

Subsequent Injury is Common after Foot and Ankle Surgery in Patients Receiving Workers' Compensation

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Introduction/Purpose: Workers' compensation (WC) has been associated with poor outcomes following a variety of injuries and surgeries. Previous studies have investigated surgical outcomes via satisfaction surveys, but rates of subsequent injury following surgery have not been specifically studied. The purpose of this study was to investigate the rates, locations and risk factors for subsequent injuries in WC patients and non-WC patients who underwent the same surgeries.

Methods: With IRB approval, we identified the records of patients with a foot or ankle surgery performed by a single surgeon from 2009-2015. We included only surgeries with one of the most common current procedural terminology (CPT) codes from the WC population. A retrospective chart review was performed on all WC and non-WC patients with at least one of these CPT codes. A subsequent injury was defined as a new injury at a different anatomical location that occurred from 2 months to 2 years after the index surgery. Chi-square and two-tailed t-tests were used to compare WC and non-WC patient populations, and to determine factors associated with subsequent injuries.

Results: Overall, the WC population had higher rates of subsequent injury than the non-WC population 23.21% versus 7.27%, $p=.0011$. Within the WC patient population, patients with subsequent injuries were older than patients without subsequent injuries 48.78 ± 7.30 versus 41.58 ± 12.40 , $p=.0137$. In a blinded review of the charts and Iowa Courts Online, legal representation was found to be more common in WC patients with subsequent injuries than WC patients without subsequent injuries (76.92% versus 37.21%, $p=.0240$). In the non-WC population, there were more males in the group without subsequent injuries than in the group with subsequent injuries 42.48% versus 8.33%, $p=.0287$. There were no significant differences in locations of subsequent injury. Hip, knee and contralateral foot and ankle were common areas of subsequent injury in both groups.

Conclusion: Overall, WC patients had higher rates of subsequent injury than non-WC patients. Within the WC group, legal representation further raised the risk of subsequent injury. Gender may mediate variable reporting of subsequent injuries in non-WC populations. While the reason for this increased risk of subsequent injury is not known, the differences are enough that they should be considered when counseling WC patients considering these surgeries. Additionally, if further study supported these findings, knowledge of the areas at risk for subsequent injury might lead to preventative strategies that could decrease the risk of subsequent injury.

Risk Factors and Outcomes									
	Workers Compensation (WC)	Total non-WC	p-value	WC without subsequent injury	WC with subsequent injury	p-value	Non-WC without subsequent injury	Non-WC with subsequent injury	p-value
n	56	165		43	13		153	12	
Sex (male)	37 (66.07%)	66 (40.00%)	.0007	30 (69.77%)	7 (53.85%)	.2880	65 (42.48%)	1 (8.33%)	.0287
Age at Surgery	43.25 ± 11.77	42.88 ± 13.22	.8535	41.58 ± 12.40	48.78 ± 7.30	.0137	42.54 ± 13.41	47.30 ± 9.76	.2300
Sidedness (right)	25 (44.64%)	86 (52.1%)	.3335	18 (41.86%)	7 (53.85%)	.4462	80 (52.29%)	6 (50.00%)	.8786
BMI	33.17 ± 8.15	32.18 ± 7.21	.3946	32.50 ± 8.14	35.33 ± 8.10	.2785	31.99 ± 7.12	34.56 ± 8.23	.2352
Pre-Op Pain	6.43 ± 2.07	6.18 ± 2.45	.5565	6.37 ± 2.09	6.59 ± 2.08	.7625	6.24 ± 2.37	5.50 ± 3.32	.3412
Duration NWB	94.88 ± 42.23	91.86 ± 48.56	.6791	92.48 ± 43.65	102.8 ± 37.66	.4469	92.38 ± 49.13	85.25 ± 41.89	.6258
Post-Op Comp	22 (39.29%)	45 (27.27%)	.0910	14 (32.56%)	8 (61.54%)	.0608	40 (26.14%)	5 (41.67%)	.2450
SES	\$70,489 ± \$20,619	\$66,896 ± \$14,541	.2316	\$70,225 ± \$22,420	\$71,363 ± \$13,720	.8634	\$66,553 ± \$14,800	\$71,274 ± \$10,171	.2801
Diabetes	1 (1.79%)	12 (7.27%)	.1923	1 (2.33%)	0 (0.00%)	1.000	11 (7.19%)	1 (8.33%)	1.0000
Smoking	25 (44.64%)	59 (35.76%)	.2366	19 (44.19%)	6 (46.15%)	.9005	55 (35.95%)	4 (33.33%)	1.0000
Litigation Status	26 (46.43%)	11 (6.71%)	<.0001	16 (37.21%)	10 (76.92%)	.0240	9 (5.88%)	2 (16.67%)	.1845
Subsequent Injury	13 (23.21%)	12 (7.27%)	.0011	-	-	-	-	-	-

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