



#2317886 Institutional Trends in Glucagon-Like Peptide-1 Receptor Agonist Use Among Hip and Knee Arthroplasty Patients, 2021-2024

Juliet Rowe MPH¹, Maya Tailor BA¹, Alexandra Sideris PhD^{1,2,3}, Alex Illescas MPH¹, Jawad Saleh PharmD¹, Jashvant Poeran MD PhD^{1,4}, Daniel Maalouf MD MPH^{1,2}, Oliver Panzer MD^{1,2}

¹ Hospital for Special Surgery, Department of Anesthesiology, Critical Care & Pain Management, New York, NY, USA

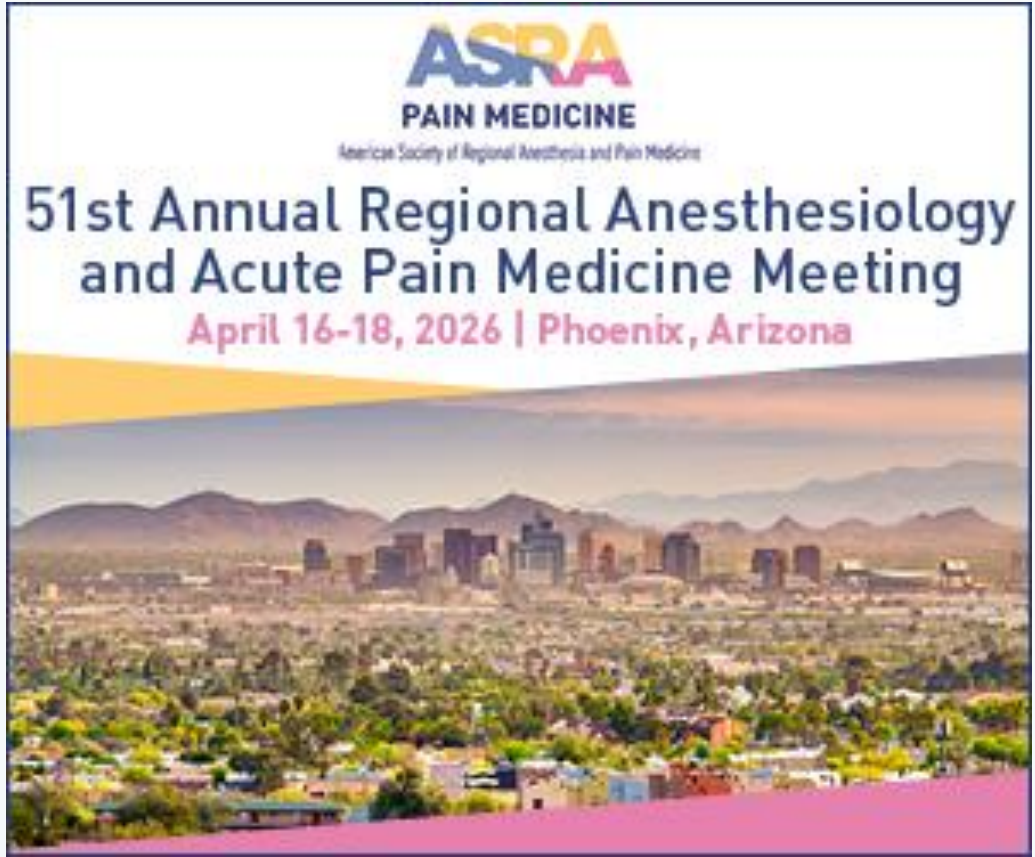
² Department of Anesthesiology, Weill Cornell Medicine, New York, NY, USA

³ Hospital for Special Surgery Research Institute, Research Institute, New York, NY

⁴ Icahn School of Medicine at Mount Sinai, Institute for Healthcare Delivery Science, Department of Population Health Science and Policy, New York, NY, USA



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INTRODUCTION

- Background and rationale:**
 - Uptake of GLP-1 RAs has increased among adults in the US in recent years
 - Prevalence of GLP-1 RA use among total hip and knee arthroplasty (TKA/THA) patients is not well described
- Objective:** describe recent trends in GLP-1 RA use among patients undergoing primary and revision THA/TKA at a high-volume orthopedic institution

METHODS

- Study design:** Single-center retrospective cohort study
- IRB Approval:** #2022-2392
- Inclusion criteria:** all adult patients undergoing primary or revision TKA/THA between Jan. 4, 2021 and Dec. 31, 2024.
- Data extraction from EHR:**
 - GLP-1 RA usage
 - Type: dulaglutide, exenatide, liraglutide, semaglutide, lizisenatide, tirzepatide
 - Route of admin: oral or subcutaneous
 - Diabetes as an indication for GLP-1 RA use identified using ICD-10 codes present on admission
- Analysis:**
 - Trends of GLP-1 RA use assessed using Cochran-Armitage trend tests
 - Associations between GLP-1 RA use with patient characteristics assessed using standardized mean differences (SMD, >0.1 indicated meaningful difference)
 - Statistical significance: $p < 0.05$

Table 1. Characteristics of GLP-1 RA use in TKA and THA patients, 2021 to 2024

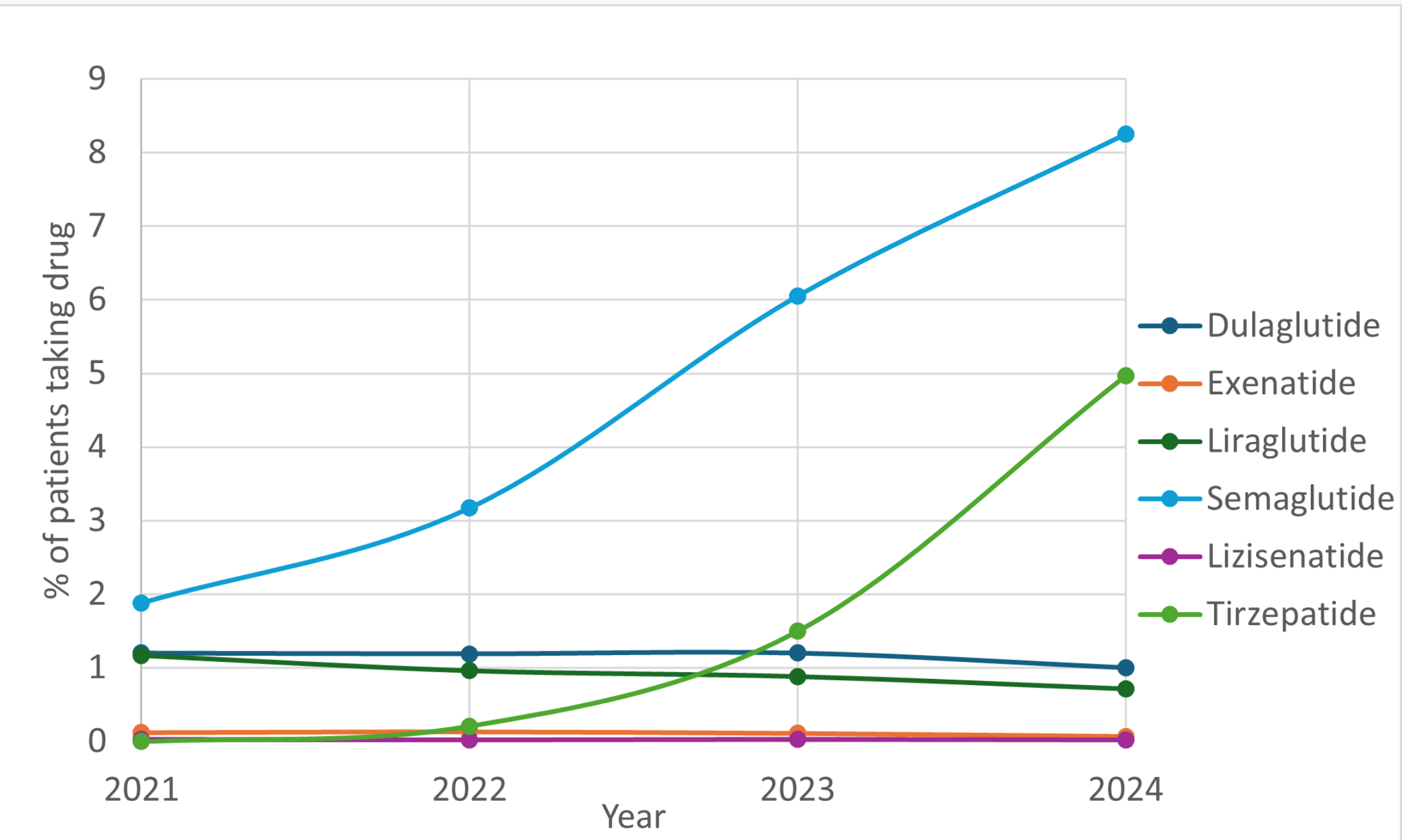
GLP1 use	2021		2022		2023		2024		p-value
	N	%	N	%	N	%	N	%	
No	9835	96.31	10554	95.15	10852	91.49	10782	87.16	<0.0001
Yes	377	3.69	538	4.85	1010	8.51	1589	12.84	
Route of admin									
Oral	14	0.14	28	0.25	58	0.49	50	0.4	<0.0001
Subcutaneous	363	3.55	510	4.6	952	8.03	1539	12.44	

Table 2. Diabetes rates among GLP-1 RA users, 2021 to 2024

Diabetes	2021		2022		2023		2024		p-value
	N	%	N	%	N	%	N	%	
Yes	161	42.71	188	34.94	246	24.36	250	15.73	<0.0001
No	216	57.29	350	65.06	764	75.64	1339	84.27	

Use of GLP-1 RAs has increased significantly in the TKA/THA population in recent years, with non-diabetes indications becoming more common.

Figure 1. Trends in GLP-1 Receptor Agonist Use by Drug Type, 2021 to 2024



RESULTS

- Cohort:** 45,537 patients
- Main results:**
 - GLP-1 RA use increased significantly, from 3.69% in 2021 to 12.84% in 2024 ($p < 0.0001$, (Table 1)).
 - Mainly driven by semaglutide and tirzepatide (both $p < 0.001$)
 - Use of liraglutide decreased significantly ($p = 0.004$), while use of dulaglutide, exenatide, and lizisenatide remained unchanged ($p = 0.39, 0.60, 0.96$, respectively) (Table 1)
 - Subcutaneous administration remained predominant
 - Patient characteristics associated with GLP-1 RA use: ASA level, race, age, BMI
 - Significant decrease in proportion of GLP-1 RA users with a documented diabetes diagnosis (Table 2)
 - Suggests a growing proportion are taking these drugs for non-diabetes indications.

DISCUSSION

- GLP-1 RA use among TKA/THA patients has **increased significantly** in recent years
- These findings underscore the need **to understand clinical implications of GLP-1 RAs** as their use continues to grow in the surgical orthopedic population.
- Further investigation is needed to clarify how these medications may influence perioperative management considerations **including fasting guidelines and anesthetic risk**