



Preoperative Metformin Not the Blame for Increased Complications After Rotator Cuff Repair in Diabetic Population

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INTRODUCTION

- Studies have found that diabetic patients undergoing rotator cuff repair are often twice as likely to experience complications following surgery.
- Our study evaluates the association of this increased complication rate with preoperative use of Metformin, a common drug utilized in the management of diabetic patients electing to undergo rotator cuff repair.

METHODS

- Truven Marketscan Health Analytics database, a large national claims database with over one million records was queried
- Selecting diabetic patients undergoing elective rotator cuff repair surgery from 2009-2018 who had continuous enrollment on their insurance for 1 year preoperatively and 6 months postoperatively.
- Patient outpatient pharmacy claims were utilized to obtain insulin and metformin status and patients were defined as users of each drug if they had at least two prescriptions filled prior to surgery.
- Statistical analysis was performed to identify increased odds ratios for surgical complications with respect to Metformin use and Metformin use when insulin dependence is stratified.

Conclusion

- When planning for elective surgical repair of the rotator cuff, consideration must be directed to care of diabetic patients who have been shown to have higher postoperative complication rates.
- Our study demonstrates that preoperative Metformin use is not associated with increased complications and may offer protective benefits to this patient population.

Results

Table 1. Demographics and Comorbidities of Preoperative Metformin Group

	Metformin Use		P-Value
	No Metformin	Metformin	
Total, n (%)	5,311 (61.3)	3,350 (38.7)	
Ave Age, (SD)	57.0 (6.0)	57.0 (5.7)	0.47
Age Group¹			
>45	218 (2.5)	120 (1.4)	
55-64	1,294 (14.9)	832 (9.6)	0.30
65-74	3,792 (43.8)	2,389 (27.6)	
75+	7 (0.0)	9 (0.1)	
Sex²			
Male	2,974 (61.0)	1,904 (39.0)	
Female	2,337 (61.8)	1,446 (38.2)	0.44
Comorbidities³			
Obesity	631 (11.9)	561 (16.7)	<0.001
Renal Disease	259 (4.9)	88 (2.6)	<0.001
Alcohol Abuse	37 (0.7)	23 (0.7)	0.96
Tobacco Use	162 (3.1)	118 (3.5)	0.23
Hypertension	3,099 (58.4)	2,166 (64.7)	<0.001
Hyperlipidemia	2,712 (51.1)	1,938 (57.9)	<0.001
Coronary Artery Disease	722 (13.6)	431 (12.9)	0.33
Congestive Heart Failure	132 (2.5)	74 (2.2)	0.41
Rheumatic Disease	101 (1.9)	44 (1.3)	0.04
Depression	427 (8.0)	302 (9.0)	0.11
Anxiety	176 (3.3)	138 (4.1)	0.05

¹Presented as % of total
²Presented as % of all males/females
³Presented as % of patients with comorbidity in treatment group

Table 3. Demographics and Comorbidities of Preoperative Metformin Patients based upon Insulin Use

	Insulin Use		P-Value
	No Insulin	Insulin	
Total, n (%)	2,706 (80.8)	644 (19.2)	
Ave Age, (SD)	57.0 (5.7)	57.3 (5.7)	0.18
Age Group¹			
>45	97 (2.9)	23 (0.7)	
55-64	677 (20.2)	155 (4.6)	0.71
65-74	1,926 (57.5)	463 (13.8)	
75+	6 (0.2)	3 (0.1)	
Sex²			
Male	2,974 (61.0)	1,904 (39.0)	
Female	2,337 (61.8)	1,446 (38.2)	0.44
Comorbidities³			
Obesity	433 (16.0)	128 (19.9)	0.02
Renal Disease	63 (2.3)	25 (3.9)	0.02
Alcohol Abuse	18 (0.7)	5 (0.8)	0.76
Tobacco Use	93 (3.4)	25 (3.9)	0.58
Hypertension	1,716 (63.4)	450 (69.9)	<0.01
Hyperlipidemia	1,543 (57.0)	395 (61.3)	0.046
Coronary Artery Disease	319 (11.8)	112 (17.4)	<0.001
Congestive Heart Failure	52 (1.9)	22 (3.4)	0.02
Rheumatic Disease	34 (1.3)	10 (1.6)	0.55
Depression	237 (8.8)	65 (10.1)	0.29
Anxiety	106 (3.9)	32 (5.0)	0.23

¹ Presented as % of total
²Presented as % of all males/females
³Presented as % of patients with comorbidity in treatment group

Table 4. Adjusted odds complications Metformin patients taking Insulin

Complication	Metformin Patients	
	Odds Ratio*	P-Value
ED Visit	1.39 (1.04-1.84)	0.03
Stroke	1.23 (0.45-3.40)	0.69

*Only complications found to be significant upon univariate analysis were carried to multivariate analysis

Table 2. Adjusted odds complications

Complication	Odds Ratio*	P-Value
Surgical Site Infection	0.53 (0.30-0.92)	0.02

*Only complications found to be significant upon univariate analysis were carried to multivariate analysis