates and length of hospital stay.

2) Discuss, in small groups why intraoperative steroids reduces post-operative infection rates and length of hospital stay.

References

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2.Lundin A, Magnuson A, Axelsson K, Kogler H, Samuelsson L. The effect of perioperative corticosteroids on the outcome of microscopic lumbar disc surgery. European spine journal : official publication of the European Spine Society, the European Spinal Deformity Society, and the European Section of the Cervical Spine Research Society. Dec 2003;12(6):625-630.

3.Mirzai H, Tekin I, Alincak H. Perioperative use of corticosteroid and bupivacaine combination in lumbar disc surgery: a randomized controlled trial. Spine. Feb 15 2002;27(4):343-346.

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