Increased Incidence of Thromboembolic Complications in Celiac Patients Following Total Joint Arthroplasty

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INTRODUCTION: The incidence of Irritable Bowel Syndrome (IBS), specifically Celiac Disease, is

becoming increasingly common in patients eligible for total joint arthroplasty (TJA). The

purpose of this study is to determine medical, surgical, and hospital utilization outcomes between patients with and without Celiac Disease who undergo TJA.

METHODS: Utilizing the Pearldiver Mariner 165 database, we conducted a retrospective cohort

study from January 1, 2010, to October 31, 2022, creating two cohorts of patients with

and without Celiac disease in a propensity matched 1:5 ratio who underwent either total

hip arthroplasty (THA) or total knee arthroplasty (TKA). Both groups were matched for

age, gender, rheumatoid arthritis, Charlson comorbidity index (CCI), smoking status,

obesity, diabetes, chronic kidney disease, and joint replacement type. The Celiac

patient group contained 3,959 members, and the non-Celiac patient group contained

19,500 members. Both groups were examined for 90-day medical complications, 90-day

readmissions, and 2-year revisions and implant complications using chi-square analysis

and multivariate logistical regression analysis. A p-value of less than 0.006 was deemed

significant after adjusting for Bonferroni correction.

RESULTS: There were no significant differences between Celiac and non-Celiac patients in terms of infectious complications regarding superficial skin infections (SSI) or prosthetic joint infections (PJI). Celiac patients demonstrated a higher likelihood of developing 90-day deep venous thromboses (DVT), pulmonary embolism (PE), myocardial infarctions (MI), and hypoglycemic events (all with p<0.001), all of which cultivated in a higher likelihood of developing 90-day hospital readmissions. In terms of implant complications, Celiac patients demonstrated higher likelihood of developing aseptic loosening and 2 year revisions (p<0.005). There were no differences in terms of 2-year knee instability or periprosthetic fracture.

DISCUSSION AND CONCLUSION: Patients with Celiac Disease did not show any signs of increased infectious complications but did show increased venous thromboembolic complications. Celiac patients scheduled for TJA should undergo preoperative cardiac clearance and optimization to minimize these complications postoperatively.

	Celiac	Non-Celiac	
	(n=3959)	(n=19,500)	p-value
Age	68.8 (9.7)	68.9 (9.7)	0.99
Gender			0.823
М	23.95	23.76	
F	76.05	76.24	
Obesity	51.50	51.23	0.768
Smoking	39.93	39.75	0.842
CKD	15.26	14.83	0.437
CAD	29.40	29.02	0.644
Comp.			
DM	4.04	3.73	0.370
THA	39.50	39.25	0.775
ТКА	65.40	65.53	0.882

	OR	25% CI	75% CI	p-value
CVA	0.66	0.31	1.26	0.244
DVT	2.06	1.24	3.30	0.0038
PE	2.08	1.39	6.72	0.002974
VTE	1.14	0.68	1.82	0.594
MI	2.23	1.20	3.97	0.0052
PNA	1.28	0.91	1.78	0.14244
AKI	1.12	0.78	1.55	0.52894
Hypoglycemic Episode	2.19	0.99	4.52	0.00404
Sepsis	0.006	0.002	0.01	0.9822
SSI	0.71	0.45	1.08	0.1308
90-Day Admissions	6.42	5.17	7.88	0.00004
90-Day ED Visits	1.15	0.94	1.39	0.163
2-Year PJI	0.78	0.56	1.05	0.1128
2-Year Periprosthetic Fx	1.16	0.53	2.30	0.6877
2-Year Aseptic				
Loosening	3.18	2.12	4.73	<0.0001
2-Year Revisions	1.53	1.13	2.05	0.00477

* Age is depicted as value (SD), while the remaining rows are depicted as percentages