Original Article
J Trauma Inj 2024;37(3):192-200
https://doi.org/10.20408/jti.2024.0001

Journal of Trauma and Injury JTI
pISSN 2799-4317 • eISSN 2287-1683

Traumatic peripheral nerve injuries in young Korean soldiers: a recent 10-year retrospective study

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Purpose: Traumatic peripheral nerve injury (PNI), which occurs in up to 3% of trauma patients, is a devastating condition that often leads to permanent disability. However, knowledge of traumatic PNI is limited. We describe epidemiology and clinical characteristics of traumatic PNI in Korea and identify the predictors of traumatic complete PNI.

Methods: A list of enlisted soldier patients who were discharged from military service due to PNI over a 10-year period (2012–2021) was obtained, and their medical records were reviewed. Patients were classified according to the causative events (traumatic vs. nontraumatic) and injury severity (complete vs. incomplete). Of traumatic PNIs, we compared the clinical variables between the incomplete and complete PNI groups and identified predictors of complete PNI.

Results: Of the 119 young male patients who were discharged from military service due to PNI, 85 (71.4%) were injured by a traumatic event; among them, 22 (25.9%) were assessed as having a complete injury. The most common PNI mechanism (n=49, 57.6%), was adjacent fractures or dislocations. Several injury-related characteristics were significantly associated with complete PNI: laceration or gunshot wound, PNI involving the median nerve, PNI involving multiple individual nerves (multiple PNI), and concomitant muscular or vascular injuries. After adjusting for other possible predictors, multiple PNI was identified as a significant predictor of a complete PNI (odds ratio, 3.583; P=0.017).

Conclusions: In this study, we analyzed the characteristics of enlisted Korean soldiers discharged due to traumatic PNI and found that the most common injury mechanism was adjacent fracture or dislocation (57.6%). Patients with multiple PNI had a significantly increased risk of complete injury. The results of this study contribute to a better understanding of traumatic PNI, which directly leads to a decline in functioning in patients with trauma.

Keywords: Peripheral nerve injuries; Wounds and injuries; Epidemiology; Prognosis; Military personnel

Received: January 3, 2024
Revised: June 3, 2024
Accepted: July 1, 2024

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INTRODUCTION

Background

Peripheral nerve injury (PNI) is a condition in which the peripheral nerves are damaged by traumatic or nontraumatic causes, resulting in neurologic deficits. It is a devastating condition that often leads to long-term impairment in physical and psychosocial function and negatively affects the quality of life of patients [1,2].

Furthermore, PNI is known to impose a great burden on public health through long periods of unemployment and significant healthcare costs [3,4].

Traumatic PNI has been reported to occur in 1% to 3% of patients admitted to a trauma center [5–8]. Additionally, the number of patients with traumatic PNI has increased. This is mainly attributed to advances in traumatology, which have led to more severe trauma survivors. Especially in the military population, the increased severity of extremity injury and progression of body armor have also been thought to contribute to a marked increase in the frequency of traumatic PNI [9–12].

Accordingly, traumatic PNI is one of the critical conditions that should be assessed in trauma patients; however, knowledge of traumatic PNI is limited [13]. The disease entity has only been recognized since World Wars I and II; therefore, there has been insufficient experience to accumulate extensive knowledge [8,12]. In addition, medical attention is often focused on other concomitant, life-threatening injuries. With advances in traumatology, there has been a growing interest in traumatic PNI, which can lead to permanent disability and decreased quality of life of survivors [1,2,5,6,8,9,11,14–16]. In recent years, there have been significant efforts to better understand and manage traumatic PNIs in many countries, and several studies on civilian or military populations have been conducted and published [5–7,9,10,13–25]. In Korea, however, no previous studies have addressed the epidemiology and basic characteristics of traumatic PNIs.

Korea is a country with compulsory conscription, which requires physically fit men aged 18 years to enlist and perform military services. If men develop serious illnesses during their military service, they undergo a medical investigation at a military hospital and are discharged. This is a strict system for reviewing a wide range of medical records and objective test results to prevent draft dodging, and all soldiers go through it without exception. For patients with PNI, it is necessary to perform the aforementioned process if the severity satisfies the standards for military discharge. Therefore, it was expected that data from this group of soldiers would provide representative and objective information on the PNI. Considering the military setting, these data would enable the analysis of traumatic PNI.

Objectives

This study aimed to describe the epidemiology and clinical characteristics of traumatic PNI in Korea by reviewing the medical records of Korean enlisted soldiers who had been discharged by the medical investigation committee. In addition, we investigated the predictors of sustained traumatic complete PNI.

METHODS

Ethics statement

The study protocol was reviewed and approved by the Ethics Review Committee of the Armed Forces Medical Command (No. AFMC-202110-HR-075-02). The requirement for informed consent was waived due to the retrospective nature of this study.

Study design and population

We performed a retrospective review of the medical records. The study population included Korean enlisted soldiers who had been diagnosed with severe peripheral nerve lesions during their military service and discharged by the medical investigation committee over a recent 10-year period (2012–2021). The enlisted soldiers were in the ranks of trainee, private, private first-class, corporal, and sergeant. Military officers were excluded from the study. We included patients who underwent a medical investigation based on the criteria outlined in the Standards for Assessing Diseases and Physical or Mental Illnesses in the Enforcement Decree of the Military Service Act. Specifically, we focused on brachial or lumbosacral plexus injuries, cervical or lumbosacral radiculopathy (item 227), and peripheral nerve disorders (item 228), as listed in Table 1. Patients with PNI, identified using elec-

Table 1. Relevant provisions in this study from the Standards for Assessing Diseases and Physical or Mental Illnesses in the Enforcement Decree of the Military Service Act of Korea

Diseases and physical or mental illness	Physical grade
227. Brachial or lumbosacral plexus injury[a]	
A. Incomplete injury	
2) After 6 months postinjury	
II) Presence of muscle atrophy	
ii) Muscle strength of grade III+ to IV−	5
iii) Muscle strength of grade II to III	6
B. Complete injury	6
228. Peripheral nerve disorder[a]	
A. Incomplete injury	
2) After 6 months postinjury	
II) Presence of muscle atrophy	
iii) Muscle strength of grade II to III	5
B. Complete injury	6

Physical grade 5 or 6 corresponds to criteria for military discharge due to disease or physical or mental illness. The items are applicable, only if injury is identified in the electrophysiological tests.
[a]The number refers to items of physical examinations in the provision.

trophysiological tests, were evaluated for muscle atrophy and weakness. If at 6 months postinjury, they exhibited muscle weakness below grade III for individual nerve injury or grade IV for plexus injury in a manual muscle strength test, they were classified as physical grade 5 or 6, making them eligible for military discharge upon medical investigation.

Among the eligible patients, those with PNI acquired before enlistment or during military leave were excluded. We excluded patients with lumbosacral plexus injury and cervical or lumbosacral radiculopathy because of a lack of representativeness. Most of these patients underwent a medical investigation with the physical grade determined by separate items of pelvic fracture (item 218-A), vertebral fracture (item 219), or herniated nucleus pulposus and spinal stenosis (item 242-C).

Data collection and outcomes

A list of eligible patients was obtained from the Armed Forces Medical Command. We retrospectively collected data and electrophysiological test results from all military hospitals using electronic medical records. The data were categorized into patient demographics and injury- and treatment-related characteristics. The electrophysiological test results were reviewed by two authors (CJ and KEK) with expert knowledge of the tests.

The patients were classified according to two injury-related characteristics: causative events (traumatic vs. nontraumatic) and injury severity (complete vs. incomplete). Patients with muscle strength grades of 0 to I at the time of military discharge and with little chance of additional recovery were determined to have complete PNI (item 227-B and 228-B in Table 1). The primary outcome was the epidemiology and clinical characteristics of traumatic PNI in soldiers enlisted in Korea. Predictors of traumatic complete PNI were investigated as secondary outcomes.

Statistical analysis

PASW SPSS ver. 18 (SPSS Inc) was used to perform all statistical analyses. Statistical significance was set at $P < 0.05$. Continuous variables were presented as mean ± standard deviation, and categorical variables were presented as counts (percentage). The Mann-Whitney U-test, Pearson chi-square test, and Fisher exact test were used to compare variables between two patient groups with traumatic PNI (incomplete and complete PNI groups). We used multivariate logistic regression analysis with stepwise variable selection to identify predictors of sustained traumatic complete PNI. Variables with a P-value of < 0.1 in the univariate analysis were considered as possible predictors. All possible predictors were included in the multivariate analysis.

RESULTS

A total of 191 enlisted soldiers who were discharged from military service due to neurological deficits because of PNI between 2012 and 2021 were eligible for this study. Patients with PNI acquired before enlistment (n = 34) or during military leave (n = 12), lumbosacral plexus injury and cervical or lumbosacral radiculopathy (n = 10), or insufficient records (n = 16) were excluded. A total of 119 patients were included in the study. All patients were male, and the mean age was 20.6 ± 1.5 years.

Distribution of PNIs according to involved nerve and injury mechanism

The distribution of PNIs according to the involved nerves and injury mechanisms is presented in Table 2. Of the 119 patients, 85 (71.4%) were injured in a traumatic event. Of the 85 patients with traumatic PNI, 22 (25.9%) were assessed as having a complete injury. The most common PNI mechanism was adjacent fractures or dislocations (n = 49, 57.6%), followed by blunt trauma, lacerations, and gunshot wounds. Among the PNIs associated with adjacent fractures or dislocations, radial nerve injury with a humeral fracture (n = 21) was the most frequent, followed by peroneal nerve injury with a fibular fracture (n = 8). According to the causative events of adjacent fractures or dislocations, arm wrestling (n = 13) was the most common, followed by soccer-related slips (n = 12), non-sports-related slips (n = 9), simple falls (n = 6), and crush injuries (n = 4). Nontraumatic PNIs include iatrogenic nerve injuries (n = 12), backpack palsy (n = 6), compartment syndrome (n = 5), thoracic outlet syndrome (n = 3), and cubital tunnel syndrome (n = 3).

Clinical characteristics of patients with traumatic PNI

Table 3 shows the comparison of clinical characteristics between the incomplete and complete PNI groups. There was no significant difference in patient demographics and treatment-related characteristics. For injury-related characteristics, traumatic PNIs following a laceration or gunshot wound were prone to lead to complete injury, compared with other injury mechanisms of adjacent fracture/dislocation or blunt trauma ($P = 0.028$). The proportion of traumatic PNI involving a median nerve or multiple nerves (multiple PNI) was significantly higher in the complete PNI group ($P = 0.025$ and $P = 0.015$, respectively). The proportion of associated muscular or vascular injuries was significantly higher in the complete PNI group ($P = 0.048$), whereas the proportion of associated fracture or dislocation showed no significant difference. Of note, all patients in the complete PNI group

https://doi.org/10.20408/jti.2024.0001

Table 2. Distribution of PNIs according to involved nerve and injury mechanism (n=119)

Nerve	Trauma (n=85)				Nontrauma (n=34)
	Fracture or dislocation	Laceration	Gunshot wound	Blunt	
Upper extremity					
Median	3 (1)	0 (0)	1 (0)	0 (0)	2 (0)
Ulnar	4 (0)	6 (2)	0 (0)	5 (0)	4 (0)
Radial	18 (7)	0 (0)	0 (0)	2 (0)	1 (1)
Median and ulnar	1 (1)	3 (2)	0 (0)	0 (0)	0 (0)
Median and radial	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Ulnar and radial	2 (0)	0 (0)	0 (0)	0 (0)	1 (0)
Median, ulnar, and radial	3 (1)	2 (1)	2 (2)	0 (0)	1 (0)
Brachial plexus	5 (0)	0 (0)	1 (0)	2 (0)	9 (0)
Spinal accessory	0 (0)	0 (0)	0 (0)	1 (0)	3 (0)
Lower extremity					
Peroneal	9 (1)	2 (0)	1 (1)	2 (0)	5 (1)
Tibial	0 (0)	0 (0)	0 (0)	1 (0)	2 (0)
Sciatic or peroneal and tibial	2 (0)	1 (1)	2 (1)	2 (1)	6 (3)
Femoral	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Total	49 (11)	14 (6)	7 (4)	15 (1)	34 (5)

Values are presented as number of patients with specific PNIs (number of patients with complete PNI).
PNI, peripheral nerve injury.

presented at least one associated injury, either fracture or dislocation, muscular or vascular injury (P=0.009). However, the type of military training or work, and injury location showed no statistical difference between the two patient groups.

Predictors of patients with traumatic complete PNI

Univariate logistic regression analysis was used to assess the association between clinical characteristics and traumatic complete PNI (Table 4). To analyze the number of involved individual nerves, eight patients with brachial plexus injury, referring to injury prior to branching into individual nerves, were excluded. In multivariate analysis using forward stepwise variable selection, multiple PNI were identified as a significant predictor of traumatic complete PNI, after adjusting for other possible predictors (odds ratio, 3.583; 95% confidence interval, 1.251–10.266).

DISCUSSION

To the best of our knowledge, this is the first study to describe the epidemiology and characteristics of traumatic PNI in Korea and investigate the predictors of traumatic complete PNI. In this study, 85 of the 119 enlisted soldiers (71.4%) discharged from military service due to PNI were injured in a traumatic event. Among the 85 patients, 22 (25.9%) sustained a complete PNI. The most common mechanism of PNI was adjacent fracture/dislocation (57.6%), followed by blunt trauma, lacerations, and gunshot wounds. We also found that injury involving laceration or gunshot wound, the median nerve, multiple PNI, and concomitant muscular or vascular injury were significantly associated with complete PNI. After adjusting for other predictors, multiple PNI was identified as a significant predictor of traumatic complete PNI.

We collected and analyzed data from enlisted Korean soldiers who were discharged because of PNI. These data have the advantages of representativeness and objectivity. First, only a small number of cases were missing from the study population. Considering compulsory conscription, most enlisted soldiers with serious injuries chose to undergo a medical investigation for military discharge. In addition, the medical investigation process is strict and objective. All PNIs were identified by electrophysiological studies, and muscle weakness was assessed by medical personnel with expertise in manual testing of muscle strength after 6 months postinjury.

This study showed that the most frequent injury mechanism for traumatic PNI was fracture and/or dislocation. Previous studies have suggested that fractures are commonly associated with traumatic PNI, ranging from 31% to 52%, and damage adjacent peripheral nerves primarily by indirect traction, or sometimes by direct penetration [7–9,15,17,25]. In this study, radial nerve injury with humeral fracture was the largest subgroup, with 21 patients, followed by peroneal nerve injury with fibular fracture. A previous study on enlisted Korean soldiers with humeral frac-

Table 3. Clinical characteristics of patients with traumatic PNI

Characteristic	Total (n=85)	Severity of PNI		P-value
		Complete (n=22)	Incomplete (n=63)	
Patient demographic				
Body mass index (kg/m^2)	22.9±2.8	23.0±2.4	22.8±2.9	0.775
Period of military service (mo)	6.4±5.2	6.8±5.6	6.3±5.0	0.848
Injury-related				
Causative event (military training/work-related)	43 (50.6)	11 (50.0)	32 (50.8)	0.949
Injury mechanism				0.028
Fracture or dislocation	49 (57.6)	11 (50.0)	38 (60.3)	
Laceration	14 (16.5)	6 (27.3)	8 (12.7)	
Gunshot wound	7 (8.2)	4 (18.2)	3 (4.8)	
Blunt trauma	15 (17.6)	1 (4.5)	14 (22.2)	
Injury location (upper extremity)	62 (72.9)	17 (77.3)	45 (71.4)	0.595
Multiple PNIs (except BPI)	23 (27.1)	11 (50.0)	12 (19.0)	0.015
Specific PNI[a]				
Median nerve	16 (18.8)	8 (36.4)	8 (12.7)	0.025
Ulnar nerve	28 (32.9)	9 (40.9)	19 (30.2)	0.356
Radial nerve	30 (35.3)	11 (50.0)	19 (30.2)	0.094
Peroneal nerve	20 (23.5)	5 (22.7)	15 (23.8)	0.918
Tibial nerve	7 (8.2)	3 (13.6)	4 (6.3)	0.368
BPI	8 (9.4)	0	8 (12.7)	0.105
Associated injury[a]				
Fracture or dislocation	57 (67.1)	16 (72.7)	41 (65.1)	0.511
Muscular or vascular injury	28 (32.9)	11 (50.0)	17 (27.0)	0.048
None	15 (17.6)	0	15 (23.8)	0.009
Treatment-related				
Days to initial EP evaluation	72.8±64.4	61.4±47.2	76.8±69.2	0.277
Underwent surgical procedure	76 (89.4)	22 (100)	54 (85.7)	0.104
Underwent nerve surgery	28 (32.9)	7 (31.8)	21 (33.3)	0.896
Neurorrhaphy	11 (39.3)	5 (71.4)	6 (28.6)	0.128
Neurolysis	7 (25.0)	0	7 (33.3)	
Transposition	10 (35.7)	2 (28.6)	8 (38.1)	

Values are presented as mean±standard deviation or number (%). Percentages may not total 100 due to rounding. The Mann-Whitney U-test, Pearson chi-square test, and Fisher exact test were used to compare variables between the patient groups.
PNI, peripheral nerve injury; BPI, brachial plexus injury; EP, electrophysiological.
[a]Duplicates are allowed.

tures reported that arm wrestling was the leading cause of humeral fractures, accounting for 65 of 123 patients (52.8%) [26]. This was consistent with our study in which arm wrestling was the causative event in 13 of 21 patients (61.9%) with radial nerve injury-associated humeral fractures. Among eight patients with peroneal nerve injury related to fibular fracture, it was notable that seven were caused by soccer-related slips and three had ankle dislocation, which should be the subject of further study in the future. With respect to the location of the injury, 62 of 85 patients (72.9%) with traumatic PNI were injured in the upper extremities. The proportion of traumatic PNI in the upper extremities was similar to that reported in previous studies, ranging from 60% to 80% [7,15,17,18].

Of the 85 patients with traumatic PNI, 22 (25.9%) were classified as complete injury. Although the definition of complete injury varies slightly, the proportion of complete PNI was comparable to previous studies of civilian populations (16%–35%) [13,14,17]. This can be attributed to the fact that the severity of traumatic PNI is not associated with whether the trauma was sustained while performing a military task. As previous civilian studies on traumatic PNI have reported young male predominance of 81% to 84%, it is not surprising that our study, on young military personnel, found similar results [5–7,13,15,17,18,23]. However, this study would also be meaningful in the military setting. This contributes to expanding our understanding of traumatic PNI in the peacetime military, in contrast to previous mili-

https://doi.org/10.20408/jti.2024.0001

Table 4. Predictors of patients with traumatic complete PNI

Variable	Univariate analysis		Multivariate analysis	
	OR (95% CI)	P-value	OR (95% CI)	P-value
Patient demographic			-	-
Body mass index (kg/m^2)	1.014 (0.853–1.206)	0.872		
Military service ≤6 mo	0.960 (0.362–2.546)	0.935		
Injury-related				
Training or work-related	0.969 (0.367–2.557)	0.949	-	-
Mechanism of injury			-	-
Fracture or dislocation	0.658 (0.248–1.746)	0.401		
Laceration	2.578 (0.780–8.525)	0.121		
Gunshot wound	4.444 (0.909–21.727)	0.065		
Blunt trauma	0.167 (0.021–1.350)	0.093		
Upper extremity	1.360 (0.436–4.240)	0.596	-	-
Multiple PNI (except BPI)	3.583 (1.251–10.266)	0.017	3.583 (1.251–10.266)	0.017
Specific PNI			-	-
Median nerve	3.929 (1.254–12.311)	0.019		
Ulnar nerve	1.603 (0.586–4.384)	0.358		
Radial nerve	2.316 (0.857–6.257)	0.098		
Peroneal nerve	0.941 (0.297–2.983)	0.918		
Tibial nerve	2.329 (0.478–11.349)	0.295		
Associated injury			-	-
Fracture or dislocation	1.431 (0.490–4.179)	0.201		
Muscular or vascular	2.706 (0.992–7.384)	0.052		
Treatment-related			-	-
Days to initial EP test	0.995 (0.986–1.005)	0.339		
Nerve surgery	0.933 (0.330–2.638)	0.896		

The ORs of complete PNIs for each variable were analyzed using logistic regression. Variables with a P-value of <0.1 in the univariate analysis were included in the multivariate analysis.
PNI, peripheral nerve injury; OR, odds ratio; CI, confidence interval; BPI, brachial plexus injury; EP, electrophysiological.

tary research that focused on wartime and combat-sustained PNI [9,10,16,19,24].

Considering the natural tendency of injured nerves to recover, complete PNI may be directly related to the failure of spontaneous recovery. The recovery process is generally classified into three mechanisms: remyelination, collateral sprouting, and axonal regrowth [8,27–29]. Remyelination occurs in a neurapraxic lesion for up to 3 months after injury, while collateral sprouting and axonal regrowth actively take place in partial or complete axonotmesis for up to 6 months after injury [8,27,29]. This study revealed that several injury-related characteristics of traumatic PNI are significantly associated with complete injury.

Regarding injury mechanisms, a laceration or gunshot wound was related to a more severe decline in the nerve recovery process than a fracture/dislocation-related injury. As previously described, a fracture or dislocation damages an adjacent nerve, mainly by traction. Nerve injury by traction is considered a mixed lesion of neurapraxia and axonotmesis, whereas laceration causes severe and direct injuries to axons [14,17]. The mixed portion of neurapraxia, requiring only remyelination, may have contributed to better recovery of nerves with a fracture/dislocation-related injury. In several previous studies, nerve injury from a gunshot wound was addressed as a combat-sustained PNI [9,13,16,20]. Studies have shown that PNI following a gunshot wound is highly likely to have a poor prognosis because a gunshot wound damages not only nerves, but also extensive connective tissues around the nerves by a cavitation effect. Injury to the connective tissue acts as a major obstacle to collateral sprouting and axonal regrowth.

Among concomitant injuries, muscular or vascular injuries were significantly associated with complete PNI, whereas fractures or dislocations showed no significant association. Previous studies have also suggested that traumatic PNIs are often accompanied by muscular or vascular injuries [5–7,9,10]. Patients with traumatic PNI accompanied by muscular and vascular injuries were reported to be more likely to undergo nerve surgery [23]. Considering these results, injury to soft tissue components showed a much stronger association with PNI than bony structure injury in terms of both incidence and severity. In contrast, all 15 patients with no associated injuries, including fractures, dislocations, or muscular or vascular injuries, were classified in the incomplete PNI group. Among them, 14 patients presented with PNI caused by blunt trauma, which is considered a factor for good prognosis.

A significantly higher proportion of patients with traumatic PNI involving the median nerve had complete PNI. Of the 16 patients with median nerve PNI, 12 (75.0%) had other nerve injuries, suggesting an association with severe trauma. In addition, the mechanism of nerve injury is one of the factors known to influence the variability of recovery of different individual nerves [27]. Specifically, of the 16 patients with median nerve PNI, five (31.3%) were injured by a laceration and three (18.8%) were injured by a gunshot wound. This represented a higher ratio of specific injury mechanisms than in the whole study population.

Of the 77 patients with traumatic PNI, 23 (29.9%) exhibited multiple individual nerve injuries. This percentage is similar to several previous studies reporting approximately 20% [7,17,19]. After adjusting for other factors, multiple PNI were identified as significant predictors of traumatic complete PNI, with a 3.5-fold risk increase. For PNI, there is a consensus to wait for the spontaneous recovery of the nerve before performing surgical treatment. However, if nerve surgery is required, it is recommended to be performed as early as possible because of muscle degeneration [8,23,28]. Therefore, it is necessary to consider early surgery in patients with multiple PNI, a predictor of traumatic PNI with a poor prognosis.

Limitations

This study had several limitations. First, this was a retrospective review of the medical records. Second, data on military officers were excluded because of the possibility of missing cases. Although most enlisted patients in the compulsory military service undergo medical investigations for discharge, military officers tend to continue their military duties. Third, although nerve recovery is considered to reach a plateau at 18 to 24 months postinjury, the severity of traumatic PNI was evaluated at 6 months postinjury [8,27]. However, there is a consensus that the majority of nerve recovery occurs within 6 months [29]. Currently, nerve surgery is also performed after awaiting spontaneous recovery for up to 6 months postinjury in many cases [8,28]. Fourth, this study did not use the Seddon or Sunderland criteria, which are used worldwide to determine the severity of PNI. Instead, we used muscle strength, a major function of nerves, to assess the severity of nerve injury. Because the degree of nerve injury is correlated with muscle strength, it was not expected to have a major impact on the study results. Fifth, patients with associated major organ injuries, such as traumatic brain injury and vertebral fractures were not included in this study. In our study the exclusion is attributed to those injuries being treated with separate items (central nervous system disorder, item 241; vertebral fracture, item 219) for the purpose of medical investigation. The exclusion of traumatic brain injury is highly important, considering that it is the most common associated injury occurring in up to 60% of patients with traumatic PNI [7–10]. Further studies in patients with both traumatic brain injury and traumatic PNI are needed. Finally, patients with lumbosacral plexus injury and radiculopathy were excluded because many patients underwent medical investigations based on various criteria.

Conclusions

This is the first study to describe traumatic PNI in Korea and investigate the predictors of traumatic complete PNI by analyzing data from soldiers enlisted in Korea over a 10-year period. Eighty-five enlisted Korean soldiers were discharged from the military service because of traumatic PNI, and for 57.6% of these the PNI was due to a nearby fracture or dislocation. Multiple PNIs was identified as a significant predictor of complete PNI. The results of this study contribute to a better understanding of traumatic PNI, which directly leads to a decline in functioning in patients following trauma.

ARTICLE INFORMATION

Author contributions

Conceptualization: CJ, KEK; Data curation: all authors; Formal analysis: CJ, KEK; Funding acquisition: KEK; Investigation: CJ, KEK; Methodology: CJ, KEK; Project administration: CJ, KEK; Visualization: CJ, KEK; Writing–original draft: CJ, K-EK; Writing– review & editing: all authors. All authors read and approved the final manuscript.

Conflicts of interest

The authors have no conflicts of interest to declare.

Funding

This work was supported by the Korean Military Medical Research Project (No. ROK-MND-2022-KMMRP-001), funded by the Korean Ministry of National Defense.

https://doi.org/10.20408/jti.2024.0001

Data availability

Data analyzed in this study are available from the corresponding author upon reasonable request.

Additional information

This study was presented at the 9th Pan-Pacific Trauma Congress on June 16–18, 2022, in Gyeongju, Korea.

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 https://doi.org/10.20408/jti.2024.0001