Comparing Outcomes after Cemented and Cementless Total Knee Arthroplasty

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INTRODUCTION: The optimal method of fixation for primary total knee arthroplasties (TKAs) has been subject to debate. Here we compare patients who received cemented and cementless TKAs for arthritis and compared clinical outcome measures.

METHODS: All primary TKAs between January 2016 and December 2022 were obtained retrospectively from a prospective institutional database utilized for contribution to a state-wide joint arthroplasty database. Prospective data includes baseline demographics, select medical comorbidities, intraoperative variables, and postoperative course/complications. Patients were split into two cohorts based on the use of cemented vs cementless TKA implants. Hybrid fixation was excluded. Groups were compared utilizing Student's unpaired t-test for continuous variables and χ^2 test for categorical variables. p<.05 was deemed statistically significant. RESULTS:

Of 12,063 TKAs performed, 11,301 (93.7%) were cemented and 762 (6.32%) were uncemented. Cementless TKAs were generally younger (63.57 ± 8.6 vs 68.13 ± 9.4 ; p<0.01), male (42.88% vs 14.4%%; p<0.01), had higher BMIs (33.72 ± 6.77 vs 32.19 ± 6.76 ; p<0.01;) and were also more likely to be African American (13.39% vs 9.41%; p<0.01; Table 1).

Perioperatively, cementless TKAs had significantly shorter surgical times ($73.32 \pm 21.20 \text{ vs } 83.41 \pm 29.66 \text{ minutes}; p < 0.01$), shorter length of stays ($1.26 \pm 1.34 \text{ vs } 1.79 \pm 1.50 \text{ days}; p < 0.01$), and less likely to be discharged to a subacute nursing facility (3.81% vs 10.20%; p<0.01). There was no difference between cohorts regarding intraoperative fractures, as well as postoperative 90-day all cause-events, emergency department visits, readmissions, reoperations, fracture, DVT/pulmonary embolism, hematoma, or death.

DISCUSSION AND CONCLUSION:

Cementless TKAs appear to be correlated with shorter surgical times and lengths of stay, as well as an increased likelihood for home discharge. Postoperative 90-day all-cause events appear similar between the cohorts. At this time, it appears that uncemented TKAs are non-inferior compared to cemented TKAs. Further studies are required to evaluate if these benefits are related to patient selection versus implant selection.

ble 1: Demographics			_
	Cemented	Uncemented	р
	n= 11,301	n= 762	
: Case	68.13±9.4	63.57±8.6	<0.01*
er Jale	107 (85.6%)	5473 (57.12%)	<0.01*
le le	18 (14.4%)	4109 (42.88%)	
-	10(1110)	1205 (1210010)	0.01*
e merican Indian or Alaskan Native	31 (0.27%)	2 (0.26%)	
an	182 (1.61%)	12 (1.57%)	
ck or African American	1063 (9.41%)	102 (13.39%)	
tive Hawaiian or Pacific Islander	3 (0.03%)	1 (0.13%)	
hite or Caucasian	9314 (82.4%)	600 (78.7%)	
her	634 (5.61%)	42 (5.51%)	
known	74 (0.65%)	3 (0.39%)	<0.01*
nicity ispanic or Latino	95 (0.84%)	1 (0.13%)	-0.01*
ot Hispanic or Latino	10500 (92,9%)	689 (90.42%)	
nknown	705 (6.25%)	72 (9.45%)	
operative Height (cm)	167.89±10.55	172.24±10.34	<0.01*
operative Weight (kg)	91.00±21.73	100.06±21.67	<0.01*
operative BMI (kg/m²)	32.19±6.76	33.72±6.77	<0.01*
			0.69
	5491(48.59%)	364 (47.77%)	
ht	5810 (51.41%)	398 (52.23%)	
king Status			<0.01*
irrent	777 (6.88%) 6314 (55.87%)	78 (10.24%) 424 (55.64%)	
ever evious	4205 (37.21%)	424 (55.64%) 259 (33.99%)	
evious iknown	4205 (37.21%) 5 (0.04%)	1 (0.13%)	
betes	5 (0.0474)	1 (0.1574)	0.44
0	9013 (79.75%)	597 (78.35%)	0.44
pe 1	21 (0.19%)	2 (0.26%)	
pe 2	2257 (19.97%)	161 (21.13%)	
eding Disorder			0.65
0	11189 (99.0%)	752 (98.69%)	
es	111 (0.98%)	10(1.31%)	
tory of DVT/Pulmonary Embolism			0.5
lo	10244 (90.7%)	700 (91.86%)	
5	1055 (9.34%)	62 (8.14%)	
eoperative Ambulatory Assistive Device lo	8116(71.82%)	586 (76.9%)	<0.01*
0 15	3184 (28.17%)	586 (76.9%) 176 (23.1%)	
s Score	3104 (20.173)	410 (23.130)	0.20
- John C	43 (0.38%)	5 (0.66%)	0.20
	5277 (46.69%)	361 (47.38%)	
	5798 (51.31%)	390 (51.18%)	
r	183 (1.62%)	6 (0.79%)	
rital Status	(<0.01*
vorced or Separated	1181 (10.45%)	80 (10.51%)	