Early Return to Work in Workers' Compensation Patients After Arthroscopic Full-Thickness Rotator Cuff Repair

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Purpose: The purpose of this study was to investigate the ability of patients to return to their preoperative work level and to identify functional prognostic factors in a group of Workers' Compensation (WC) patients after arthroscopic repair of full-thickness rotator cuff tears at a minimum follow-up of 1 year. **Methods:** Seventy-eight consecutive WC patients underwent arthroscopic rotator cuff repair (ARCR) and were retrospectively reviewed. Potential predictors of occupational outcomes were recorded. The primary outcomes included work level at the time of discharge, time to maximum medical improvement (MMI), and failures requiring revision rotator cuff repair. Secondary outcomes including physical examination and subjective scoring scales were also recorded. **Results:** Overall, 88.5% of patients (n = 69) returned to their preoperative level of work at a mean time to MMI of 7.6 ± 2.6 months. Of the WC patients, 55 (70.5%) were followed up for purposes of assessing shoulder function, with a mean follow-up of 33.6 ± 13.9 months. The mean American Shoulder and Elbow Surgeons score at this time was 82.3 ± 20.9, and the mean score on a visual analog scale was 1.7 ± 2.3. An association was found between patients who underwent ARCR with open biceps tenodesis and delay in MMI ($P = .01$). **Conclusions:** WC patients undergoing ARCR may expect a high likelihood of return to full duty at a mean time to MMI of 7.6 months. At the time of follow-up, patients reported good outcomes using validated scoring scales, but subjective outcomes remained inferior to non-WC patients based on historical controls. Alcohol use was the only prognostic factor to show a significant association with return to restricted-duty employment and repair failure. **Level of Evidence:** Level IV, therapeutic case series.

Although excellent outcomes have clearly been shown after arthroscopic rotator cuff repair (ARCR),[1-4] the subset of Workers' Compensation (WC) patients has long been recognized as having inferior results after various shoulder surgeries compared with non-WC patients.[5-10]

After rotator cuff repair specifically, a number of series have shown inferior results in WC patients. Essman et al.[6] noted good to excellent results in only 42% of their WC patients versus 72% of non-WC patients, and Hawkins et al.[8] noted in their series of 100 rotator cuff repairs that outcomes in WC patients were inferior to those in patients not receiving WC, with WC patients less likely to return to work (RTW). Likewise, in a retrospective review of 103 consecutive open rotator cuff repairs performed by Misamore et al.,[9] only 54% of WC patients had good to excellent results versus 92% of non-WC patients; the authors also noted that WC patients less frequently returned to full activity (42% *v* 94%) or to strenuous occupations (20% *v* 95%). Watson and Sonnabend[10] found that WC patients were 3.1 times more likely to be displeased after surgery than non-WC patients, with an

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overall patient satisfaction rate of only 71% (*v* 90% for non-WC patients). WC patients were also noted to report less pain reduction and less improvement in work ability after surgery than their non-WC counterparts. However, these studies have focused on subjective outcomes as their primary outcome measure.

Although these studies show generalized diminished outcomes in WC patients as a subset of larger patient cohorts, few studies have focused on outcomes after arthroscopic repair, and no study has looked at postoperative work level as the primary outcome measure. The purpose of this study was to investigate the ability of patients to return to their preoperative work level and to identify functional prognostic factors in a group of WC patients after arthroscopic repair of full-thickness rotator cuff tears at a minimum follow-up of 1 year. Our hypothesis was that WC patients would have a satisfactory return to preinjury levels of function after arthroscopic repair of full-thickness rotator cuff tears. The ability to predict RTW level and to identify potential prognostic variables in this unique, but significant, patient population would assist orthopaedists in advising both patients and employers regarding realistic recovery expectations.

METHODS

Between January 2004 and December 2006, all WC patients undergoing arthroscopic repair of full-thickness rotator cuff tears, with a minimum follow-up of 1 year, were reviewed. Four fellowship-trained orthopaedic surgeons specializing in either shoulder surgery or sports medicine performed all the surgeries in a high-volume clinical practice. The inclusion criterion was WC patients who had a symptomatic full-thickness rotator cuff tear and underwent primary arthroscopic repair. The exclusion criteria were WC patients who underwent revision repair, repair of a torn subscapularis tendon, or repair of partial-thickness tears or had contralateral shoulder pathology affecting RTW ability.

Patients who met the study criteria and provided informed consent were enrolled in the study. In our practice all surgical patients complete a preoperative questionnaire, which includes their demographic and social history, detailed medical history, and surgical history. Demographic information (age, gender, hand dominance, side of rotator cuff tear), occupation, history of rheumatoid arthritis, history of diabetes, tobacco use, and alcohol use were recorded. Alcohol use was subcategorized to 6 drinks or fewer per week or more than 6 drinks per week. By use of the *Canadian Classification and Dictionary of Occupations*,[11] job descriptions, and patient-specific responses on the preoperative questionnaire regarding employment physical demands, the preoperative and preinjury work level (sedentary, light work, medium work, heavy work, and very heavy work) was also recorded (Table 1). Intraoperative factors included both diagnostic information and concomitant procedures that were performed at the time of surgery. Rotator cuff pathology was described in terms of lesion size, which was determined after bursectomy of the subacromial space but before rotator cuff debridement. The tear size was measured in the sagittal plane at its insertion into its respective anatomic footprint, and the classification of DeOrio and Cofield[12] was recorded (small, medium, large, and massive). Given the small number of massive tears, large and massive tears were grouped together for statistical analysis. Repair configuration was noted (single or double row), and concomitant procedures including acromioplasty, distal clavicle excision, and biceps tenotomy or tenodesis were noted.

Postoperatively, patients took part in a standardized rehabilitation protocol: 6 weeks of shoulder immobilization and passive range of motion (ROM), followed by active ROM between 6 and 12 weeks, and progressive strengthening of the rotator cuff after 12 weeks. Because of logistical issues inherent to a WC study group, we did not objectively measure cuff integrity after ARCR surgery using magnetic resonance imaging. However, compliance with rehabilitation, work level at the time of discharge, time to maximum medical improvement (MMI), complications, and repeat shoulder surgeries were recorded in the chart review and patient interview.

Patients were invited to undergo a follow-up examination by an independent observer, who was an orthopaedic research fellow. The patients completed validated, clinical outcome scores including the Constant-Murley score,[13] Single Assessment Numeric Evaluation,[14] American Shoulder and Elbow Surgeons (ASES) score,[15] Simple Shoulder Test (SST),[16] and visual analog scale (VAS) for pain.[17-19] A physical examination was also performed. Forward elevation in the scapular plane and external rotation with the arm at the side were measured with a goniometer. The shoulder strength was measured with a manual muscle dynamometer (Lafayette Manual Muscle Test System; Lafayette Instrument Company, Lafayette, IN) in forward elevation in the scapular plane and external rotation at the side. The test was completed 3 times for each measurement, and a mean value was obtained. The strength ratio was calculated as the ratio of the force

Table 1. *Definitions of Work Level**

Work Category	Definition
Sedentary work	Exerting up to 10 lb of force occasionally and/or a negligible amount of force frequently. Sedentary work involves sitting most of the time but may involve walking or standing for brief periods of time.
Light work	Exerting up to 20 lb of force occasionally, and/or up to 10 lb of force frequently, and/or a negligible amount of force constantly to move objects. Even though the weight lifted may be only a negligible amount, a job should be rated light work (1) when it requires walking or standing to a significant degree, (2) when it requires sitting most of the time but entails pushing and/or pulling of arm or leg controls, and/or (3) when it requires working at a production rate pace entailing constant pushing and/or pulling of materials even though the weight of those materials is negligible.
Medium work	Exerting 20 to 50 lb of force occasionally, and/or 10 to 25 lb of force frequently, and/or greater than negligible force of up to 10 lb constantly to move objects. Physical demand requirements are in excess of those for light work.
Heavy work	Exerting 50 to 100 lb of force occasionally, and/or 25 to 50 lb of force frequently, and/or 10 to 20 lb of force constantly to move objects.
Very heavy work	Exerting in excess of 100 lb of force occasionally, and/or in excess of 50 lb of force frequently, and/or in excess of 20 lb of force constantly to move objects.

*According to data from *Canadian Classification and Dictionary of Occupations*.[11]

exerted by the affected (operative) shoulder relative to the force exerted by the unaffected (nonoperative) shoulder.

The outcome analysis was performed to determine the RTW status for patients at the time of discharge. Work level was determined by the operating surgeon at the time of discharge. In most cases a functional capacity evaluation was also obtained. The patient's ability to return to full work activities (yes or no) at the appropriate postoperative work level (sedentary, light work, medium work, heavy work, and very heavy work) and the time to MMI were determined. The time to MMI was subcategorized as less than 6 months, 7 to 12 months, and greater than 12 months. Failure of ARCR was considered to present in patients who required revision rotator cuff repair.

Descriptive analysis consisted of frequencies and percentages for discrete data and means and SDs for continuous data. Contingency table analysis included the Fisher exact test to conduct univariate analyses of the prognostic factors for RTW at preoperative levels, time to MMI, and failure of repair requiring revision (SPSS, Chicago, IL). $P < .05$ was considered to be statistically significant.

RESULTS

Between January 2004 and December 2006, 78 consecutive WC patients who underwent primary ARCR of full-thickness supraspinatus tendons met the study criteria. The demographic characteristics are shown in Table 2. The mean age of the patients was 54.9 ± 8.2 years (range, 35.8 to 73.2 years). Of the participants, 78.2% (n = 61) were men and 21.8% (n = 17) were women.

At the index procedure, the rotator cuff tear and associated pathology were recorded. The mean rotator cuff tear size was 3.02 ± 1.21 cm (range, 1.0 to 6.0 cm). According to the classification of DeOrio and Cofield,[12] there were 34 small tears (43.6%), 35 medium tears (44.9%), and 9 large/massive tears (11.5%). Tendon involvement included the supraspinatus 100.0% of the time (n = 78) and the infraspinatus 29.5% of the time (n = 23); tears involving the subscapularis were excluded from this study. Any additional pathology was addressed by the surgeon at the time of ARCR: acromioplasty in 47.4% (n = 37), biceps tenodesis in 29.5% (n = 23), distal clavicle resection in 6.4% (n = 5), and intra-articular debridement for glenohumeral osteoarthritis in 7.7% (n = 6). Of the tears, 42 (53.8%) were treated with a single-row configuration, whereas 36 (46.2%) were repaired with a double-row construct, with a mean of 2.45 ± 1.04 anchors (range, 1 to 5 anchors) being used per case.

Preoperatively, no patient was employed at a sedentary-work level, whereas 17 patients were employed at a light-work level, 13 patients at a medium-work level, 40 patients at a heavy-work level, and 8 patients at a very heavy–work level. Overall, 88.5% of patients (n = 69) returned to their preoperative level of work at a mean time to MMI of 7.6 ± 2.6 months. The percent of patients who returned to full duty decreased with increasing level of preoperative work activity, but the difference did not reach statistical significance (Fig 1). There were 9 patients who were not able to work at the same preoperative level after ARCR, and

Table 2. *Demographic Characteristics of ARCR Cohort (n = 78)*

Demographic Category	Characteristic
Mean age at surgery	54.9 ± 8.2 yr (range, 35.8-73.2 yr)
Mean follow-up	30.0 ± 13.2 mo
Gender	
Male	n = 61 (78.2%)
Female	n = 17 (21.8%)
Dominant side involvement	
Yes	67.9%
No	32.0%
Comorbidities	
Diabetes mellitus	n = 7 (9.0%)
Rheumatoid arthritis	n = 3 (3.8%)
Social history	
Active/recent tobacco user	n = 22 (28.2%)
Alcohol intake of 1-6 drinks per week	n = 25 (32.0%)
Alcohol intake of >6 drinks per week	n = 8 (10.3%)
Work level	
Sedentary	n = 0 (0.0%)
Light	n = 17 (21.8%)
Medium	n = 13 (16.7%)
Heavy	n = 40 (51.3%)
Very heavy	n = 8 (10.3%)
Concomitant shoulder pathology	
Biceps pathology	n = 23 (29.5%)
Acromioclavicular joint pathology	n = 30 (38.5%)
Impingement	n = 36 (46.2%)
Glenohumeral arthritis	n = 16 (20.5%)
Cuff tear characteristics	
Mean tear size	3.02 ± 1.21 cm (range, 1.0-6.0 cm)
Small*	n = 34 (43.6%)
Medium*	n = 35 (44.9%)
Large/massive*	n = 9 (11.5%)
Tendon involvement	
Supraspinatus	n = 78 (100.0%)
Infraspinatus	n = 23 (29.8%)
Subscapularis	n = 0 (0.0%)
Concomitant shoulder procedures	
Acromioplasty	n = 37 (47.4%)
Biceps tenodesis	n = 23 (29.5%)
Distal clavicle resection	n = 5 (6.4%)
Intra-articular debridement for glenohumeral arthritis	n = 6 (7.7%)
Operative technique	
Single-row anchor configuration	53.8%
Double-row anchor configuration	46.2%
Margin convergence	19.2%
Mean No. of anchors used	2.45 ± 1.04 (range 1 to 5)

*Tear size groupings based on data from the classification of DeOrio and Cofield.[12]

1 of 9 patients underwent revision rotator cuff repair. Six patients were heavy laborers (welder, demolition, heavy equipment operator, carpenter, sheet metal worker, and laborer), two were very heavy laborers (truck mechanic and airplane luggage handler), and one worked in housekeeping (medium). Of the 6 heavy laborers, 3 were restricted to sedentary work, 2 were permitted to perform light duties, and 1 was allowed to perform medium duties. One very heavy laborer was reassigned to light duty, and the other was permitted to perform a medium level of work but instead elected to retire. The 1 patient with a preoperative level of medium work was only able to perform sedentary work after ARCR.

There were 5 patients (6.4%) who had a failure of ARCR requiring revision rotator cuff repair, but 4 of 5 eventually returned to full-duty work at preoperative levels. Two patients, both heavy laborers, sustained a repeat ipsilateral shoulder injury shortly after recovering from uncomplicated ARCR and returning to full-duty work; both patients underwent revision surgery. Two patients had significant limitations in shoulder function shortly after ARCR. Postoperative magnetic resonance imaging showed residual cuff tendon defects, and the patients subsequently underwent open rotator cuff repair; 1 of these patients did not return to full-duty work. Finally, a draining portal was used in a machinist 3 weeks after surgery without evidence of deep infection. Five months later, he presented with infected subacromial bursitis with a partial-thickness rotator cuff tear necessitating irrigation, debridement, and subsequent revision with a mini-open rotator cuff repair.

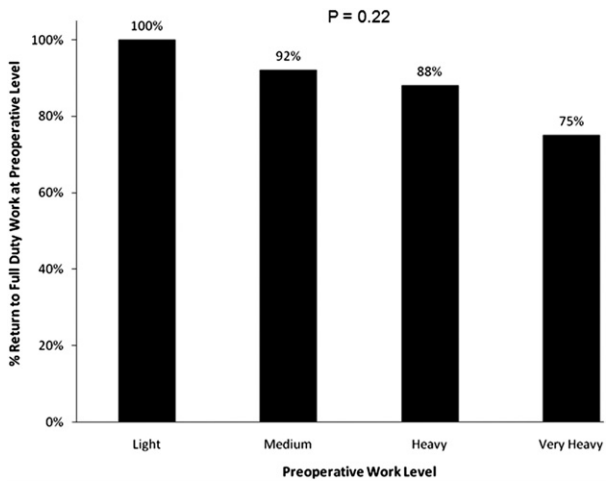

Figure 1. Percentage of patients' return to full-duty work according to preoperative work level.

With regard to postoperative shoulder function in terms of clinical scores, ROM, and strength, 55 WC patients (70.5%) were followed up, with a mean follow-up of 33.6 ± 13.9 months (range, 13.7 to 68.7 months). Twenty-two patients were lost to follow-up despite extensive attempts to locate them, and one patient refused to undergo follow-up for fear of negatively affecting his ongoing WC claim. The postoperative shoulder outcomes are summarized in Table 3. At final follow-up, mean forward flexion of the operative shoulder was 154.2° ± 30.4° and mean external rotation (side) was 62.1° ± 19.9°. The strength ratio, defined as maximum force exerted in the operative shoulder divided by maximum force exerted in the nonoperative shoulder, was 0.9 in forward flexion and 0.44 in external rotation. With regard to validated shoulder outcome scores, the mean SST score was 9.5 ± 3.4, the mean VAS score was 1.7 ± 2.3, and the mean Single Assessment Numeric Evaluation score was 83.6 ± 18.4 at final follow-up. In addition, the mean ASES score was 82.3 ± 20.9 and the mean Constant-Murley score was 72.2 ± 19.6 at this time point.

Univariate analysis was performed to determine prognostic factors that are associated with time to MMI, postoperative work levels, and revision rotator cuff repair. There was an association between patients with biceps tendonitis who underwent open biceps tenodesis and delay in MMI ($P = .011$). A history of preoperative alcohol use (>6 drinks per week) had a significant association with the inability to return to preoperative work levels after ARCR ($P = .011$) (Fig 2). In addition, those patients with limited alcohol consumption (≤6 drinks per week) were less likely to have failure requiring revision rotator cuff repair ($P = .014$) (Fig 3). Gender, preoperative work level, smoking status, diagnosis of diabetes, diagnosis of rheumatoid arthritis, tear size, acromioclavicular joint arthritis, and glenohumeral osteoarthritis did not influence return to postoperative work status, time to MMI, or failure rate in this population. Group sizes for univariate analysis are listed in Table 2.

TABLE 3. *Outcomes of WC Patients After ARCR (n = 55)*

Outcome	Mean	SD
Constant score	72.2	19.6
Single Assessment Numeric Evaluation score	83.6	18.4
ASES score	82.3	20.9
SST score	9.5	3.4
VAS score	1.7	2.3
Forward flexion on operative shoulder (°)	154.19	30.37
External rotation (side) on operative shoulder (°)	62.14	19.89
Forward flexion strength ratio*	0.9	0.44
External rotation (side) strength ratio*	0.44	0.33

*Strength ratio = Force exerted by affected shoulder/force exerted by unaffected shoulder.

FIGURE 2. Effect of alcohol use on RTW level.

DISCUSSION

This study is the largest series of ARCR in WC patients and reports that 88.5% of WC patients return to full-duty work at a mean time of 7.6 months regardless of preoperative work level, smoking status, or tear size. The study was specifically designed to determine RTW ability after ARCR and to identify prognostic factors that are associated with RTW, time to MMI, and failures necessitating revision rotator cuff repair in a WC patient population.

Disparities in a variety of outcome measures between WC and non-WC patients have been reported in a number of series after rotator cuff repair.[9,10,20,21] In 1 of the largest published series of WC patients after rotator cuff repair, Misamore et al.[9] retrospectively reviewed 103 consecutive open rotator cuff repairs. In this series 54% of WC patients had good to excellent results versus 92% of non-WC patients, with significantly lower scores in all UCLA scoring categories for the WC patients (including pain, function, strength,

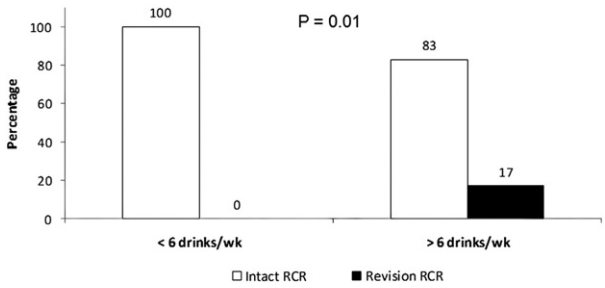

FIGURE 3. Effect of alcohol use on repair failure.

and motion). In addition, only 42% of WC patients returned to full activity versus 94% of non-WC patients. When strenuous occupations were evaluated separately, only 20% of WC patients returned to strenuous occupations compared with 95% of non-WC patients ($P < .01$). Regardless of the type of labor, WC patients were also much less likely to RTW without limitations (61% *v* 94%, $P < .001$), a theme that also persisted when the authors only compared patients with a component of manual labor (58% *v* 89%, $P < .01$).

Very few arthroscopic studies have specifically examined outcomes of ARCR in the WC cohort. Furthermore, none has focused specifically on RTW level after repair as the primary outcome measure. Cole et al.[22] performed a subgroup analysis to determine the outcome of their WC population. There were no significant differences between the WC cohort (n = 22) compared with the non-WC cohort (n = 25) in terms of patient satisfaction, functional outcome assessment, ROM, retear rate, or retear size ($P > .05$). However, there were some significant differences between the groups in terms of strength at baseline and 2-year follow-up. In addition, from a demographic standpoint, the WC patients were aged 9 years younger than the non-WC patients (52 years *v* 61 years, $P = .001$), they were predominantly male (78% *v* 25%, $P = .11$), and the dominant extremity was involved in a greater percentage (87% *v* 58%, $P = .24$). The tear size also differed between the groups, and 87% of the WC patients had small to medium tears compared with 69% of the non-WC patients ($P = .03$). More recently, Krishnan et al.[23] reported on ARCR in a series of patients aged younger than 40 years with a mean age of 37 years and a mean postoperative ASES score of 92. Of 23 patients, 21 (90%) returned to their previous level of activity or employment including 9 (90%) of the WC patients.

Probably the most notable difference between the more recent studies and historical literature is that the surgical technique has changed from open repair to all-arthroscopic rotator cuff repair. Both the studies of Essman et al.[6] and Misamore et al.[9] used formal open approaches with detachment of the deltoid muscle, which may have affected rehabilitation, rate of complications, and return to full duty. There are no studies that compare the outcomes of open rotator cuff repair and ARCR in a WC population, but such a study may provide insight into the effect of surgical technique on rehabilitation and RTW.

The findings from our study are consistent with the 2 previously mentioned studies that report on the outcome and RTW ability of WC patients after ARCR.[22,23] The overwhelming majority of WC patients returned to full duty (88.5%) regardless of the preoperative work level, which coincides with the RTW data published by Krishnan et al.[23] (90%). The percentage of WC patients who returned to full duty was 100% for light duty, 92% for medium duty, 88% for heavy duty, and 75% for very heavy duty (Fig 1). Although a trend toward decreased return to full duty was noted with increasing preoperative work level, statistical significance was not found ($P = .22$). Certainly, our low number of patients in each category could have limited our ability to show a significant difference.

With regard to subjective outcome measures, the findings of this study compare favorably with historical controls from both WC and non-WC patients. As in previous studies, we did note slightly lower subjective outcomes scores when compared with a non-WC patient population. Gartsman et al.,[1] in a retrospective review of 73 non-WC patients undergoing primary ARCR, reported a mean postoperative ASES score of 87.6 ± 12.8. Cole et al.,[22] in a review of 49 primary ARCR patients with 2 years' follow-up, 22 (47%) of whom were WC patients, reported a mean ASES score of 85, SST score of 9.8, and VAS score of 1.4 after 2 years' follow-up. These values are only slightly better than our study's findings (Table 3), possibly because of the higher percentage of non-WC patients.

It should be noted that a limitation of all studies on the WC population is that RTW is strongly affected by economic, social, and job-related factors including regional laws regarding duration and amount of compensation, family incomes greater than 125% of the poverty level, social support, educational level, and stability of the job market in the area.[24] This makes comparisons to previous studies in other regions and patient populations difficult. Nonetheless, the information presented may be useful in discussing patient expectations with regard to the likelihood of return to full duty independent of the level of work activity. This is particularly true because our study evaluated the work level at the time of discharge as determined by the operating surgeon at the time of MMI.

The senior surgeons in this study may have exhibited selection bias when offering surgery to WC patients, although this was not evaluated during this retrospective review. Surgery may only be offered to those with appropriate symptoms referable to the rotator cuff with corresponding physical examination and imaging findings. The demographic factors associated with WC patients are predictive for favorable clinical outcomes.[22] These patients represent a younger

population with a higher proportion of men. Age has consistently been reported in open and arthroscopic studies to be associated with outcome.[13,22,25-28] A number of studies have reported that age greater than 60 years can affect functional outcome[22,26]; however, our patient population is younger, with a mean age of 54.9 years. Gender also has been reported in some studies to have a role in clinical outcome, and some studies report female gender to be associated with lower shoulder functional scores and strength.[29] Mallon et al.,[29] on the other hand, reported better overall improvement in UCLA score for women. A greater proportion of men in our cohort (78.2%) may also affect functional outcomes and RTW data.

The effect of tear size on clinical outcome and postoperative healing has been well described in the literature.[26,28,30-32] In our WC population 69 of the 78 patients had small or medium tears. Again, the small number of large or massive tears may have limited our ability to show tear size as a predictor of RTW ability.

With regard to the time to MMI, it occurred at a mean of 7.6 ± 2.6 months after ARCR. Misamore et al.[9] reported that WC patients returned to their ultimate level of activity at 6.1 months, whereas non-WC patients returned at 5.7 months, but the difference was not statistically significant. The authors mentioned that there were patients who did continue to show improvement up to 1 year after surgery.[9] In a Finnish population, Bakalim and Pasila[5] also reported that RTW occurred at a mean of 6 months. Our findings suggest a slightly longer time to MMI, but the only factor that had affected the time to MMI was whether the patient had a concomitant open biceps tenodesis. Of the 23 WC patients who underwent biceps tenodesis (29.5%), 6 (26%) reached MMI within 6 months and 17 (74%) reached MMI between 7 months and 1 year.

Alcohol use was the only prognostic factor to show a significant association with return to restricted-duty employment and repair failure. Without question, more studies are needed to elucidate the effects alcohol consumption may have on biologic and psychosocial aspects of rotator cuff healing. Alcohol consumption has been reported in a number of studies to have a negative prognostic affect on clinical outcome and satisfaction.[33-35] In our study 97% of patients who reported consuming greater than 6 drinks per week were reassigned to restricted work duty. Some authors have postulated that excessive alcohol use may affect the ability of the patient to understand the disease, which may affect compliance with activity restrictions and rehabilitation.[34,35] Other studies have cited that alcohol was among the worst predictors of poor outcomes.[33] There are issues pertaining to false reporting of alcohol use, and patients may under-report or inaccurately report the amount of alcohol consumption.[35] Finally, it should be noted that the effect of alcohol on RTW is frequently confounded by educational level and poverty status, both of which have been shown to negatively affect time to RTW.[21]

This study has a number of limitations. It did not have a comparison group (non-WC patients with similar demographic data undergoing ARCR or WC patients undergoing open rotator cuff repair); thus historical controls were required for analysis. Although there were a total of 78 patients who were followed up from an RTW standpoint, only 55 patients were followed up from an outcomes standpoint; furthermore, analysis was often done on smaller selected work level and demographic groups. Although the limitations of retrospective study design are well known, there may be some advantage in this group. WC patients may be reluctant to participate in a research study if they have ongoing legal issues related to their injured shoulder. In addition, a prospective study may not be ideal in a situation where patient expectations and psychosocial factors may affect the outcome.

This is the first study to specifically evaluate occupational outcome after ARCR in a WC population. WC patients are a common population seen by orthopaedic surgeons, and open rotator cuff repair studies have cited inferior subjective outcomes and RTW compared with their non-WC peers.[6,9] Our findings suggest that WC patients after ARCR appear to return to full duty at a higher rate (88.5%) than reported in the open rotator cuff repair literature. Excessive alcohol use is a significant predictor of return to full duty and revision rotator cuff repair, and concomitant biceps tenodesis is associated with increased time to MMI.

CONCLUSIONS

WC patients undergoing ARCR may expect a high likelihood of return to full duty at a mean time to MMI of 7.6 months. At the time of follow-up, patients reported good outcomes using validated scoring scales, but subjective outcomes remained inferior to those in non-WC patients based on historical controls. Alcohol use was the only prognostic factor to show a significant association with return to restricted-duty employment and repair failure.

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