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The Knee Pain Decreases After Total Hip Arthroplasty

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Faculty Disclosure Information

- The authors have nothing to disclosure.

Introduction

Approximately 30% to 70% of patients report knee pain before THA[1,2]

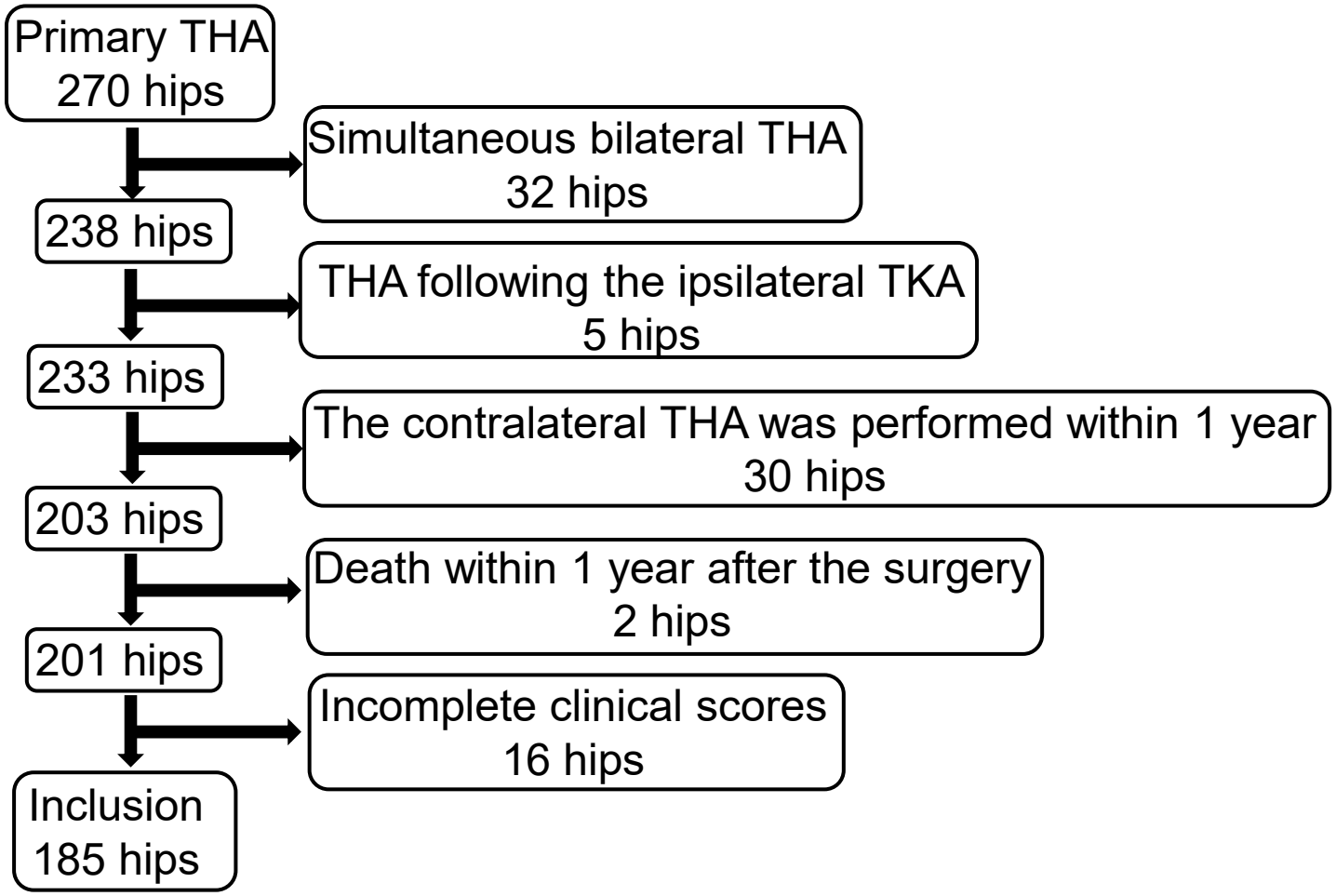
THA affects whole leg alignment and leg length discrepancies[3,4]

Objective

１、 Evaluate the frequency and severity of knee pain before and after THA

２、Analyze the factors that influence knee pain before and after surgery

Methods

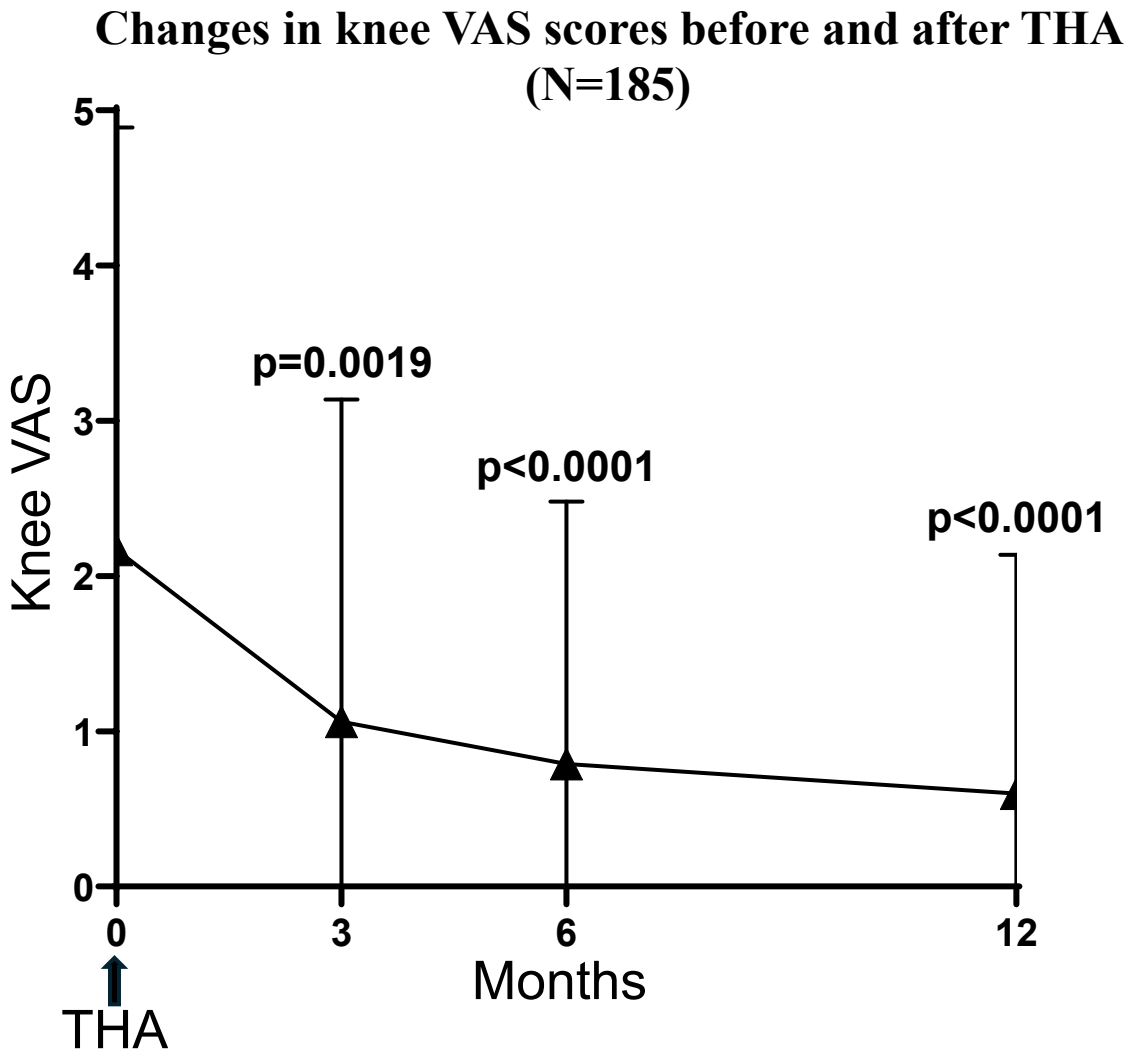

Primary THA
270 hips
Simultaneous bilateral THA
32 hips
238 hips
THA following the ipsilateral TKA
5 hips
233 hips
The contralateral THA was performed within 1 year
30 hips
203 hips
Death within 1 year after the surgery
2 hips
201 hips
Incomplete clinical scores
16 hips
Inclusion
185 hips

Demographic data of the patients who underwent primary THA

Age years (SD)			63.6 (11.5)
Height cm (SD)			155.4 (8.4)
Body weight kg (SD)			57.7 (12.2)
BMI kg/m^2(SD)			23.8 (4.1)
Sex (female) n (%)			152 (82.2)
Indication			
OA n (%)			149 (80.5)
ONFH n (%)			36 (19.5)
LLD mm (SD)		Pre-surgery	-8.6 (11.1)
		Post-surgery	2.2 (6.2)
		Δ post-pre	10.8 (9.5)
HKAA ° (SD)		Pre-surgery	-1.7 (3.9)
varus:-, valgus:+	**Ipsilateral**	Post-surgery	-2.4 (3.5)
		Δ post-pre	-0.7 (2.4)
		Pre-surgery	-2.5 (3.4)
	Contrarateral	Post-surgery	-2.5 (3.5)
		Δ post-pre	0.01 (1.2)
Type of stem fixation			
	Cementless n (%)		158 (85.4)
	Cement n (%)		27 (14.6)
KL grade of the knee	n (%)	0	49 (26.5)
		I	96 (51.9)
	Ipsilateral	II	26 (14.1)
		III	10 (5.4)
		IV	4 (2.2)
		0	36 (19.5)
		I	102 (55.1)
	Contrarateral	II	27 (14.6)
		III	15 (8.1)
		IV	5 (2.7)

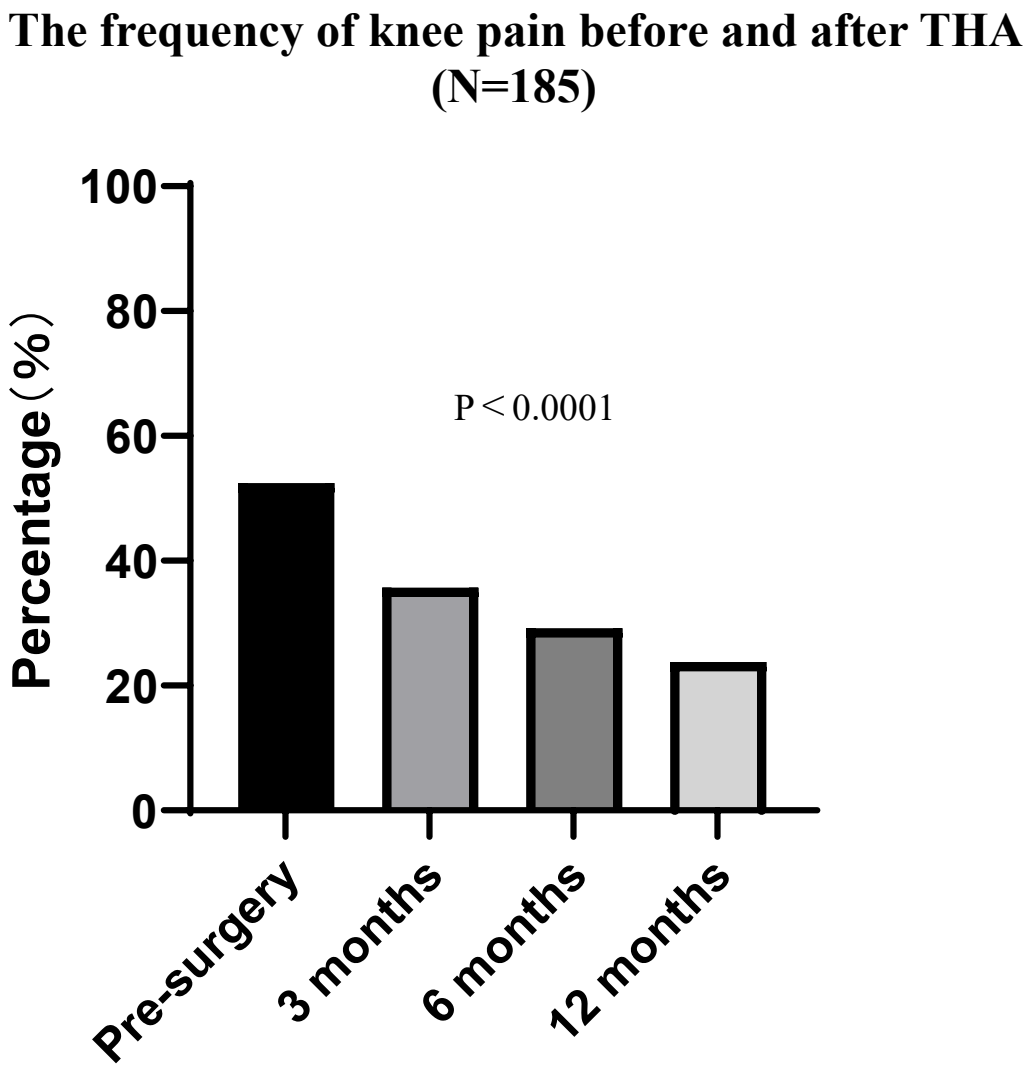
BMI: body mass index; OA: osteoarthritis; ONFH: osteonecrosis of femoral head; LLD: leg length discrepancy; HKAA: hip-knee-ankle angle; KL grade: Kellegren-Lawrence grade

The VAS scores for knee pain significantly decreased after THA



P values were analyzed by Friedman test post hoc Dunn's multiple comparison test, compared with pre-surgery VAS

The frequency of knee pain also significantly decreased after THA



Only the preoperative hip VAS score influenced the preoperative knee VAS score

Neither the knee KL grade, LLD nor HKAA affected the preoperative knee VAS score.

Simple & multiple linear regression analysis for preoperative knee VAS score

	Unadjusted				Adusted			
	Coefficient	SE	t	p	Coefficient	SE	t	p
Age (years)	-0.015 (-0.050 to 0.020)	0.018	-0.85	0.40				
Sex	-0.16 (-0.67 to 0.36)	0.26	-0.59	0.55				
BMI (kg/m2)	-0.078 (-0.18 to 0.018)	0.049	-1.6	0.11				
Indication (OA=0, ONFH=1)	0.066 (-0.93 to 1.1)	0.51	0.90	0.90				
Preoperative LLD (mm)	0.013 (-0.023 to 0.049)	0.018	0.72	0.47	0.067 (-0.020 to 0.052)	0.018	0.88	0.38
Preoperative HKAA (°)	-0.054 (-0.15 to 0.047)	0.051	-1.05	0.30	-0.10 (-0.18 to 0.033)	0.053	-1.3	0.18
Preoperative HKAA (valgus=0, varus=1)	0.34 (-0.53 to 1.2)	0.44	0.77	0.44	0.075	-0.46 to 1.3	0.96	0.075
Absolute value of preoperative HKAA (°)	0.0090 (-0.13 to 0.15)	0.07	0.13	0.90	0.025 (-0.12 to 0.16)	0.07	0.34	0.74
Preoperative ipsilateral hip VAS score	0.25 (0.097 to 0.40)	0.076	3.3	0.0014	0.27 (0.13 to 0.44)	0.078	3.7	0.0003
KL grade of the ipsilateral knee	-0.20 (-0.64 to 0.24)	0.22	-0.90	0.37	-0.025 (-0.58 to 0.43)	0.26	-0.30	0.76

Adjustment was made for the effect of Covariantes: age, sex, BMI and indication.

Knee KL grade, postoperative varus leg alignment and the preoperative knee VAS score influenced the postoperative knee VAS score

Simple & multiple linear regression analysis for postoperative knee VAS score

	Unadjsted				Adjusted			
	Coefficient	SE	t	p	Coefficient	SE	t	p
Age (years)	0.0019 (-0.018 to 0.021)	0.010	0.19	0.85				
Sex	0.028 (-0.56 to 0.61)	0.30	0.10	0.92				
BMI (kg/m2)	0.013 (-0.042 to 0.068)	0.028	0.63	0.63				
Indication	-0.41 (-0.98 to 0.15)	0.29	0.15	0.15				
Preoperative LLD (cm)	0.0082 (-0.012 to 0.028)	0.010	0.80	0.42	0.0099 (-0.011 to 0.031)	0.010	0.94	0.35
Preoperative HKAA (°)	-0.040 (-0.097 to 0.017)	0.029	-1.4	0.17	-0.045 (-0.10 to 0.015)	0.03	-1.5	0.14
Preoperative HKAA (valgus=0, varus=1)	0.57 (0.019 to 1.12)	0.28	2.0	0.043	0.40 (-0.12 to 0.92)	0.26	1.5	0.13
Absolute value of preoperative HKAA (°)	-0.0037 (-0.081 to 0.074)	0.040	-0.090	0.92	-0.0022 (-0.081 to 0.077)	0.040	-0.050	0.96
Preoperative ipsilateral knee VAS score	0.21 (0.14 to 0.29)	0.039	5.6	<0.0001	0.22 (0.14 to 0.30)	0.039	5.6	<0.0001
Preoperative ipsilateral hip VAS score	0.057 (-0.030 to 0.14)	0.044	1.28	0.20	0.065 (-0.025 to 0.16)	0.046	1.4	0.15
Type of stem (cement=0, cementless=1)	0.081 (-0.55 to 0.71)	0.32	0.25	0.80	0.26 (-0.52 to 1.0)	0.39	0.65	0.51
KL grade	0.36 (0.12 to 0.60)	0.12	2.95	0.0036	0.45 (0.17 to 0.73)	0.14	3.2	0.0017
Postoperative LLD (cm)	0.014 (-0.022 to 0.050)	0.018	0.77	0.44	0.015 (-0.022 to 0.052)	0.019	0.81	0.42
Postoperative HKAA (°)	-0.077 (-0.14 to -0.013)	0.032	-2.38	0.018	-0.084 (-0.15 to -0.020)	0.033	-2.6	0.011
Postoperative HKAA (valgus=0, varus=1)	0.57 (0.019 to 1.1)	0.28	2.0	0.043	0.67 (0.099 to 1.3)	0.29	2.3	0.022
Absolute value of postoperative HKAA (°)	0.070 (-0.014 to 0.16)	0.043	1.7	0.10	0.074 (-0.011 to 0.16)	0.043	1.7	0.088
Postoperative ipsilateral hip VAS score	0.023 (-0.17 to 0.21)	0.096	0.24	0.80	0.017 (-0.17 to 0.21)	0.097	0.18	0.86
Delta LLD (Post - Pre)	-0.0053 (-0.029 to 0.018)	0.012	-0.44	0.66	-0.0068 (-0.031 to 0.017)	0.012	-0.56	0.58
Delta HKA (Post - Pre)	-0.057 (-0.15 to 0.037)	0.048	-1.2	0.23	-0.069 (-0.17 to 0.031)	0.051	-1.4	0.17

Adjustment was made for the effect of Covariantes: age, sex, BMI and indication.

Conclusion & Discussion

Preoperative knee pain

Before THA surgery, 35.4% of patients had pain in the knee area[1].

Sixty-eight percent of patients with femoral head necrosis who developed collapse had pain in the knee area.

Twenty-nine percent of patients with secondary DDH OA had pain in the knee area[2].

In this study, almost half of patients had knee pain before THA.

Only the preoperative hip VAS score influenced the preoperative knee VAS score

Conclusion & Discussion

Postoperative knee pain

External rotation and lateral displacement of the patella occurs with leg extension, and transient knee pain occurs in 7.3% of patients after THA[5].

The WOMAC score of the knee decreases from 5.9 to 2.5 after THA[6].

In this study, knee pain decreased after THA (knee VAS score: 2.2→0.6)

Knee KL grade, postoperative varus leg alignment and the preoperative knee VAS score influenced the postoperative knee VAS score

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