



Anger scale and anger types of patients with fifth metacarpal neck fracture

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Objective: The aim of this study was to investigate aggressive and angry behavior in patients with fifth metacarpal neck fracture and to analyze the anger management style of these patients and their response to psychological support.

Methods: This study included 30 patients (mean age: 24.8 years) who presented to the emergency room with fractures of the fifth metacarpal neck and 30 healthy control subjects (mean age: 28.7 years). All subjects were evaluated with the Spielberger state-trait anger scale and the 30 subjects with the fifth metacarpal neck fractures completed the Turkish version of Barratt impulsiveness scale and semi-structured data form to assess anger level before the trauma and willingness to receive psychological support.

Results: In the metacarpal fracture group, 60% of injuries were caused by hitting the hand against a wall and 40% by hitting the hand in a fight. The non-planning impulsiveness score of Barratt impulsiveness scale was higher in the injured group. There was no significant difference between the Spielberger state-trait anger scores of the injured and control groups. High scores in the subsection that measures impulsiveness that requires attention were found in 82% of patients.

Conclusion: Impulsive anger behavior is a common cause for fractures of the fifth metacarpal neck. Patients with these types of injuries often have difficulty controlling and directing their anger and often refuse psychiatric support. We believe that the hand surgeon should focus on the psycho-social problems of patients, and if necessary patients should be treated by a psychiatrist to prevent late psychopathologies for health promotion.

Key words: Barratt impulsiveness scale; fifth metacarpal neck fracture; psychiatry; Spielberger state-trait anger scale.

Anger is a normal and healthy emotion with positive results when expressed appropriately. However, while anger is a natural emotional reaction against any threat or ill treatment, aggressive physical reaction to anger can result in destructive behavior.^[1]

Hand injuries account for 28% of all musculoskeletal system injuries.^[2] Metacarpal and phalangeal fractures are the most common upper extremity injuries in athletic men between the ages

of 10 and 40. One and a half million hand and forearm fractures were treated in the USA in 1998, of which 600,000 (40%) were metacarpal and phalangeal fractures.^[3,4] The most common types of metacarpal fractures are fourth and fifth metacarpal neck fractures. Although the term of boxer fracture is used for fifth metacarpal neck fractures this fracture type is seen more frequently in combative people who hit a solid object.^[5]

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Table 1. The distribution of patients in the emergency service with fifth metacarpal neck fractures three months after trauma.

	Under 18	18-25	Older than 25	Number of cases with 5th metacarpal fracture	Number of traumatic patients presented to the emergency service
August	11	14	13	38	1,562
September	4	4	7	15	1,478
October	7	9	9	25	1,400

The large number of male patients admitted with fifth metacarpal neck fractures in emergency rooms prompted us to investigate the reason behind these fractures. We hypothesized that individuals with these type of fractures are those with poor anger control. With the exception of one study of the psychiatric evaluation of patients with hand-cut injuries, no similar study exists in the literature.^[6] In this study, we investigated aggressive and angry behavior as they are related to fifth metacarpal neck fractures and the anger management style of these patients and how they respond to psychological support.

Patients and methods

Over a three month period, 78 out of 4,437 (1.75%) traumatic cases that presented to our emergency service were fifth metacarpal neck fractures. Of these patients, 62% were under 25 years of age (Table 1). Only two cases were female. The study group was composed of 30 males with a traumatic fracture of the fifth metacarpal neck. The control

group was composed of 30 males without any hand injury, chosen randomly.

Both groups were evaluated with the Spielberger state-trait anger scale (SSTAS).^[7] This scale is composed of continuous anger, anger-inside, anger-outside and anger control subscales. It is a self-report questionnaire and applicable to adolescents and adults. There are 34 total questions in six sub-groups (Fig. 1). While the ten primary questions evaluate continuous anger level, the other 24 determine the individual’s anger style (anger-inside, anger-outside, anger control). High scores in continuous anger subscale show a high anger level, high scores in the anger control subscale show a high anger control level, high scores in the anger-outside subscale show that the anger is easily communicated, and high scores in the anger-inside subscale show that the anger is depressed.

Patients in the study group completed a semi-structured form composed of 11 questions evaluating the cause of the pre-injury anger and the willingness to get psychiatric support (Fig. 2). In addition,

	Which describes you the best?			
	Never			Always
1. I rapidly flare up.	1	2	3	4
2. I'm angry natured.	1	2	3	4
3. Foaming with anger.	1	2	3	4
4. I get angry when others mistakes retard my work.	1	2	3	4
5. I feel down when my work is not appreciated.	1	2	3	4
6. I lose my control when I get angry.	1	2	3	4
7. I talk without thinking when I get angry.	1	2	3	4
8. Being criticized in front of anybody gets me so angry.	1	2	3	4
9. I suddenly feel like to hit somebody when i'm blocked.	1	2	3	4
10. I get crazy when my good work is criticized badly.	1	2	3	4

Fig. 1. First ten questions of the SSTAS (about continuous anger level) evaluation scheme.

the Turkish adaptation of the Barratt impulsiveness scale (BDO-11) was used to examine the impulsive status in the study patients.^[8] The Turkish adaptation of Barratt impulsiveness scale is composed of 30 questions in three subscales that examine attentional impulsiveness, motor impulsiveness and non-planning impulsiveness. The questionnaire takes 15 to 20 minutes to complete.

An independent sample t-test and Mann-Whitney U test were used in statistical analysis.

Results

Twelve (40%) of the metacarpal fractures were the result of punching during a fight and 18 (%60) fractures resulted from punching a wall. The average age of study group was 24.8 (range: 11 to 64) years and 28.7 (range: 18 to 54) years in the control group. The metacarpal fracture was on the non-dominant extremity in four cases. Fourteen patients were students (high school or university). Alcohol intake was in question in four cases. We observed that the average time between injury and presentation at the emergency room was longer than in other hand injuries and patients were not so keen to denote the mechanism of their injury.

There was no statistically significant difference between the SSTAS results of the study and control group (Table 2).

Eighteen patients stated that they lost control when they felt they were wronged and 11 patients expressed regret for exposing themselves to trauma. According to the answers of the BDO-11 scale that despite experiencing difficulties controlling their anger, patients preferred to suppress, ignore and deny their anger instead of accepting and asking for professional help. High scores in the subsection that measures impulsiveness that requires attention were found in 82% of patients.

Discussion

Despite having difficulty in controlling their anger, most patients preferred to suppress and deny their anger and similar emotions instead of accepting and asking for help.

Hitting or punching without thinking is pure impulsiveness. Treatment for children with attention deficit disorder or hyperactivity by stimuli often includes stopping impulsive behavior. Exposure to

1. Was there any event or person who gets you angry or disturbed before you hit your hand?
 - Mother-father
 - Wife
 - Colleague
 - Suffering injustice
 - Rejection of my request
 - Other
2. Was there any alcohol or other substance intake before you hit your hand?
 - Yes
 - No
3. What's the location of the event? Home, work-school, street?
4. Was there anybody with you while you were coming to the emergency service?
5. Did you ever have such an injury before?
6. Did you ever have a reaction like hitting your own, pulling your hair, hitting your head, tearing your clothes, throwing things, and breaking things?
7. Is there anybody who has an injury like yours around you and in your family?
8. Did you have any problems about rules and discipline at school, military or work?
 - Rarely
 - Often
 - Generally
9. Have you ever needed a psychiatric consultation?
10. Have you ever gone to a psychiatrist (specifically during childhood)?
11. Would you like to get psychiatric help?

Fig. 2. The semi-structured questionnaire of hand-injured cases.

violence in early childhood may undermine cognitive perception of the cause-effect relation.^[9] Anger causes many difficulties spiritually, physically, and relationally when not expressed appropriately. Inappropriate expression of anger affects the normal flow of daily life, work and other aspects of life. Anger negatively affects also psychological and physical health. When felt, anger must be recognized, accepted and functionally expressed.

Table 2. The comparison of continuous state-trait anger scale (CSTAS) points of patients with fifth metacarpal neck fractures and the control group.

SSTAS subscales	Study (n=30) (mean±SD)	Control (n=30) (mean±SD)	t
Continuous anger	20.13±6.9	21.47±5.8	-.802
Anger-inside	16.23±3.8	17.60±4.8	-1.22
Anger-outside	16.13±4.7	16.50±5.03	-.291
Anger-control	21.80±6.3	21.87±4.8	-.046

Otherwise, as seen in this study, uncontrolled anger generates undesirable results increase the risk of physical injury.^[1]

We found no statistically significant differences in the SSTAS scores between the study and control groups. Conversely, in a group of hand injuries caused by punching glass, Sarandöl et al. found that high anger scores and recurrent events showed that this behavior may be a determinant for psychiatric disturbance.^[6] It must be noted that obtaining clear answers from patients in the emergency room may be difficult. Impulsivity and anger explosions are not socially accepted as normal behaviors. Therefore, in many cases the patient answers untruthfully. The common occurrence of delayed application to the clinic makes it complicated to evaluate alcohol and substance abuse. Patients often prefer to hide socially unacceptable behaviors and emotions in an attempt to be accepted and treated well by the doctor. Additionally, some patients' guilt and regret causes them to accept the injury silently, as a result of their behavior and want to conceal the event.

In the study of Trybus et al.,^[2] 45% of hand injuries were composed of home injuries and 19% were work injuries. Of these injuries 34% were related to mechanical instruments and 26% were related to excessive alcohol intake. The most common cause of home hand injuries were incurred while punching glass after alcohol intake. These injuries are more complex and their treatment is difficult and prolonged. Kanatlı et al., in their study on 18 fifth metacarpal neck fractures reported that 16 patients were injured by punching a wall and two patients were injured after a falling injury.^[10] In our series, wall-punching caused 60% of injuries while fighting caused 40%. All of our patients had a history of trauma at school or home. In these types of hand injuries, the treatment is usually conservative (cast or brace) and patients can return to daily activities more quickly than patients with glass injuries. Four patients were injured after alcohol intake. Our etiological findings are not in line with that of general hand injuries.

Impulsive anger behavior is a common cause for fractures of the fifth metacarpal neck. Patients with these types of injuries often have difficulty controlling and directing their anger and often refuse psychiatric support. In dealing with these injuries, hand surgeons must be sensitive to psycho-social necessities of patients with attention deficit disorder, cognitive perception disturbance or difficulties in evaluating the cause and effect relation of the events. Psychiatric support is often necessary.

Conflicts of Interest: No conflicts declared.

References

1. Özmen KS. Aile içinde öfke ve saldırganlığın yansımaları. Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi 2004;37:27-39.
2. Trybus M, Lorkowski J, Brongel L, Hladki W. Causes and consequences of hand injuries. *Am J Surg* 2006;192:52-7.
3. Burke FD, Dias JJ, Lunn PG, Bradley M. Providing care for hand disorders: trauma and elective. The Derby Hand Unit experience (1989-1990). *J Hand Surg Br* 1991;16:13-8.
4. Chung KC, Spilson SV. The frequency and epidemiology of hand and forearm fractures in the United States. *J Hand Surg Am* 2001;26:908-15.
5. Moran SL, Rizzo M, Shin AY. Hand and Wrist Fracture and Dislocations, Including Carpal Instability. *AAOS Comprehensive Orthopaedic Review*, Lieberman JR, editor 2009, Chapter 51, 547.
6. Sarandöl A, Özbek S, Eker S, Özcan M, Kırılı S. Psychiatric evaluation of patients with punching glass injuries admitted to the emergency room of a university hospital in Bursa, Turkey. *Türkiye'de Psikiyatri* 2006;8:88-92.
7. Özer AK. Sürekli öfke ve öfke ifade tarzı ölçekleri çalışması. *Türk Psikoloji Dergisi* 1994;31:26-35.
8. Güleç H, Tamam L, Güleç MY, Turhan M, Karakuş G, Zengin M, ve ark. Psychometric properties of the Turkish version of the Barratt impulsiveness scale-11. *Klinik Psikofarmakoloji Bülteni* 2008;18:251-8.
9. Karamustafalıoğlu OK, Zohar J, Güveli M, Gal G, Bakım B, Fostick L. Natural course of posttraumatic stress disorder: a 20-month prospective study of Turkish earthquake survivors. *J Clin Psychiatry* 2006;67:882-9.
10. Kanatlı U, Kazımoğlu C, Uğurlu M, Esen M. Konservatif olarak tedavi edilen boksör kırıklarında fonksiyonel sonuçların değerlendirilmesi. *Acta Orthop Traumatol Turc* 2002;36:429-31.