



Patients with Noninsulin Dependant Diabetes Have Greater Risk of Complications after Adult Deformity Surgery: An Analysis of 4,716 patients in the ACS NSQIP Database

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Introduction

Previous studies have noted an association between diabetes and increased risk of surgical complications. The aim of this study was to analyze whether non-insulin dependent diabetes mellitus (NIDDM) and insulin dependent diabetes mellitus (IDDM) influence complication rates in patients undergoing adult deformity surgery (ADS).

Methods

Adult patients (>18 years) undergoing ADS from 2005-2012 were categorized into groups of nondiabetic, IDDM, and NIDDM. Baseline, operative, and outcomes data were compared. Univariate and multivariate analyses were performed to assess the effects of IDDM and NIDDM on 30-day postoperative complications and mortality.

Results

4,716 patients underwent ADS during the study period; of those, 431 had NIDDM (10.4%) and 198 had IDDM (4.2%). On multivariate analysis assessing 30-day outcomes, the patients in the NIDDM group had a statistically significant increased risk of urinary tract infection (3.71% compared to 1.59% in nondiabetics, OR 1.926, 95% CI 1.094-3.392, p=0.02) and cardiac arrest (0.70% versus 0.14% in nondiabetics, OR 4.85, 95% CI 1.209-19.46, p=0.03). Patients with IDDM did not have increased risks compared to patients without diabetes.

Learning Objectives

To assess the effects of NIDDM and IDDM of 30 day complication rates after ADS.

Conclusions

Patients with NIDDM have increased complication rates following ADS, specifically with urinary tract infection and cardiac arrest. Patients with IDDM did not have increased postoperative complication rates.

Table 1

Multivariate Analyses of Adult Deformity Surgery Postoperative Outcomes in Patients with NIDDM								
	NIDDM		Non-DM		Multivariate			
	Number	Percent	Number	Percent	OR	95 CI		P
Total	431	100%	4158	100%				
LOS > 5 Days	106	24.59%	758	18.23%	0.888	0.655	1.204	0.445
Wound Complication	10	2.32%	81	1.95%	1.144	0.587	2.23	0.6921
Pneumonia	4	0.93%	38	0.91%	0.571	0.164	1.988	0.3786
UTI	16	3.71%	66	1.59%	1.926	1.094	3.392	0.0232
Stroke/CVA	2	0.46%	8	0.19%	1.662	0.348	7.945	0.5245
Cardiac Arrest	3	0.70%	6	0.14%	4.85	1.209	19.464	0.0259
MI	0	0.00%	12	0.29%	Not enough data			
Transfusion	94	21.81%	754	18.13%	1.054	0.806	1.379	0.7008
DVT	8	1.86%	33	0.79%	1.949	0.878	4.328	0.1011
Systemic Sepsis	6	1.39%	45	1.08%	1.2	0.507	2.838	0.6786
Return to OR	11	2.55%	135	3.25%	0.544	0.264	1.12	0.0986
Death	3	0.70%	15	0.36%	0.5	0.129	1.942	0.3169

Multivariate Analyses - NIDDM

Table 2

Multivariate Analyses of Adult Deformity Surgery Postoperative Outcomes in Patients with IDDM								
	IDDM		Non-DM		Multivariate			
	Number	Percent	Number	Percent	OR	95 CI		P
Total	198	100%	4158	100%				
LOS > 5 Days	53	26.77%	758	18.23%	1.295	0.868	1.932	0.2047
Wound Complication	11	5.56%	81	1.95%	1.36	0.62	2.995	0.4406
Pneumonia	2	1.01%	38	0.91%	0.391	0.071	2.161	0.2817
UTI	7	3.54%	66	1.59%	1.247	0.485	3.203	0.6466
Stroke/CVA	2	1.01%	8	0.19%	4.168	0.871	19.393	0.0739
Cardiac Arrest	1	0.51%	6	0.14%	3.515	0.421	29.32	0.2455
MI	2	1.01%	12	0.29%	1.015	0.168	6.13	0.9875
Transfusion	47	23.74%	754	18.13%	1.454	1.000	2.115	0.05
DVT	1	0.51%	33	0.79%	0.257	0.031	2.149	0.2098
Systemic Sepsis	8	4.04%	45	1.08%	1.89	0.756	4.727	0.1733
Return to OR	9	4.55%	135	3.25%	1.515	0.754	3.041	0.243
Death	1	0.51%	15	0.36%	0.253	0.03	2.141	0.2072

Multivariate Analysis - IDDM