Predictive value of disability scoring systems for return-to-work outcomes in hand and forearm injuries

Nilay Cankurt Ayar,[1] Mustafa Selçuk Ayar,[2] Berna Aydin,[1] Ahmet Turla[1]

[1]Department of Forensic Medicine, Ondokuz Mayıs University, Faculty of Medicine, Samsun-*Türkiye*
[2]Department of Emergency Services, Terme State Hospital, Samsun-*Türkiye*

ABSTRACT

BACKGROUND: Predicting return-to-work (RTW) outcomes following upper extremity trauma is crucial for optimizing patient care, guiding rehabilitation, and reducing the socioeconomic burden. Although several disability scoring systems have been proposed to assess injury severity, their ability to estimate RTW status and duration remains underexplored. This study aimed to evaluate the predictive value of the Modified Hand Injury Severity Score (MHISS), Upper Extremity Disability Rate (UEDR), and Total Body Disability Rate (TBDR) for RTW outcomes in patients with hand, wrist, and forearm injuries.

METHODS: A retrospective cross-sectional study was conducted on 69 patients who presented to the Forensic Medicine Department of Ondokuz Mayıs University between 2020 and 2024. Eligible participants were adults with documented hand, wrist, or forearm injuries and complete treatment records, including MHISS scoring. Demographic data, injury characteristics, and disability rates (UEDR, TBDR) were collected. Statistical analyses included Spearman correlation, receiver operating characteristic (ROC) analysis, and logistic regression to assess associations between scoring systems and RTW status and duration.

RESULTS: The median MHISS score was 20.0, with corresponding UEDR and TBDR values of 3.0% and 2.0%, respectively. Occupational injuries, observed in 37.7% of cases, were associated with significantly higher disability scores ($p < 0.05$). ROC analysis demonstrated strong predictive ability for MHISS (area under the curve [AUC]: 0.886), UEDR (AUC: 0.903), and TBDR (AUC: 0.897) in identifying RTW status. While MHISS effectively predicted RTW status, it did not correlate with RTW duration ($p = 0.082$). In contrast, UEDR and TBDR showed weak but statistically significant correlations with RTW duration ($r = 0.295$ and $r = 0.296$, respectively). Multivariate logistic regression did not identify any independent predictors of RTW.

CONCLUSION: Disability scoring systems such as MHISS, UEDR, and TBDR are useful tools for predicting whether patients will return to work following hand and forearm injuries. However, their ability to estimate the duration of work absence is limited. Future research should integrate psychosocial, occupational, and rehabilitation-related variables to develop more comprehensive models for RTW prognosis.

Keywords: Hand injuries; return to work; disability evaluation; occupational injuries.

INTRODUCTION

Hand injuries are frequently encountered in regions where small- and medium-sized industrial enterprises and agriculture-based activities are prevalent. Owing to the functional significance of the hand, such injuries are associated with high morbidity and prolonged loss of workforce.[1] A substantial proportion of workers' compensation claims and applications to traffic compensation systems are related to acute orthopedic trauma. To mitigate the individual, social, and economic impacts of such trauma, it is crucial to identify prognostic factors associated with a low likelihoods of return to work at an early stage.[2]

While some studies have identified injury severity as the most significant factor influencing the ability to return to work,[3,4] others suggest that sociodemographic factors such as occupation, age, gender, and educational level also play a critical role.[5,6] Notably, Urso Baiarda et al.,[4] building upon the Hand Injury Severity Score (HISS) developed by Campbell and Kay to assess the extent and potential outcomes of hand injuries, introduced the Modified Hand Injury Severity Score. They proposed that MHISS severity, independent of other factors, significantly affects the duration of return to work.[7]

Determining the patient's recovery period, the time required to return to work, and the presence of any permanent disability is crucial after an injury. In Türkiye, disability rates for patients are assessed according to the Regulation on Disability Assessment for Adults.[8] In a previous study, Çapkın et al.[9] found that the MHISS was statistically significantly correlated with the upper extremity disability rate, total body disability rate, and return-to-work duration, as determined by this regulation. MHISS has also been used in numerous studies to predict long-term functionality in the affected region, return-to-work timelines, the likelihood of prolonged work absence, and triage decisions.[10-13]

The aim of this study was to examine whether scoring systems used to assess disability can serve as predictive factors for return to work and the time required to return to work.

MATERIALS AND METHODS

Study Design

This retrospective cross-sectional study included 69 patients who presented to the Forensic Medicine Department of Ondokuz Mayıs University Health Practice and Research Center between January 1, 2020 and January 1, 2024, for disability assessment following hand, wrist, and forearm injuries. Ethical approval was obtained from the Ethics Committee of Ondokuz Mayıs University (2025000001-1), and the study was conducted in accordance with the Declaration of Helsinki.

Patient Selection

Patients aged 18 years or older with documented hand, wrist, or forearm injuries during emergency department visits, evaluated by plastic surgery or orthopedic specialists with expertise in hand surgery, with fully calculated MHISS scores, and with complete treatment, surgical, and physical therapy rehabilitation records were included in the study.

Patients with incomplete treatment, surgical, or rehabilitation records; those under 18 years of age; or those with additional trauma outside the upper extremity were excluded from the study.

Data Collection

Recorded data included patients' age, gender, injury etiology, the device causing the injury, occupational category, injury di-

rection, and whether the dominant hand was affected. MHISS, UEDR, and TBDR scores were calculated and documented by a forensic medicine specialist.

Scoring Systems

The Modified Hand Injury Severity Score, derived from the Hand Injury Severity Score, is used to evaluate hand, wrist, and forearm injuries. MHISS assesses injury severity across four components: skin, skeleton, motor function, and nerves. Each component is scored based on absolute scores, the functional importance of the affected region, and additional factors such as wound contamination, compound fractures, crush injuries, or amputations. The total score is obtained by summing the component scores and classifying them into MHISS severity levels. In Türkiye, patients' disability rates are determined according to the Regulation on Disability Assessment for Adults, which primarily evaluates disability based on the active range of motion (ROM) of the injured hand, the amputation level, and the location of motor and sensory loss.[8]

Statistical Analysis

Data analysis was performed using IBM SPSS version 21.0 (SPSS Inc., Chicago, IL, USA). Categorical variables were summarized as frequencies, counts (n), and percentages (%). Non-normally distributed continuous variables were presented as medians (min-max). Spearman correlation analysis was applied to non-normally distributed data. Receiver operating characteristic analysis was conducted to evaluate the predictive ability of the scoring systems for return-to-work status, and cutoff values were determined using the Youden index. Results were expressed with 95% confidence intervals. Multivariate logistic regression analysis was performed to determine independent predictors of return-to-work status. A p-value of <0.05 was considered statistically significant for all analyses.

RESULTS

The median age of the patients was 40 years (range: 16-65), with the majority being male (71%). The median MHISS score was 40.0 (range: 2.0-1740.0), the upper extremity disability rate was 5.0% (range: 0.0-95.0), and the total body disability rate was 3.0% (range: 0.0-57.0). Dominant hand injuries were reported in 59.4% of cases. Regarding injury etiology, traffic accidents were the most common cause (55.1%), followed by occupational accidents (37.7%). Patients with occupational injuries had significantly higher MHISS, UEDR, and TBDR scores compared with those whose injuries had other causes (p<0.05). By injury type, sharp-force injuries were associated with significantly higher MHISS, UEDR, and TBDR scores compared with blunt or crush injuries (p<0.001) (Table 1).

Patients who successfully returned to work had a median age of 41 years (range: 18-65), while those who did not had a median age of 36 years (range: 18-65). Statistically significant

Table 1. Demographic and injury characteristics of patients

			Median (min-max)		
Age (years)			40.0 (16.0-65.0)		
RTW time (days)			90.0 (7.0-900.0)		
	n	**%**	**MHISS**	**UEDR**	**TBDR**
Gender					
Male	49	71.0	40.0 (2.0-1740.0)	5.0 (0.0-95.0)	3.0 (0.0-57.0)
Female	20	29.0	37.0 (4.0-631.0)	5.0 (0.0-40.0)	3.0 (0.0-24.0)
p[†]			0.921	0.716	0.746
Etiology of injuries					
Traffic accident	38	55.1	20.0 (2.0-1331.0)[a]	1.0 (0.0-95.0)[a]	1.0 (0.0-57.0)[a]
Work accident	26	37.7	96.0 (10.0-1740.0)[b]	11.0 (0.0-77.0)[b]	6.5 (0.0-46.0)[b]
Assault	5	7.2	20.0 (4.0-90.0)[a,c]	0.0 (0.0-5.0)[a,c]	0.0 (0.0-3.0)[a,c]
p[‡]			**<0.001**	**<0.001**	**<0.001**
Type of injury					
Crush injury	52	75.4	20.0 (2.0-1740.0)	4.0 (0.0-95.0)	2.5 (0.0-57.0)
Sharp-force injury	17	24.6	102.0 (10.0-1008.0)	9.0 (0.0-45.0)	5.0 (0.0-28.0)
p[†]			**0.002**	**0.016**	**0.013**
Occupational category					
Blue-collar worker	57	82.6	56.0 (2.0-1740.0)	8.0 (0.0-95.0)	5.0 (0.0-57.0)
White-collar worker	12	17.4	20.0 (6.0-262.0)	0.0 (0.0-22.0)	0.0 (0.0-13.0)
p[†]			0.181	**0.011**	**0.010**
Side of injury					
Right	41	59.4	42.0 (3.0-1740.0)	8.0 (0.0-95.0)	5.0 (0.0-57.0)
Left	25	36.2	28.0 (2.0-631.0)	5.0 (0.0-45.0)	3.0 (0.0-25.0)
Both	3	4.3	40.0 (22.0-80.0)	18.0 (9.0-28.0)	10.0 (5.0-17.0)
p[‡]			0.701	0.166	0.186
Dominant hand affected					
Yes	41	59.4	42.0 (3.0-1331.0)	8.0 (0.0-95.0)	5.0 (0.0-57.0)
No	28	40.6	31.0 (2.0-1740.0)	5.0 (0.0-77.0)	3.0 (0.0-46.0)
p[†]			0.580	0.622	0.613

†Mann-Whitney U test; ‡Kruskal-Wallis test. [a-c]:No significant differences between groups with the same letter (Dunn's test). RTW: Return to work.

differences were observed in MHISS scores (20.0 vs. 196.0; p<0.001), UEDR (3.0% vs. 24.5%; p<0.001), and TBDR (2.0% vs. 24.5%; p<0.001). A significantly higher proportion of patients with occupational accidents (38.5%) did not return to work compared with those injured by other causes (Table 2).

Correlation analysis revealed a weak positive correlation between return-to-work duration and both UEDR (r=0.295, p=0.029) and TBDR (r=0.296, p=0.028). MHISS was not significantly correlated with return-to-work duration (p=0.082) (Table 3).

In univariate logistic regression analysis, MHISS (odds ratio [OR]: 1.0; 95% confidence interval [CI]: 1.00-1.01; p=0.010),

UEDR (OR: 1.12; 95% CI: 1.05-1.19; p<0.001), and TBDR (OR: 0.40; 95% CI: 0.22-0.81; p<0.001) were identified as significant predictors of return to work. However, multivariate logistic regression analysis did not identify any statistically significant predictors (p>0.05) (Table 4).

The ROC analysis demonstrated high predictive accuracy for MHISS (AUC: 0.886; 95% CI: 0.801-0.971; p<0.001), UEDR (AUC: 0.903; 95% CI: 0.825-0.982; p<0.001), and TBDR (AUC: 0.897; 95% CI: 0.814-0.979; p<0.001). The optimal cut-off values for predicting return to work were MHISS ≤82.0, UEDR ≤10.0, and TBDR ≤6.0 (Fig. 1, Table 5).

Table 2. Comparative analysis of return-to-work (RTW) and non-return-to-work (nRTW) groups

	RTW, median (min-max)	nRTW, median (min-max)	p[†]
Age	41.0 (18.0-65.0)	36.0 (18.0-65.0)	0.638
MHISS	20.0 (2.0-1008.0)	196.0 (22.0-1740.0)	**<0.001**
UEDR	3.0 (0.0-43.0)	24.5 (5.0-95.0)	**<0.001**
TBDR	2.0 (0.0-26.0)	15.0 (3.0-57.0)	**<0.001**
	RTW, n (%)	**nRTW, n (%)**	**p[‡]**
Gender			
Male	39 (79.6%)	10 (20.4%)	0.969
Female	16 (80.0%)	4 (20.0%)	
Etiology of injury			
Traffic accident	34[a] (89.5%)	4[b] (10.5%)	**0.012**
Work accident	16[a] (61.5%)	10[b] (38.5%)	
Assault	5[a] (100.0%)	0[a] (0.0%)	
Type of injury			
Crush injury	42 (80.8%)	10 (19.2%)	0.734
Sharp-force injury	13 (76.5%)	4 (23.5%)	
Occupational category			
Blue-collar worker	43 (75.4%)	14 (24.6%)	0.107
White-collar worker	12 (100.0%)	0 (0.0%)	
Dominant hand affected			
Yes	32 (78.0%)	9 (22.0%)	0.912
No	23 (82.1%)	5 (17.9%)	

[†]Mann-Whitney U test; [‡]Chi-square test of independence, RTW: Return to work; MHISS: Modified Hand Injury Severity Score; UEDR: Upper Extremity Disability Rate; TBDR: Total Body Disability Rate. [a-c]:No significant differences between groups with the same letter (Bonferroni correction).
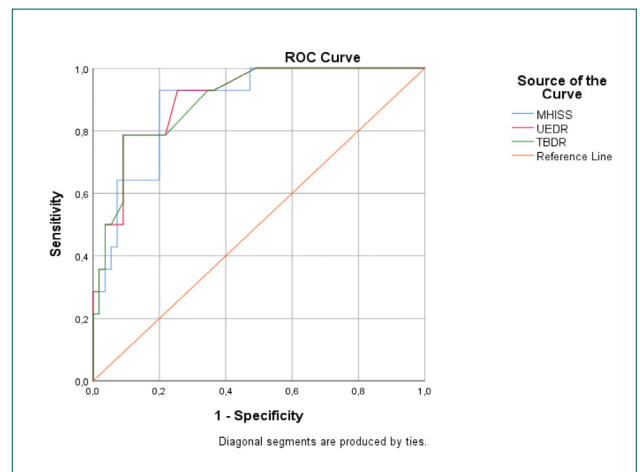
Table 3. Correlation between scoring systems and return-to-work duration

	RTW time (days)	
	r	p*
MHISS	0.236	0.082
UEDR	0.295	0.029
TBDR	0.296	0.028

*Spearman correlation. MHISS: Modified Hand Injury Severity Score; UEDR: Upper Extremity Disability Rate; TBDR: Total Body Disability Rate.

Figure 1. ROC Analysis Results for MHISS, UEDR, and TBDR in Predicting Return-to-Work.

DISCUSSION

Injuries or trauma affecting the upper extremities are significant conditions that prolong the return-to-work process and contribute to economic losses.[14] The MHISS, developed by Urso-Baiarda et al.,[4] is a scoring system for upper extremity injuries that predicts both the likelihood of returning to work

and the duration required for return. Their study demonstrated that as the MHISS score and classification increased, the probability of returning to work decreased, and this finding could not be explained by factors such as dominant ex-

Table 4. Univariate and multivariate logistic regression analysis of predictors of return to work

	Multivariate OR (95% CI)	p	Univariate OR (95% CI)	p
Age	0.92 (0.840-1.00)	0.054	0.99 (0.95-1.03)	0.613
Female gender	1.67 (0.24-11.80)	0.606	0.98 (0.27-3.57)	0.969
Sharp-force injury	2.57 (0.23-28.72)	0.445	0.77 (0.21-2.89)	0.702
MHISS	1.00 (0.99-1.00)	0.203	1.00 (1.00-1.01)	0.010
UEDR	2.18 (0.36-13.09)	0.396	1.12 (1.05-1.19)	<0.001
TBDR	0.40 (0.02-7.81)	0.544	1.20 (1.09-1.34)	<0.001
Dominant hand affected	0.99 (0.15-6.53)	0.993	1.29 (0.38-4.37)	0.678
Constant	0.04 (0-0)	0.182		

Cox & Snell R2=0.377; Nagelkerke R2=0.593; Model accuracy=0.870. MHISS: Modified Hand Injury Severity Score; UEDR: Upper Extremity Disability Rate; TBDR: Total Body Disability Rate.

Table 5. Receiver Operating Characteristic (ROC) analysis of the Modified Hand Injury Severity Score (MHISS), Upper Extremity Disability Rate (UEDR), and Total Body Disability Rate (TBDR) for predicting return to work

	MHISS	UEDR	TBDR
Cut-off	≤82.0	≤10.0	≤6.0
AUC (95% CI)	0.886 (0.801-0.971)	0.903 (0.825-0.982)	0.897 (0.814-0.979)
Sensitivity	78.6% (49.2-95.3)	78.6% (49.2-95.3)	78.6% (49.2-95.3)
Specificity	80.0% (67.3-89.6)	78.2% (65.0-88.2)	78.2% (65.0-88.2)
PPV	50.0% (35.5-64.5)	47.8% (34.1-61.9)	47.8% (34.1-61.9)
NPV	93.6% (84.2-97.6)	93.5% (83.9-97.5)	93.5% (83.9-97.5)
Accuracy	79.7% (68.3-88.4)	78.3% (66.7-87.3)	78.3% (66.7-87.3)
p value	<0.001	<0.001	<0.001

MHISS: Modified Hand Injury Severity Score; UEDR: Upper Extremity Disability Rate; TBDR: Total Body Disability Rate.

tremity involvement, household income, or compensation claims. However, other studies in the literature have emphasized the influence of physical, psychosocial, demographic, and employment-related factors on return-to-work duration.[15-17] The present study examined patients who sustained hand or forearm injuries within the past five years and presented to our clinic for disability evaluation.

We observed that individuals who experienced occupational accidents had a lower likelihood of returning to work compared to those injured from other etiologies. Previous studies have also shown that occupational accidents are associated with longer recovery periods before return to work than hand injuries resulting from other factors. This has been attributed to the fact that occupational accidents predominantly occur among workers who use hand tools, requiring advanced manual skills to resume their jobs.[18-21] Our findings are consistent with those reported in the literature.

We found no statistically significant differences between pa-

tients who returned to work and those who did not in terms of age, gender, type of injury, job category (white-collar vs. blue-collar), or dominant hand involvement. Although these findings contradict studies suggesting that age and gender are significant factors influencing the time to return to work,[22] they are consistent with the results of a systematic review by Shi et al.,[23] which examined prognostic factors for return to work following work-related traumatic hand injuries.

Independent predictors of return to work were evaluated using logistic regression analysis, and the scoring systems examined were found to be significant in univariate analyses. Subsequently, we assessed these scoring systems as predictors of return to work using ROC analysis. MHISS, UEDR, and TBDR were all significant predictors of return to work, with the following thresholds and AUC values: MHISS ≤82.0 (AUC: 0.886), UEDR ≤10.0 (AUC: 0.903), and TBDR ≤6.0 (AUC: 0.897). These findings support Urso-Baiarda's[4] assertion that MHISS is a strong standalone marker for return to work. However, no significant correlation was found between

MHISS and the duration of return to work. While UEDR and TBDR showed significant correlations with return-to-work duration, these correlations were weak (r=0.295 for UEDR, r=0.296 for TBDR). By contrast, the study by Çapkın et al.[9] reported a very strong positive correlation between MHISS, UEDR, TBDR, and return-to-work duration. Our findings suggest that although scoring systems are effective in predicting return-to-work status, they are not sufficient on their own to predict the duration of return to work among patients who eventually resume employment.

The negative legal processes often encountered by patients presenting to the forensic medicine department, particularly in disputes with their employers, may influence both their return-to-work duration and their ability to return to work. Consequently, the data from patients seen in the forensic medicine clinic may inherently differ from those of patients presenting to other clinics, who typically experience more favorable legal processes and receive adequate social and medical support.

CONCLUSION

In conclusion, scoring systems such as MHISS, UEDR, and TBDR can be used as predictive tools for evaluating return-to-work status. However, relying solely on these systems is insufficient for assessing the duration of return to work. To better understand the return-to-work timeline for patients with hand and forearm injuries, future studies should explore the impact of psychosocial and environmental factors (e.g., anxiety levels, economic and social support) as well as the optimization of rehabilitation processes. Such research could help develop more comprehensive and effective evaluation methods that extend beyond the current limitations of existing scoring systems.

A key limitation of this study is the inability to confirm whether patients who did not return to work failed to do so solely for medical reasons. Factors such as employer dynamics, adherence to an effective physical rehabilitation, medical follow-up, and sociodemographic influences were not clearly delineated. In addition, it was not possible to determine whether individuals who returned to work resumed their previous roles under the same job descriptions or were reassigned to modified duties. This lack of information may affect the interpretation of functional recovery. Moreover, the relatively small sample size and the fact that all patients included in the study were seeking disability-related reports (raising the possibility of simulation) further constrain the findings.

REFERENCES

1. Şakrak T, Mangır S, Körmutlu A, Cemboluk Ö, Kıvanç Ö, Tekgöz A. 1205 El yaralanmasi olgusunun retrospektif analizi. Turk Plast Surg 2010;17:134–8.

2. Clay FJ, Newstead SV, McClure RJ. A systematic review of early prognostic factors for return to work following acute orthopaedic trauma. Injury 2010;41:787–803.

3. Skov O, Jeune B, Lauritsen JM, Barfred T. Time off work after occupational hand injuries. J Hand Surg Br 1999;24:187-9.

4. Urso-Baiarda F, Lyons RA, Laing J, Brophy S, Wareham K, Camp D. A prospective evaluation of the Modified Hand Injury Severity Score in predicting return to work. Int J Surg 2008;6:45–50.

5. MacKenzie EJ, Morris Jr JA, Jurkovich GJ, Yasui Y, Cushing BM, Burgess AR, et al. Return to work following injury: the role of economic, social, and job-related factors. Am J Public Health 1998;88:1630–7.

6. Aksan AD, Durusoy R, Ada S, Kayalar M, Aksu F, Bal E. El ve mikrocerrahi hastanesinde tedavi edilen yaralanmaların epidemiyojisi. Acta Orthop Traumatol Turc 2010;44:352–60.

7. Campbell D, Kay S. The hand injury severity scoring system. J Hand Surg Br 1996;21:295–8.

8. T.C. Cumhurbaşkanlığı Mevzuat Bilgi Sistemi. Erişkinler için engellilik değerlendirmesi hakkinda yönetmelik. Available from: https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=31275&MevzuatTur=7&MevzuatTertip=5. Accessed on Nov 22, 2024

9. Çapkın S, Cavit A, Yılmaz K, Erdoğan E, Kaleli T. Associations between initial injury severity in acute hand, wrist or forearm injuries and disability ratings and time to return to work. Ulus Travma Acil Cerrahi Derg 2020;26:453–61

10. Duman Şahin Z, Ayyıldız A, Çiftci İnceoğlu S, Kuran B, The relationship between injury severity, grip strength and functionality in traumatic hand injuries. An Facultad Med (Univ Repúb Urug 2024;11:e206.

11. Alexander A. Using the modified Hand Injury Severity Score (mHISS) as an objective measure to evaluate a mechanism of triage in a hand therapy department. Hand Therapy 2016;21:54–7.

12. Rosberg HE. Disability and health after replantation or revascularisation in the upper extremity in a population in southern Sweden–a retrospective long time follow up. BMC Musculoskelet Disord 2014;15:73.

13. Izadi N, Jamshidi S, Mehrdad R, Nasibi E. Predictors of return to work in patients with occupational hand injury. Hand Surg Rehabil 2020;39:218–22.

14. Çakır N, Özcan RH, Kitiş A, Büker N. El ve önkol yaralanmalarında yaralanma ciddiyeti ile işe geri dönüş, bozukluk, aktivite ve katılım arasındaki ilişkinin incelenmesi. Ulus Travma Acil Cerr Derg 2014;20:120–6.

15. Lee YY, Chang JH, Shieh SJ, Lee YC, Kuo LC, Lee YL. Association between the initial anatomical severity and opportunity of return to work in occupational hand injured patients. J Trauma 2010;69:E88–93.

16. Chang J-H, Wu M, Lee C-L, Guo Y-L, Chiu H-Y. Correlation of return to work outcomes and hand impairment measures among workers with traumatic hand injury. J Occup Rehabil 2011;21:9–16.

17. Ramel E, Rosberg H-E, Dahlin LB, Cederlund RI. Return to work after a serious hand injury. Work 2013;44:459–69.

18. Mink Van Der Molen AB, Matloub HS, Dzwierzynski W, Sanger J. The

hand injury severity scoring system and workers' compensation cases in Wisconsin, USA. J Hand Surg Br 1999;24:184–6.

19. Rosberg HE, Carlsson KS, Cederlund RI, Ramel E, Dahlin LB. Costs and outcome for serious hand and arm injuries during the first year after trauma–a prospective study. BMC Public Health 2013;13:501.

20. Şahin F, Akca H, Akkaya N, Zincir ÖD, Işık A. Cost analysis and related factors in patients with traumatic hand injury. J Hand Surg Eur Vol 2013;38:673–9.

21. Johns A. Time off work after hand injury. Injury 1981;12:417–24.

22. Meiners PM, Coert JH, Robinson PH, Meek MF. Impairment and employment issues after nerve repair in the hand and forearm. Disabil Rehabil 2005;27:617–23.

23. Shi Q, Sinden K, MacDermid JC, Walton D, Grewal R. A systematic review of prognostic factors for return to work following work-related traumatic hand injury. J Hand Ther 2014;27:55–62.

ORİJİNAL ÇALIŞMA - *ÖZ*

El ve ön kol yaralanmalarında işe dönüşle ilişkili sonuçların öngörülmesinde engellilik puanlama sistemlerinin rolü

AMAÇ: Üst ekstremite travmalarını takiben işe dönüş sonuçlarını öngörebilmek, hasta bakımının optimize edilmesi, rehabilitasyon sürecinin yönlendirilmesi ve sosyoekonomik yükün azaltılması açısından kritik öneme sahiptir. Travma şiddetini değerlendirmek amacıyla çeşitli engellilik puanlama sistemleri önerilmiş olsa da bu sistemlerin işe dönüş durumu ve süresini tahmin etme konusundaki yeterliliği sınırlı düzeyde araştırılmıştır. Bu çalışma, el, el bileği ve ön kol yaralanmaları bulunan hastalarda Modifiye El Yaralanması Şiddet Skoru (MHISS), Üst Ekstremite Özürlülük Oranı (UEDR) ve Toplam Vücut Özürlülük Oranı'nın (TBDR) işe dönüş sonuçlarını öngörme değerini değerlendirmeyi amaçlamaktadır.

GEREÇ VE YÖNTEM: Bu retrospektif kesitsel çalışma, 2020–2024 yılları arasında Ondokuz Mayıs Üniversitesi Adli Tıp Anabilim Dalı'na başvuran 69 hasta üzerinde gerçekleştirilmiştir. Çalışmaya, el, el bileği veya ön kol yaralanması olan, tam tedavi kayıtlarına ve MHISS skorlamasına sahip erişkin bireyler dahil edilmiştir. Demografik veriler, yaralanma özellikleri ve özürlülük oranları (UEDR, TBDR) toplanmıştır. İstatistiksel analizlerde Spearman korelasyonu, ROC analizi ve lojistik regresyon kullanılmıştır.

BULGULAR: Ortanca MHISS skoru 20, UEDR %3, TBDR ise %2 olarak hesaplanmıştır. Olguların %37.7'sinde gözlenen iş kazaları, anlamlı düzeyde daha yüksek engellilik skorlarıyla ilişkili bulunmuştur (p<0.05). ROC analizi, MHISS (AUC: 0.886), UEDR (AUC: 0.903) ve TBDR'nin (AUC: 0.897) işe dönüş durumunu öngörmede yüksek doğrulukla çalıştığını göstermiştir. MHISS, işe dönüş durumunu başarılı şekilde tahmin etmesine karşın, işe dönüş süresiyle anlamlı bir korelasyon göstermemiştir (p=0.082). Buna karşın, UEDR ve TBDR ile işe dönüş süresi arasında zayıf ancak anlamlı korelasyonlar bulunmuştur (sırasıyla, r=0.295 ve r=0.296). Çok değişkenli lojistik regresyon analizinde bağımsız bir prediktör saptanmamıştır.

SONUÇ: MHISS, UEDR ve TBDR gibi engellilik puanlama sistemleri, el ve ön kol yaralanmaları sonrasında hastaların işe dönüp dönemeyeceğini öngörmede faydalı araçlardır. Ancak, işe dönüş süresini tahmin etme kapasiteleri sınırlıdır. Gelecekte yapılacak çalışmalarda, psikosyal, mesleki ve rehabilitasyonla ilişkili değişkenlerin de dahil edilmesiyle daha kapsamlı öngörü modelleri geliştirilebilir.

Anahtar sözcükler: El yaralanmaları; engellilik değerlendirmesi; işe dönüş; mesleki yaralanmalar.