The Effect of Semaglutide Treatment on Postoperative Outcomes of Total Hip Arthroplasty in Patients with Obesity: A Matched Study

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INTRODUCTION: Approved in 2021 as an anti-obesity medication, Semaglutide, a GLP-1 analog, is commonly prescribed for diabetic patients to help lose weight. Obesity is a poor prognosticator for patients undergoing total hip arthroplasty (THA) with a myriad of complications that can arise postoperatively. This large-scale matched study compares complications among obese patients with Semaglutide use that underwent THA to THA patients without prior use of the medication.

METHODS: A large comprehensive national database is utilized for this study. Deidentified patient records were surveyed for obese patients that were prescribed Semaglutide that underwent subsequent THA to patients who underwent THA without prior Semaglutide use. Postoperative course was compared. Propensity score matching between the two cohorts was performed adjusting for demographics including BMI, comorbidities, and health laboratory values. Statistical analysis was performed. Statistical significance was noted at a threshold of 0.05.

RESULTS: An initial 42,410 patients were considered. After performing matching, 616 patients in each cohort were analyzed. The average patient age is 62.7 years, 55% were female, and the average BMI was 35.5. At follow up, compared to patients without prior Semaglutide use, the Semaglutide cohort experienced a similar risk (P > 0.05) of hip arthroplasty revision, prosthesis infection, opioid related disorders, SSIs, mortality, respiratory failure, pulmonary embolism, DVT, postoperative dehydration, cardiovascular comorbidities, shock, and prosthesis dislocations. Moreover, similar risk profiles of Clavien-Dindo were noted between the cohorts (RR 1.02, 95% CI [0.79-1.31], P =0.878).

DISCUSSION AND CONCLUSION: Semaglutide is a powerful anti-obesity medication recommended for select obese patients prior to undergoing THA. Postoperative complications after THA are similar between obese patients using Semaglutide compared to those who did not.

Measure	Risk Ratio	95% CI	LB	UB	P-Value
Revision of Hip Arthrop	1.067	(0.532, 2.138)	0.532	2.138	0.856
Hip Prosthesis Infection	1.167	(0.544, 2.502)	0.544	2.502	0.692
Opioid Related Disorder	0.769	(0.340, 1.741)	0.340	1.741	0.528
Infection in General	0.667	(0.302, 1.472)	0.302	1.472	0.312
Surgical Site Infection	1	(0.419, 2.385)	0.419	2.385	1
Death	1	(0.419, 2.385)	0.419	2.385	1
Respiratory Failure	1.17	(0.825, 1.659)	0.825	1.659	0.378
Pulmonary Embolism	0.895	(0.470, 1.705)	0.470	1.705	0.735
DVT	1.222	(0.744, 2.007)	0.744	2.007	0.427
Upper DVT	--	(--, --)	--	--	--
Lower DVT	1.222	(0.744, 2.007)	0.744	2.007	0.427
Post Op Dehydration	0.775	(0.578, 1.040)	0.578	1.040	0.088
Clavien-Dindo IV	1.02	(0.794, 1.310)	0.794	1.310	0.878
Cardiovascular Diseases	0.857	(0.576, 1.275)	0.576	1.275	0.446
Shock	1.002	(0.420, 2.389)	0.420	2.389	0.997
Non-Ambulatory (Has t)	1.246	(0.907, 1.712)	0.907	1.712	0.174
Prosthesis Dislocation	1	(0.419, 2.385)	0.419	2.385	1

Measure	Hazard Ratio	95% CI	LB	UB	P-Value
Revision of Hip Arthroplasty	1.031	(0.509, 2.087)	0.509	2.087	0.938
Hip Prosthesis Infection	1.144	(0.529, 2.473)	0.529	2.473	0.745
Opioid Related Disorders	0.747	(0.327, 1.705)	0.327	1.705	0.499
Infection in General	0.632	(0.284, 1.409)	0.284	1.409	0.265
Surgical Site Infection	0.837	(0.322, 2.177)	0.322	2.177	0.728
Death	0.923	(0.367, 2.322)	0.367	2.322	0.874
Respiratory Failure	1.047	(0.720, 1.521)	0.720	1.521	0.821
Pulmonary Embolism	0.884	(0.459, 1.702)	0.459	1.702	0.725
DVT	1.179	(0.707, 1.965)	0.707	1.965	0.539
Upper DVT	--	(--, --)			
Lower DVT	1.179	(0.707, 1.965)	0.707	1.965	0.539
Post Op Dehydration	0.742	(0.542, 1.017)	0.542	1.017	0.063
Clavien-Dindo IV	0.964	(0.731, 1.271)	0.731	1.271	0.807
Cardiovascular Diseases	0.787	(0.519, 1.193)	0.519	1.193	0.262
Shock	0.903	(0.181, 4.499)	0.181	4.499	0.909
Non-Ambulatory (Has to be A	1.219	(0.870, 1.708)	0.870	1.708	0.253
Prosthesis Dislocation	1.12	(0.432, 2.902)	0.432	2.902	0.827