Optimal Timing for Cessation of GLP-1 Agonist Before Elective Total Hip and Knee Arthroplasty

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INTRODUCTION:
Glucagon-like peptide-1 receptor agonists (GLP-1A) have advanced the treatment of type 2 diabetes and obesity. Given the prevalence of these conditions among candidates for total joint arthroplasty (TJA), managing GLP-1A in the perioperative period is crucial to minimize complications.
METHODS:
The TriNetX Research Network was queried for patients who underwent total hip or knee arthroplasty from January 2018 to January 2023. A control group of 206,005 patients with no prior Ozempic use was identified. Ozempic users were categorized based on when they stopped the medication before surgery: 30 days (482 patients), 14 days (591), 7 days (680), 5 days (758), 3 days (777), 1 day (706), and continued use through surgery (170). Propensity-matched cohorts were analyzed to determine the relationship between the time of last Ozempic dose and anesthesia complications using multivariate logistic regression.
RESULTS:
Stopping Ozempic 5 days before surgery was an independent risk factor for delayed emergence from anesthesia (OR 1.59, P=0.005); stopping 3 days (OR 1.84, P<0.001) and 1 day prior (OR 2.23, P<0.001) also increased this risk. For aspiration, stopping 7 days prior was a risk factor (OR 1.24, P=0.002), with higher risks for stopping 5 days (OR 2.53, P<0.001), 3 days (OR 3.09, P<0.001), and 1 day (OR 4.96, P<0.001) prior. Stopping 7 days before surgery also increased the risk for aspiration pneumonitis (OR 1.29, P<0.001), with even higher risks for stopping 5 days (OR 2.74, P<0.001) and 1 day prior (OR 2.74, P<0.001). Multivariate logistic regression identified last Ozempic dose at 7 days prior to surgery as an independent risk factor for conversion to intubation (OR 1.39 [95% CI 1.06-1.56], P=0.0343). Similarly, last Ozempic dose at 5 days (OR 2.09, [95% CI 1.76-2.36], P<0.001), 3 days (OR 4.68, [95% CI 4.40-4.97], P<0.001), and 1 day (OR 6.37, [95% CI 5.92-6.72], P<0.001) were independent risk factors for conversion to intubation. The highest risk for all complications was observed in patients who continued Ozempic use through surgery. Diabetes itself was not an independent risk factor for any of the complications.
DISCUSSION AND CONCLUSION:
Stopping Ozempic more than 7 days prior to surgery reduced the risk of delayed emergence from anesthesia and aspiration pneumonitis, additionally stopping 14 days prior to surgery reduced the risk of aspiration and conversion to intubation in this cohort. To minimize risks of delayed emergence from anesthesia, aspiration, aspiration pneumonitis, and conversion to intubation, ceasing GLP-1A 14 days before surgery is optimal. Careful planning and coordination in managing GLP-1A in the preoperative period are essential to optimize surgical outcomes

Table 1. Multivariate Analysis for Delayed Emergence from Anesthesia

	OR[1]	95% CI	*P*-value
30 days	1.03	0.84-1.18	0.4906
14 days	1.06	0.95-1.22	0.1673
7 days	1.11	0.97-1.31	0.0977
5 days	1.59	1.34-1.82	0.005*
3 days	1.84	1.67-2.19	<0.001*
1 day	2.23	1.82-2.49	<0.001*
None	2.75	2.44-3.23	<0.001*

Note: Controlled for age, sex, race, and past medical history. OR=odds ratio. CI=confidence interval
[1]Reference group: non-Ozempic users

Table 2. Multivariate Analysis for Aspiration Event

	OR[1]	95% CI	*P*-value
30 days	1.02	0.96-1.23	0.2952
14 days	1.09	0.92-1.26	0.0981
7 days	1.24	1.07-1.40	0.002*
5 days	2.53	2.21-3.08	<0.001*
3 days	3.09	2.77-3.41	<0.001*
1 day	4.96	4.53-5.29	<0.001*
None	5.14	4.81-5.59	<0.001*

Note: Controlled for age, sex, race, and past medical history. OR=odds ratio. CI=confidence interval
[1]Reference group: non-Ozempic users

Table 3. Multivariate Analysis for Aspiration Pneumonitis

	OR[1]	95% CI	*P*-value
30 days	0.99	0.77-1.31	0.8328
14 days	1.04	0.89-1.34	0.2347
7 days	1.12	0.97-1.29	0.0779
5 days	1.29	1.02-1.49	<0.001*
3 days	1.46	1.21-1.87	<0.001*
1 day	2.74	2.38-3.05	<0.001*
None	2.82	2.43-3.11	<0.001*

Note: Controlled for age, sex, race, and past medical history. OR=odds ratio. CI=confidence interval
[1]Reference group: non-Ozempic users

Table 4. Subgroup Multivariate Analysis for Conversion to Intubation

	OR[1]	95% CI	*P*-value
30 days	1.02	0.83-1.31	0.8238
14 days	1.003	0.98-1.29	0.7314
7 days	1.39	1.06-1.56	0.0343*
5 days	2.09	1.76-2.36	<0.001*
3 days	4.68	4.40-4.97	<0.001*
1 day	6.37	5.92-6.72	<0.001*
None	6.96	6.38-7.47	<0.001*

Note: Controlled for age, sex, race, and past medical history. OR=odds ratio. CI=confidence interval
[1]Reference group: non-Ozempic users