Archives of Current Medical Research
Arch Curr Med Res 2021;2(3):189-192

Received: 9 August 2021
Revised: 31 August 2021
Acccepted: 5 September 2021
DOI: 10.47482/acmr.2021.35

ORIGINAL ARTICLE

Outcomes of Consultations to Burn Units from Emergency Service

Merve Akın[1], **Ahmet Çınar Yastı**[2]

1 Ankara City Hospital, Department of General Surgery, Burn Treatment Center, Ankara, Turkey
2 University of Health Sciences, Department of General Surgery, Istanbul Turkey

Abstract

Background: In addition to being painful, burns cause aesthetic anxiety, causing patients to apply to the emergencies as soon as it occurs, and their first interventions are made in the emergency. In this study, the compliance with the guidelines in the consultations requested from the burn center and the referral of the patients to the center was evaluated.

Methods: Burn etiology, TBSA, burn depth, and area of adult patients were recorded, applied to our hospital's emergency with burns in 2019 and 2020, and were asked for consultation from the burn center.

Results: Within two years, consultation was requested from the burn center for a total of 288 patients. Of the consulted patients, 73 (25.3%) were admitted to the center. When the evaluation was made between the patients who were hospitalized and not, the burn depth, etiology, and the percentage of TBSA were statistically significant.

Conclusions: Indications for referral and hospitalization to burn centers have been determined with specific clinical guidelines. A significant result that stands out in this study is that 215 out of 288 consultations requested from the burn center didn't have an indication for hospitalization. With this study, the necessity of reconsidering the tendency to ask for a consultation has emerged. Emergency medicine physicians should be well-equipped with minor burn dressings as well as having knowledge about first response, referral decision and management. In this regard, if there is a burn unit/center in university hospitals or education hospitals, rotation of emergency medicine residents to burn treatment units should be discussed.

Keywords: Burns, Consultation, Burn Treatment Center.

INTRODUCTION

As in many countries, burn trauma is quite common in Turkey. In recent years, burn-related death rates have been decreasing thanks to burn treatment centers where new approaches in burn management, early resuscitation, and multidisciplinary treatment strategies can be applied. However, long-term rehabilitation and reconstructive surgery are gaining importance (1). Burn injuries occur in all segments of society. In addition to being painful, it causes aesthetic anxiety and causes patients to apply to the emergency service immediately from the moment it occurs. The first response to burn trauma is very important. For this reason, The Burn Treatment and Referral Guideline published by the American Burn Association (ABA) is used worldwide (2). Countries have made revisions to these guidelines in accordance with their own internal dynamics (1,3,4). In Turkey, Yastı et al. published a guideline in accordance with current burn treatment principles and taking into account the

Cite this article as: *Akın M, Yastı AÇ. Outcomes of consultations to burn units from emergency service. Arch Curr Med Res. 2021;2(3):189-192*

Corresponding Author:
Merve Akın, Ankara City Hospital, General Surgery, Burn Treatment Center, Ankara, Turkey
E-mail: merveakin.2002@gmail.com

conditions of our country, and it has been put into practice (5). In this study, it has been evaluated how well the guidelines are complied with regarding the consultations requested from the burn center for burn patients admitted to the emergency department and the referral of these patients to the center within a training and education hospital.

MATERIALS AND METHODS

In this retrospective study, the records of adult patients who applied to the emergency department of our hospital with burns and were consulted from the burn treatment center in 2019 and 2020 were scanned through the hospital information management system. Burn etiology, total body burn surface area (TBSA), burn depth, burn area were recorded. As a result of the requested consultation, the patients were evaluated according to their hospitalization status in the burn treatment center. Statistical analysis of clinical and demographic data was performed using mean and standard deviation. Chi-square test was used to compare the groups; $p < 0.05$ was considered statistically significant. The study was conducted with the approval of the Ankara City Hospital Ethics Committee dated 09/12/2020 and numbered E1-20-1383. Since the study was retrospective, an informed consent form was not used.

RESULTS

A total of 288 patients, who were admitted to the emergency center, were consulted from the burn treatment center in the two years that patient records were reviewed. As a result of the consultation evaluation, 73 patients (25.3%) were admitted to the burn treatment center. Considering all the consultations were requested, it was seen that 122 (42.4%) patients were burned with hot liquid and 95 (33%) patients with flame. Flame burns were the most common among hospitalized patients (42.5%). While the mean TBSA was 13.22% in hospitalized patients, with a range of 1 to 80%, 68.5% of these patients had specific burn areas. Burn-related demographic data of the patients for whom consultation was requested are presented in Table 1 in detail. When the evaluation was made between the patients who were admitted to the hospital and those who were not, the depth of burn, etiology, and percentage of TBSA were evaluated as statistically significant. ($p<0.001$, $p<0.001$, $p<0.001$, respectively)

Table 1. Characterestics of Patients Consultated Burn Unit

	Outpatient	Inpatient	Total	p-value
# of patients	215 (74.7%)	73 (25.3%)	288	
Burn Etiology				**<0.001**
Scald	103(82.8%)	21(17.2%)	124(43.1%)	
Fire	64(67.4%)	31(32.6%)	95(33%)	
Electric	10(40%)	15(60%)	25(8.7%)	
Chemical	19(86.4%)	3(13.6%)	22(7.6%)	
Radiation	7(87.5%)	1(12.5%)	8(2.8%)	
Frosbite	3(100%)	0	3(1%)	
Others	9(81.8%)	2(18.2%)	11 (3.8%)	
Burn Debth				**<0.001**
First degree	34	0	34(11.8%)	
Second degree	173 (77.2%)	51(22.8%)	224(77.8%)	
Third degree	8 (26.7%)	22 (73.3%)	30(10.4%)	
TVYA%(Avg)	4.48%	13.22%	6.69%	**<0.001**
First degree	8.21%	-	8.21%	
Second degree	3.58%	8.86%	4.79%	
Third degree	8%	23.3%	19.23%	
Late admission				0.807
Present	35(76.1%)	11(23.9%)	46(16%)	
Absent	180(74.4%)	62(25.6%)	242 (84%)	
Area (Face,Hand, Joints, Foot) Present				0.780
Absent	151(75.1%)	50(24.9%)	201(69.8%)	
	64(73.6%)	23(26.4%)	87(30.2%)	

DISCUSSION

Burn injuries are the fourth most common type of trauma in the world (6). Since it is quite painful, it often causes people to apply to the hospital, especially to the Emergency Services, as soon as it occurs. Today, Burn Centers, which provide a more professional approach to burn trauma, provide healthcare in many countries (7). Burn centers provide care in all phases of severe burn patients, from early intervention to rehabilitation and, if necessary, reconstruction. The number of centers and their capacities are determined locally by calculating the patient density in each country. Since these centers are accepted as reference centers all over the world, the indications for referral and hospitalization to the burn center were determined with reference to certain clinical guidelines. Some studies have shown that it is very important that the initial evaluation of the burn patient is carried out in accordance with the published and applied referral and hospitalization guidelines (8). Evaluation of the patient as severe or mild may lead to unnecessary referral of the patient to the burn center or to long-term negative consequences, including death. Therefore, existing guidelines and practices should be reviewed periodically (3). In this study, the rate of admission to the burn center of burn patients who applied to the emergency department of a training and research hospital with a burn treatment center that gives healthcare with specialists and assistants 24 hours a day was found to be 25.3%. In Europe, this rate varies between 4-22% (9). In this study, we attribute the fact that the hospitalization rate is slightly higher than the literature, that our center is an adult patient reference center for all of Turkey and that it accepts patients from many countries, especially from neighboring countries.

In the guideline published by Yastı et al. in 2015, indications for referral and hospitalization were determined (5). According to this

- Any age group with 2nd and 3rd degree burns with TBSA > 20%
- Any age group with 3rd degree burns with TBSA ≥ 5-10%
- Patients younger than 10 years and older than 50 years with TBSA ≥ 10%
- Patients with face, ear, hand, and foot burns
- Patients affected by large joints
- Patients with perineal and genital burns
- Chemical burns
- Electrical burns and lightning strike
- Inhalation damage
- Concomitant trauma
- Having a chronic disease
- Pregnancy
- Suspected child abuse

are hospitalization criteria.

In this study, it was observed that the patients admitted to the burn center followed the aforementioned guideline in terms of TBSA, burn depth and affected area, and were significantly higher than those who were followed up as outpatients.

An important result that stands out in the results of this study is that 215 out of 288 consultations requested from the burn center did not hospitalize, and 207 of patients had first, and second-degree burns with less than 10% TBSA. Eight patients with third-degree burns were small surface area patients who applied after the first 24 hours of trauma and were followed up in outpatient clinics. Patients who were not admitted to the center were followed up in the outpatient clinic.

Considering the patient density and regional factors, burn treatment units in Turkey have been classified as a burn center, burn unit, or burn room according to the medical disciplines, physical conditions, bed capacity, medical technological equipment, and personnel standards by the Ministry of Health. (10). According to this regulation, burn centers accept mild and moderate burn cases that need to be hospitalized.

Our burn center is a center where approximately 2000 patients apply annually, and 300 patients are treated as inpatients, and 10-15 % of those were consulted from the emergency department. This rate is consistent with the literature (9). The hospital we serve within, on the other hand, has approximately 10,000 patient applications per day. Providing burn treatment service in a hospital serving in this capacity requires much effort. In this study, 74.7% of the patients were only dressed, and outpatient control was recommended by arranging analgesic prescriptions by burn center physicians, While critical burn patients in the center were served in this intense pace, responding to consultation for first and second-degree superficial burns with TBSA less than 10% or even 5% causes loss of workforce. On the other hand, the patient has to wait until the consultant physician arrives. Elimination of this undesirable situation, which occurs for both the patient and the burn center/unit physicians, can only be achieved if the emergency medicine physicians know the indications for hospitalization and make the necessary dressing for the patients who do not require hospitalization.

When the predisposition to request consultation detected in this study is evaluated together with clinical experience, it is obvious that the system needs to be revised. The presence of a burn unit and center within university practice and research centers and training and research hospitals is a very important opportunity for family medicine, general surgery, pediatric surgery, and aesthetic and reconstructive surgery residents, especially emergency medicine residents. It is especially important for emergency medicine specialists to learn the first and correct response to burn cases, which they will encounter quite frequently in emergency services in their professional life. On the other hand, according to the Ministry's regulation, it is obligatory to open a burn room and treat at least two patients in hospitals that have a general surgery or a pediatric surgery or an aesthetic, plastic and reconstructive surgery specialists. Again, in hospitals where there is no unit/center, emergency medicine specialists have to make the first intervention of the burned patient. In the light of all these, ignorance of the indication for hospitalization causes a delay in the treatment of the patient who is suitable for outpatient treatment and increases the stress, while it brings with it serious workload and loss of workforce.

Burn cases are emergency cases where first aid is very important. The first to encounter these cases are often emergency medicine physicians. For this reason, they should be well-equipped with minor burn dressings within the framework of general medicine and have knowledge about first response, referral decision, and management. In this regard, if there is a burn unit or center in university hospitals and training and research hospitals, rotation of emergency medicine assistants to burn treatment units should be discussed.

Declarations

The authors received no financial support for the research and/or authorship of this article. There is no conflict of interest.

The study was conducted with the approval of the Ankara City Hospital Ethics Committee dated 09/12/2020 and numbered E1-20-1383. Since the study was retrospective, an informed consent form was not used.

REFERENCES

1. Gibson JAG, Yarrow J, Brown L, Evans J, Rogers SN, Spencer S, et al. Identifying patient concerns during consultations in tertiary burns services: development of the Adult Burns Patient Concerns Inventory. BMJ Open. 2019;9(12):e032785.
2. American Burn Association. Burn Referral Criteria; Available at: https://ameriburn.org/wp-content/uploads/2017/05/burncenterreferralcriteria.pdf Accessed: 20.07.2021
3. Bettencourt AP, Romanowski KS, Joe V, Jeng J, Carter JE, Cartotto R, et al. Updating the Burn Center Referral Criteria: Results From the 2018 eDelphi Consensus Study. J Burn Care Res. 2020;41(5):1052-1062.
4. Aviv U, Berl A, Haik J, Tessone A, Harats M. Standardization of Burn Patients Transfer: Implementation of a Transfer Request Form to Israel's National Burn Center. Isr Med Assoc J. 2020;11(22):700-703.
5. Yastı AÇ, Şenel E, Saydam M, Özok G, Çoruh A, Yorgancı K. Guideline and treatment algorithm for burn injuries. Ulus Travma Acil Cerrahi Derg. 2015 Mar;21(2):79-89.
6. World Health Organisation. Global burden of disease. Switzerland: World Health Organization Press, 2004: 1–160 (e-book). Available at: https://www.who.int/healthinfo/global_burden_disease/GBD_report_2004update_full.pdf?ua. Accessed: July 20,2021.
7. Vogt PM, Busche MN. Evaluation of infrastructure, equipment and training of 28 burn units/burn centers in Germany, Austria and Switzerland. Burns. 2011;37(2):257-64.
8. Van Yperen DT, Van Lieshout EMM, Nugteren LHT, Plaisier AC, Verhofstad MHJ, Van der Vlies CH, et al. Adherence to the emergency management of severe burns referral criteria in burn patients admitted to a hospital with or without a specialized burn center. Burns. 2021 Mar 1:S0305-4179(21)00059-0.
9. Brusselaers N, Monstrey S, Vogelaers D, Hoste E, Blot S. Severe burn injury in Europe: a systematic review of the incidence, etiology, morbidity, and mortality. Crit Care. 2010;14(5):R188.
10. The Official Gazette, 8 October 2019, Number:30912 Ministry of Health, Legislation about Burnt Treatment Units. Available at: https://www.resmigazete.gov.tr/eskiler/2019/10/20191008-1.htm.Accessed: July 20,2021.