

ORIGINAL ARTICLE

Assessment of Frequencies of Physiological Imperilments as Consequence of Burns due to Domestic Violence in a Tertiary Care Hospital

SAUDA USMANI¹, ZIA UL HAQ², ZULFIQAR ALI BUZDAR³, JAVAID MUNIR⁴, ABID RASHID⁵, FAIZA MUNIR QAZI⁶¹Assistant Professor Physiology, Pak Red Crescent Medical & Dental College Lahore.²Assistant Professor, Pak Red Crescent Medical & Dental College Lahore.³Assistant Professor, Sahara Medical College, Narowal.⁴Assistant Professor, Pak Red Crescent Medical & Dental College Lahore.⁵Consultant Department of Otorhinolaryngology Alhada Armed Forces Hospital Taif KSA⁶Demonstrator, Allama Iqbal Medical College, Lahore.Correspondence to Dr. Sauda Usmani, Email: sauda.usmani@gmail.com, Cell No: +92 331 4182082

ABSTRACT

Background: There is no impact without an imprint. Such an imprint can range from a simple scar to *functio laesa* of an organ. The burns are much more notorious than any other sort of trauma/impact. Most common physiological imperilments of burns can be permanent scarring, disfigurement, mobility restrictions, loss of sensations and permanent pain etc. The frequency of all these imperilments is described in the current research.

Methodology: The study was carried out in year 2018 from January to September in AED of Jinnah Hospital Lahore. There were 300 surviving victims of burns of domestic violence collected through non-probability consecutive purposive sampling for a descriptive cross-sectional study.

Results: The study revealed the permanent pain and discomfort as the most frequent physiological imperilments reported to be 27% followed by mobility restrictions occurring in 23% third commonest was the sensorineural loss observed in 17% approximately among all the cases participating in the current study.

Conclusion: We concluded escaping the burns incident uneventfully may be possible if the burns were minor or medical care services were up to the par and delivered well in time.

Keywords: Physiological Imperilments, Domestic, Burns

INTRODUCTION

Sustainability of life needs optimum temperature for growth in the form of some source of warmth and soothing mechanisms. That source could be any form of energy from simple convection and transmission of heat to fires for cooking food.¹ These sources of energy although necessary for life but can result in accidents which may range from simple imperilments to life threatening situations. These derangements can be from minor functional compromise to a completely handicapped life.² The recovery from burn incidents may be complete with any functional loss of any limb or organ.³ The least affecting complication of the burn incidents range from simple pain and discomfort⁴ to scarring and disfigurement⁵. To the most the physiologically compromised movement of any joint or limb as a result of burns could be one of the most grave consequence of burns⁶. Another and a common complication of burns due to any source are neuropathies or loss of sensation in the areas of burns⁷.

The post burn physiological compromise are consequence of such even equally prevalent in all ages^{8,9} and both the genders without any discrimination.^{10,11} The simplest form of post burn complications range from pain to movement limitations from any source of burns either dry or flame burns¹² to electrocution¹³ or scalds.¹⁴ Hence the functioning and physiology of the human body as consequence of burns from any source is inevitable and occurrence is reported in all ages from neonates to geriatrics irrespective of any sexual disparity.

Assessment of frequencies of uneventful recovery is well document from minor burns especially in younger age groups. The pain and discomfort is frequently report followed by disfigurement and contractures.³⁻⁶ To the most the burns end up in movement restrictions and sensory neural loss or loss of sensation in common practices⁷⁻¹¹. Such physiological imperilments are observed in all age groups and both genders with any discrimination irrespective of the source of burns^{13,14}.

The assessment of physiological imperilments are vital in understanding the nature of the cases for variety of reasons. It determines the legal issues as that of medicolegal cases¹⁵, public

health determinant for rehabilitative concerns¹⁶ and national as well as international statistics¹⁷ for future apprehension of such imperilments.

MATERIALS AND METHODS

The study was carried out on the burn victims of domestic violence who survived the burn events eventually after presenting in Accidents and Emergency Department of Jinnah Hospital Lahore and were reported in the Medicolegal Clinic of Allama Iqbal Medical College Lahore as well. The study sample was collected from in the year 2018 from January to September. All the willing participants were included in the study after due deliberation of informed consent.

The research sample was collected through convenient non-probability consecutive sampling technique and were subject to a descriptive cross-sectional study for further analysis. Study research analysis was carried out under standard statistical software of SPSS 20.0 version.

RESULTS

The most common physiological imperilments in this study observed were scarring, disfigurement, limitations of movements of limbs, loss of sensation in areas of burns and in the last the permanent pain and discomfort. The results were analyzed from 300 surviving subjects of burn incidents including all ages and gender irrespective of origin of medium of burns.

Age: All ages from new born to elders were included in the study and categorized into pediatrics (up to 12 years), adults (13 years to 25 years), adolescents (26 years to 50 years) and geriatrics (51 years and above) for the purpose of convenience. Table 1 shows the presentation of different age groups showing maximum contribution in the research sample of the current study by pediatric age group being less than 12 years of age with 165 cases of 55% and least contribution from adolescents being 13 years to 25 years of age bracket making just 1.3% with only 4 cases in the sample of current study.

Gender: Both the genders were included in the sample who fulfilled the selection criterion and willing consented to be the part of study. The gender was conventionally categorized into male and female cases. The frequency distribution of the gender in current

Received on 21-07-2021

Accepted on 22-12-2021

study was observed with a female preponderance of 14% more than males. As shown in table 2 above there were 57% females comprising of 171 cases and 43% male with 129 cases.

Physiological imperilments as consequence of burns: The frequency of physiological imperilments as result of final outcome of burns was observed are shown in table 03 below. The outcomes taken into account included scarring, disfigurement, limitation of movement of joints or limbs, loss of sensation or sensory neural loss and permanent resolving pain and discomfort.

Among all the physiological imperilments as consequence of burns 7% cases who counted to be 21 burn victims were lucky enough to survive the incidence without any complication termed as recovered uneventfully. Scarring was observed in 41 burn victims making 13.7% of total cases. Disfigurement was seen in 37 cases making 12.3% of all the cases.

Limitation at movements at joint or any limb movement restrictions were observed in 23% of the sample making it to be 69 cases of burns. Loss of feeling of sensations or sensory neural loss was observed in 17.3% cases of the sample comprising of 52 cases of burns. Unfortunate victims who suffered either permanent pain or permanent discomfort as consequence of burn incidents made it 26.7% as a result of 80 cases of burn victims. Hence permanent pain or discomfort was found to be most common physiological imperilments while scarring and disfigurement both remained less than 15% of all the sample size.

Table 1: Frequency Distribution of Age

Age Group	Frequency	%age
Pediatrics	165	55.0
Adolescents	4	1.3
Adults	45	15.0
Geriatrics	86	28.7
Total	300	100.0

Table 2: Frequency Distribution of Gender

Gender	Frequency	%age
Male	129	43
Female	171	57

Table 3: Frequency Distribution of Physiological Imperilments

Physiological Imperilments	Frequency	%age
Uneventful Recovery	21	7.0
Scarring	41	13.7
Disfigurement	37	12.3
Movement Limitation	69	23.0
Loss Feeling of Sensations	52	17.3
Permanent Pain and Discomfort	80	26.7
Total	300	100

DISCUSSION

The study revealed that it was possible to survive burn incidence without any permanent consequence in cases of minor burns or with better medical treatment services. The current study statistics revealed that there were 21 cases making 7% of the entire population of study recovered uneventfully. Though this need to be further clarified not to include minor burns or certain percentage of total body surface area burnt (TBSA) should be included.

Scarring and disfigurement remained lowest among all the consequences of burns making it 13.7% (with 41 cases of burns) and 12.3% (with 37 cases of burns) respectively. It again included all the cases of burns from minor to major burns and all sources or agents causing burns resultantly scarring and disfigurement occurred. Further assessment in terms of total body surface area burnt, degree of burns, medium of burns and area of the body burnt can better address the real scenario regarding scarring and disfigurement.^{5,6}

Loss of feeling of sensation as result of burns or sensory neural loss was observed in 17.3% thereby made it by 52 cases of burns of total sample size.⁷ Permanent pain and permanent discomfort among the 300 burn incident surviving victims was observed in 80 cases of burns making the highest proportion of 26.7% of the entire population under study. Hence movement

restrictions and permanent pain or discomfort were found to be most commonly experienced physiological imperilments as consequence of burns^{2,3,6,15}.

CONCLUSION

In the study we concluded escaping the burns incident uneventfully may be possible if the burns were minor or medical care services were up to the par and delivered well in time. Still such an observation has its limitations and need to be addressed accordingly. Avoiding complications or physiological derangements as a whole from an incidence of burn would not be possible at all. So the complications as consequence of burns are inevitable.

The least common outcome of the burns irrespective of the source of burns were permanent scarring and disfigurement almost equally and reported in less than 15% individually. There was disfigurement in 12.3% cases and permanent scarring in 13.7% cases. The findings are in agreement with while no research findings were found in contradiction to the findings of the current study.

The most common complication of the burns as final outcome in the current study were observed to be limitations of movement at joints or that of limbs experienced by 23% of the burns victims and permanent pain or discomfort was observed in 26.7% of burns victim.^{4,16} Hence collective these complications made around 60% of burns complication or physical disability with compromised physiology. Sensorineural loss or impairment of the feeling of sensation was found in 17.3% of the total population under study.

Conflict of interest: Nil

Limitations: Current study has following limitations.

1. The study included all cases of burns irrespective of total body surface area burnt (TBSA) making it ambiguous for analysis of scarring and limitation of movement etc.
2. Sensorineural loss was not defined to be local or remote and again it should be assessed along with degree of burn which in this study was not considered.
3. Pain and discomfort should be studied within a defined percentage and degree of burns which in current study was not in compliance to this condition.
4. Disfigurement was considered over all as defined by the victim him/herself though the facial or other cosmetic concerns should be considered accordingly.
5. Contracture although can be considered within category of disfigurement as done in current study but should be assessed separately.

REFERENCES

1. Pausas JG, Keeley JE. A burning story: the role of fire in the history of life. *BioScience*. 2009 Jul 1;59(7):593-601.
2. Knudson-Cooper MS. Adjustment to visible stigma: the case of the severely burned. *Social Science & Medicine. Part B: Medical Anthropology*. 1981 Jan 1;15(1):31-44.
3. Honda T, Yamamoto Y, Mizuno M, Mitsusada M, Nakazawa H, Sasaki K, Nozaki M. Successful treatment of a case of electrical burn with visceral injury and full-thickness loss of the abdominal wall. *Burns*. 2000 Sep 1;26(6):587-92.
4. Van Loey NE, Van Son MJ. Psychopathology and psychological problems in patients with burn scars. *American journal of clinical dermatology*. 2003 Apr;4(4):245-72.
5. Wisely J, Gaskell S, Rumsey N. Trauma—with special reference to burn injury. *The Oxford handbook of the psychology of appearance*. 2012 May 31:372-98.
6. Özkal Ö, Seyyah M, Topuz S, Konan A. Lower limb functional status and its determinants in moderate/major burns 3–6 months following injury: A two-center observational study. *Burns*. 2021 May 1;47(3):676-83.
7. Greenhalgh DG. Skin, soft tissue, and wound healing in the elderly. *InGeriatric Trauma and Critical Care 2017* (pp. 45-55). Springer, Cham.
8. Steiner TJ., Birbeck GL., Jensen, RH. Headache disorders are third cause of disability worldwide. *The journal of headache and pain*. 2015;16(1): 1-3.

9. Hemeda M., Maher A., Mabrouk A. Epidemiology of burns admitted to Ain Shams University burns unit, Cairo, Egypt. *Burns*. 2003; 29(4):353-358.
10. Ahmed, M., Shah, M., et al Survey of surgical emergencies in a rural population in the Northern Areas of Pakistan. *Tropical Medicine & International Health*. 1999; 4(12):846-857.
11. He S, Alonge O, Agrawal P, et al. Epidemiology of Burns in Rural Bangladesh: An Update. *Int J Environ Res Public Health*. 2017;14(4):381. Published 2017 Apr 5. doi:10.3390/ijerph14040381
12. Moi AL, Vindenes HA, Gjengedal E. The experience of life after burn injury: a new bodily awareness. *Journal of Advanced Nursing*. 2008 Nov;64(3):278-86.
13. Dalziel CF. Effects of electric shock on man. *IRE Transactions on Medical Electronics*. 1956 Jul:44-62.
14. Fauerbach JA, McKibben J, Bienvenu OJ, Magyar-Russell G, Smith MT, Holavanahalli R, Patterson DR, Wiechman SA, Blakeney P, Lezotte D. Psychological distress after major burn injury. *Psychosomatic Medicine*. 2007 Jun;69(5):473.
15. Tiwari VK. Burn wound: how it differs from other wounds?. *Indian journal of plastic surgery*. 2012 May;45(02):364-73.
16. Santos JV, Souza J, Amarante J, Freitas A. Burden of burns in Brazil from 2000 to 2014: a nationwide hospital-based study. *World journal of surgery*. 2017 Aug;41(8):2006-12.
17. Rybarczyk MM, Schafer JM, Elm CM, Sarvepalli S, Vaswani PA, Balhara KS, Carlson LC, Jacquet GA. A systematic review of burn injuries in low-and middle-income countries: epidemiology in the WHO-defined African Region. *African journal of emergency medicine*. 2017 Mar 1;7(1):30-7.