

Unicompartmental Knee Arthroplasty in Octogenarians: An Analysis of 733 Patients with 2-Year Follow Up

Alexander Joseph Acuña, Enrico Forlenza, Joseph Serino, Vince Morgan, COL. (ret) Tad L Gerlinger, Craig J Della Valle¹
¹Rush University Med Ctr

INTRODUCTION: Unicompartmental knee arthroplasty (UKA) has been shown to improve pain and function in appropriately selected patients. Limited data exists regarding outcomes and complication rates following UKA among octogenarians.

METHODS: A large insurance database was queried for patients undergoing primary UKA between 2018-2020. Patients <80 years old were matched 4:1 to the octogenarian cohort (≥80 years old) by sex, year, Elixhauser Comorbidity Index (ECI), tobacco use, obesity, and diabetes. Multivariate logistic regression was utilized to evaluate and compare medical complications at 90-days postoperatively and surgical complications at 1- and 2-years postoperatively between the two cohorts. Our regression analysis controlled for sex, ECI, tobacco use, obesity, and diabetes.

RESULTS:

After matching, a total of 733 octogenarians and 2,884 controls were included in our analysis (**Table 1**). Octogenarian patients demonstrated an increased risk of acute kidney injury (Odds Ratio [OR]: 2.999 0.594, 95% Confidence Interval [95% CI]:1.451-6.072; $p=0.002$), wound dehiscence (OR: 2.753, 95% CI: 1.129-6.424; $p=0.021$), pneumonia (OR: 2.569, 95% CI: 1.109-5.702; $p=0.022$), emergency department visits (OR: 2.399, 95% CI: 1.487-3.803; $p<0.001$), and any complication (OR: 1.680, 95% CI: 1.301-2.154; $p<0.001$) at 90-days postoperatively (**Table 2**). However, there were no differences between cohorts in rates of periprosthetic infection (OR: 1.032, 95% CI: 0.384-2.776; $p=0.950$), periprosthetic fracture (OR: 0.277, 95% CI: 0.015-1.383; $p=0.215$), aseptic loosening (OR: 0.231, 95% CI: 0.013-1.132; $p=0.155$), or all-cause revision (OR: 0.618, 95% CI: 0.342-1.040; $p=0.087$) at 2-years postoperatively (**Table 3**). The mortality rate was 0% for both cohorts at 2-years postoperatively.

DISCUSSION AND CONCLUSION: These findings suggest that despite an increased risk of certain medical complications within the acute postoperative period, octogenarians undergoing UKA experienced similar rates of surgical complications to younger matched controls at 2-year follow up.

Table 1. Demographics of included patients before and after matching.

	Unmatched		p-value	Matched		p-value
	Octogenarians (n=733)	Control Cohort (n=2,884)		Octogenarians (n=733)	Control Cohort (<80 Years Old) (n=2,884)	
N	733	2,884		733	2,884	
Women	439 (59.9)	19,802 (68.0)	<0.001	373 (50.9)	1,470 (50.9)	1.000
Age (Mean ± SD)	62.74 ± 9.69	-	-	64.73 ± 9.23	-	-
ECI (Mean ± SD)	5.65 ± 3.28	3.41 ± 2.73	<0.001	5.23 ± 3.01	5.14 ± 2.91	0.458
Comorbidity						
Tobacco Use	112 (15.3)	7,800 (26.9)	0.021	95 (12.9)	447 (15.5)	0.097
Diabetes	142 (19.4)	14,515 (50.4)	0.001	122 (16.6)	509 (17.7)	0.997
Obesity	70 (9.6)	9,934 (34.4)	<0.001	64 (8.7)	369 (12.8)	0.006

* - N (%).

Table 2. Adverse Events Within 90-days Between Octogenarians and Matched Controls.

Adverse Events	Octogenarians	Controls (<80 Years Old)	p-value	OR (95% CI)	Adjusted p-value
Superficial Surgical Site Infection	7 (0.95)	14 (0.49)	0.222	1.918 (0.722-4.650)	0.163
Periprosthetic Joint Infection	7 (0.95)	30 (1.04)	1.000	0.912 (0.267-1.970)	0.828
Deep Vein Thrombosis	9 (1.23)	41 (1.42)	0.823	0.840 (0.389-1.660)	0.301
Pulmonary Embolism	5 (0.68)	16 (0.55)	0.894	1.195 (0.389-3.071)	0.729
Acute Kidney Injury	14 (1.91)	18 (0.62)	0.002	2.999 (1.451-6.072)	0.002
Cebral Artery	0 (0)	2 (0.07)	1.000	1.800 (0.161)	0.594
Wound Dehiscence	7 (0.95)	13 (0.45)	0.032	2.753 (1.129-6.424)	0.021
Hematomas	5 (0.68)	8 (0.27)	0.008	2.569 (1.109-5.702)	0.022
Pneumonia	10 (1.35)	15 (0.52)	0.027	2.569 (1.109-5.702)	0.022
Transfusion	5 (0.68)	4 (0.14)	<0.001	3.803 (1.487-9.803)	<0.001
Urology Visit	26 (3.55)	57 (1.98)	0.017	1.814 (1.132-2.979)	0.014
Infection	8 (1.09)	27 (0.94)	0.363	1.167 (0.493-2.669)	0.704
ED Visit	20 (2.73)	49 (1.7)	<0.001	2.399 (1.487-3.803)	<0.001
Readmission	19 (2.59)	48 (1.66)	0.427	1.333 (0.718-2.579)	0.355
Any Complication	98 (13.37)	242 (8.39)	<0.001	1.680 (1.301-2.154)	<0.001

Table 3. Revision Rates and Outcomes at 1-Year and 2-Years Post-Operatively Between Octogenarians and Matched Controls.

1-Year Complications	Octogenarians	Controls	p-value	OR (95% CI)	Adjusted p-value
Periprosthetic Fracture	1 (0.14)	11 (0.38)	0.503	0.354 (0.019-1.830)	0.321
Periprosthetic Joint Infection	5 (0.68)	17 (0.59)	0.982	1.152 (0.377-3.925)	0.782
Aseptic Loosening	1 (0.14)	13 (0.45)	0.372	0.368 (0.071-1.534)	0.252
Manipulation Under Anesthesia	0 (0)	36 (1.25)	0.005	<0.001 (<0.001-340)	0.001
Patella Resurfacing	2 (0.27)	4 (0.14)	0.773	1.992 (0.375-10.302)	0.438
Any Revision	13 (1.77)	64 (2.23)	0.547	0.769 (0.417-1.405)	0.437
2-Year Complications					
Periprosthetic Fracture	1 (0.14)	14 (0.49)	0.322	0.277 (0.015-1.383)	0.215
Periprosthetic Joint Infection	5 (0.68)	19 (0.66)	1.000	1.032 (0.384-2.776)	0.950
Aseptic Loosening	1 (0.14)	17 (0.59)	0.207	0.231 (0.013-1.132)	0.155
Manipulation Under Anesthesia	1 (0.14)	42 (1.46)	0.006	0.602 (0.065-6.424)	0.019
Patella Resurfacing	2 (0.27)	7 (0.24)	1.000	1.135 (0.169-7.17)	0.875
Any Revision	15 (2.05)	94 (3.26)	0.111	0.618 (0.342-1.040)	0.087