Workers Compensation Patients Demonstrate Significantly Worse Outcomes Compared to Non-Workers Compensation Patients following Hip Arthroscopy: A Propensity Matched Study with a Minimum 5-Year Follow-up.

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INTRODUCTION: This propensity matched retrospective cohort study sought to determine differences in mid-term clinical outcomes at 5-years between workers' compensation (WC) patients who are versus non-workers' compensation (NWC) patients who are undergoing hip arthroscopy (HA) for femoroacetabular impingement syndrome (FAIS).

METHODS: A retrospective cohort study was conducted on WC patients who underwent primary hip arthroscopy for FAIS from January 2012 to April 2017. These patients were matched using propensity score analysis in a 1:4 ratio by age, sex, and body mass index (BMI) to patients who were non-WC. Preoperative and postoperative radiographs were assessed. Patient reported outcomes (PROs) preoperatively and at 5-years including the Hip Outcome Score Activities of Daily Living subscale (HOS-ADL) and Sports subscale (HOS-SS), modified Harris Hip Score (mHHS), international Hip Outcome Tool (iHOT-12), and Visual Analog Scale (VAS) for Pain and Satisfaction were compared between groups using an independent t-test with an a priori significance level of 0.05. Minimally Clinically Important Difference (MCID) and Patient acceptable symptomatic state (PASS) were calculated using previously published thresholds for HOS-ADL, HOS-SS, mHHS, iHOT-12, and VAS Pain.

RESULTS:

Thirty-eight WC patients (25 female, 13 male, age: 40.3 ± 9.3 years; BMI 29.1 ± 6.0kg/m2) were propensity matched on a 1:4 basis by age, gender, and BMI to 152 NWC controls (100 female, 52 male, age: 40.4 ± 10.5 years; BMI: 28.1 ± 6.6kg/m2). There were no significant differences in sex ($p > 0.99$), age ($p = 0.947$), and BMI ($p = 0.397$) between groups, supporting satisfactory matching. There was a significant difference in preoperative alpha angles (WC: 63.6° ± 14.2° vs NWC: 58.2° ± 12.2°). There were no significant differences measured on postoperative radiographs.

Both groups demonstrated significant postoperative improvements in all outcome scores measured ($p \leq 0.001$). There were significant differences in preoperative HOS-ADL (WC: 41.8 ± 19.2 vs NWC: 61.7 ± 17.5, p=<0.001), HOS-SS (WC: 25.8 ± 26.9 vs NWC: 39.6 ± 20.6 p=0.005), mHHS (WC: 43.2 ± 14.6 vs NWC: 56.8 ± 15.1, p=<0.001), iHOT-12 (WC: 18.4 ± 15.6 vs NWC: 32.4 ± 17.4, p=0.006), and VAS Pain (WC: 71.1 ± 21 vs NWC: 58.7 ± 21.4, p=0.005) for WC patients compared to NWC patients. There were significant differences in outcomes at 5-years for HOS-ADL (WC: 72.1 ± 24.9 vs NWC: 83.1 ± 19.6, p=0.009), HOS-SS (WC: 57.6 ± 31.4 vs NWC: 71.6 ± 28.5, p=0.017), and VAS Pain (WC: 41.9 ± 34.3 vs NWC: 27.0 ± 27.4, p=0.025). There were no significant differences in Delta PROs or achieving MCID for HOS-ADL, HOS-SS, mHHS, or iHOT-12. There were significant differences in reaching PASS for HOS-ADL (WC: 26.7% vs NWC: 48.2%, p=0.031) and HOS-SS (WC: 30.0% vs NWC: 52.5%, p=0.025).

DISCUSSION AND CONCLUSION: Workers Compensation patients undergoing hip arthroscopy for FAIS demonstrate worse preoperative functionality in day-to-day activities and movement as well as increased baseline pain. WC patients also report worse mid-term outcomes, increased pain, and don't reach acceptable symptomatic states with their day-to-day activities as often at 5-years follow-up when compared to those who are not WC patients.

Table 1. Demographics

	WC	Controls	P-Value
N	38	152	
Age	40.3 ± 9.3	40.4 ± 10.5	0.947
Gender			1
Male	13	52	
Female	25	100	
BMI	29.1 ± 6	28.1 ± 6.6	0.397

Table 3. Achievement of MCID and PASS for Workers' Compensation patients compared to controls.

MCID	WC	Controls	P-Value
N	38	152	
HOS-ADL	81.0%	68.4%	0.251
HOS-SS	66.7%	71.3%	0.676
mHHS	84.2%	65.6%	0.111
iHOT-12	57.1%	76.1%	0.135
PASS	**WC**	**Controls**	**P-Value**
N	38	152	
HOS-ADL	26.7%	48.2%	0.031*
HOS-SS	30.0%	52.5%	0.025*
mHHS	44.4%	48.1%	0.725
iHOT-12	39.3%	50.0%	0.301

*Indicates statistical significance based upon a predetermined significance level of 0.05.

Table 2. Patient reported outcome scores at baseline and 5-years postoperatively.

Preoperative	WC	Controls	P-Value
N	38	152	
HOS-ADL	41.8 ± 19.2	61.7 ± 17.5	<0.001*
HOS-SS	25.8 ± 26.9	39.6 ± 20.6	0.005*
mHHS	43.2 ± 14.6	56.8 ± 15.1	<0.001*
iHOT-12	18.4 ± 15.6	32.4 ± 17.4	0.006*
VAS Pain	71.1 ± 21	58.7 ± 21.4	0.005*
5-Year	**WC**	**Controls**	**P-Value**
N	38	152	
HOS-ADL	72.1 ± 24.9	83.1 ± 19.6	0.009*
HOS-SS	57.6 ± 31.4	71.6 ± 28.5	0.017*
mHHS	70.1 ± 22.5	75.4 ± 19.4	0.211
iHOT-12	57.8 ± 35	64.8 ± 29.2	0.264
VAS Pain	41.9 ± 34.3	27 ± 27.4	0.025*
VAS Satisfaction	72.9 ± 38.4	77.8 ± 31.1	0.475
Delta PROs	**WC**	**Controls**	**P-Value**
N	38	152	
HOS-ADL	33.2 ± 22.9	21.5 ± 26	0.060
HOS-SS	32.7 ± 30.8	33.8 ± 34.5	0.890
mHHS	24.3 ± 15.3	19.1 ± 24.5	0.374
iHOT-12	36.5 ± 31.9	34.8 ± 30.5	0.849
VAS Pain	29.1 ± 33.1	31.6 ± 32.3	0.727

*Indicates statistical significance based upon a predetermined significance level of 0.05.

Table 4. Preoperative and Postoperative Radiographic Measurements

Preoperative Radiographs	WC	Controls	P-Value
N	38	152	
LCEA	34.4 ± 9.6	32 ± 6.2	0.158
Tonnis	5.7 ± 5	6.2 ± 4.3	0.623
Alpha Angle	63.6 ± 14.2	58.2 ± 12.2	0.029*
Postoperative Radiographs	**WC**	**Controls**	**P-Value**
N	38	152	
LCEA	31 ± 6.1	30.3 ± 6.1	0.542
Tonnis	7 ± 4.7	6.5 ± 4.3	0.564
Alpha Angle	37.2 ± 4.9	39.6 ± 9.3	0.131

*Indicates statistical significance based upon a predetermined significance level of 0.05.