

A Study of Pattern of Burn Injury at Civil Hospital Karachi

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ABSTRACT

Objective: To determine pattern of diversified types of injury.

Study Design: Retrospective study

Place and Duration of Study: This study was conducted at the Medico-Legal Department, Civil Hospital Karachi from January 2012 to July 2015.

Materials and Methods: The medico legal records of 3856 patients in the Burn Centre Civil Hospital Karachi were selected and collected. The data was reviewed under the consideration of type of burns, sex and fatality. The data was analyzed using SPSS version 16 and frequencies and percentages were obtained for variables according to the methodology.

Results: In study of 3856 patients, majority of them sustained injury from fire burn, electrical burn, scars and chemical burn as 76.11% , 13.07%, 8.80%, 2.02% respectively. Male to female ratio of 1.58: 1.0 is observed in the study mold, showing a male domineering. The mortality rate was 37.73% with morbidity of 62.27%.

Conclusion: Majority of burn victims were male who sustained injury from a fire burn as they are more exposed to external plunge in encompassment especially at work places in our society. An intensive program is needed to curtail and counter burn injuries along with further evaluation to achieve estimable results.

Key Words: Burn injury, mortality, fire burn, scalds.

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INTRODUCTION

Burn has been defined as a type of thermal injury produced by heat, electricity, chemicals, radiation, lightning, explosions and friction. Burn injuries is a unique form of trauma, which is sometimes avertible are characterized among the most severe injuries an individual can experience, the most annihilating of all injuries and sometimes may become a major global public health crisis¹⁻³. The severity can be gauged from the belief that ordering punishment by burning according to Muslim faith is reserved for none other but God.

It is interesting to note that the causes, types and incidence of burns differ in different countries and are influenced by factors such as age, sex, financial status, local, social customs and physical environment⁴⁻⁵. It is the fourth leading cause of injury after road traffic accident, fall and violence.

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Nearly 11 million burn victims received medical treatment and accounted for about more than 300,000 deaths annually. Overcrowding and cooking in an openly built kitchen are the major problems of the developing countries contributing to 90% of the burn victims worldwide. It has been observed that males have twice the mortality as females in developed world which is contrary to developing world where females have twice the risk of males⁶.

In this mortal world also, burn injury is a major public health concern, especially in third world countries⁷⁻⁸. As a matter of fact, 9 out of 10 incidents of burn occur in underdeveloped countries. It is pity that these countries lack basic infra structure to prevent the incidence or reduce its severity⁹. Major factors influencing burn outcome are the degree and duration of heat exposure. Young children, old people and women are more susceptible. It is more dangerous if face, chest or genitals are involved¹⁰. The fatality of burns and its outcome is more related to the types of burn and age¹¹. India reported 700,000-800,000 burn victim per year in which females were majorly involved¹².

MATERIALS AND METHODS

This is a retrospective study of all medico- legal cases of burn injuries in major government teaching hospital of Karachi from January 2012-July 2015.

The Burn Centre of Civil Hospital is a major burn centre which is well equipped and has specialized and trained doctors and staff to handle and manage the burn

injuries. Due to this majority of medico legal burn cases were referred from different hospitals to Civil Hospital. The medico legal records of 3856 patients in the Burn Centre Civil Hospital Karachi from January 2012-July 2015 were selected and collected. The data was reviewed under the consideration of type of burns, sex and fatality. The data was analyzed using SPSS version 16 and frequencies and percentages were obtained for variables according to the methodology.

RESULTS

A total of 3856 burn patients were admitted in Civil Hospital Karachi from January 2012-July 2015. Total number of 1455 patients died with a mortality rate of 37.73%. The recovered patients were 2401 with a morbidity rate of 62.27% & mortality of 37.73% (Table-1, Chart 1 & 2).

Table No-1: Frequency of fatality of Burn Patients

Year	2012	2013	2014	July 2015	Total	%
Fatal	302	384	502	267	1455	37.73%
Non-fatal	680	704	705	312	2401	62.27%
Total	982	1088	1207	579	3856	100%

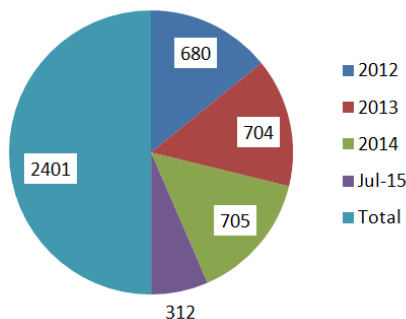


Chart No.1: Frequency of non-fatal burn patients

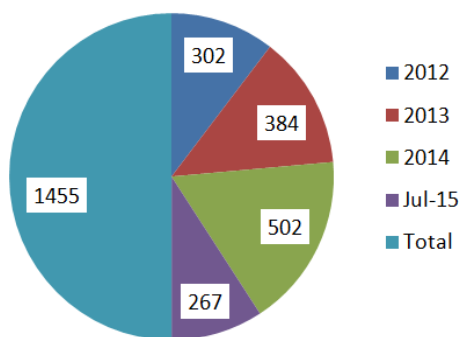


Chart No. 2: Frequency of fatal burn patients

Table No.2: Gender distribution of Burn Patients

Year	2012	2013	2014	July 2015	Total	%
Male	645	652	718	350	2365	61.3%
Female	337	436	489	229	1491	38.67%
Total	982	1088	1207	579	3856	100%

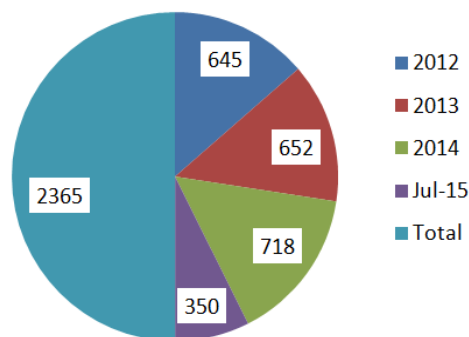


Chart No.4: Frequency of Male Burn Patients

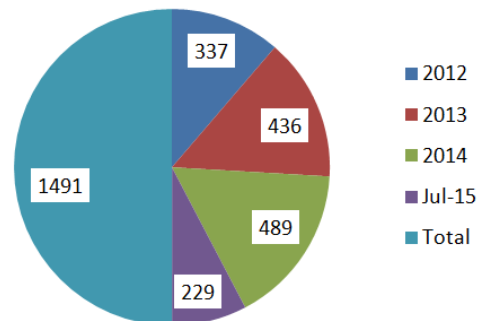


Chart No.4: Frequency of Female Burn Patients

Table No.3: Type of Burn

Year	2012	2013	2014	July 2015	Total	%
Fire burn	836	826	906	367	2935	76.11
Scald burn	53	140	170	141	504	13.07
Electrical burn	70	99	110	60	339	8.80
Acid burn	23	23	21	11	78	2.02
Total	982	1088	1207	579	3856	100

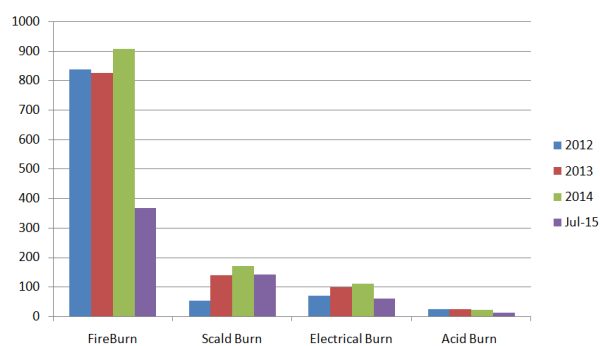


Chart No.5: Frequency of type of Burn

DISCUSSION

Burn emblemizes a major health problem worldwide with high mortality, morbidity and economic loss even with small burns. The commonness of medico-legal burn injuries in Pakistan is very high like any other under developed country. Burn is one of the leading causes of death in Karachi. It is also due to retrenchment of awareness and less preventive measures. As we report a mortality rate of about

37.73% due to burn in Karachi during our study period, the world wide reported mortality rate due to burn injuries were 20% in Osogbo, Nigeria,¹³ 6.9% in Rotterdam, Netherlands¹⁴ and 6.3% in Turkey¹⁵. The reported mortality rate of burn patients in different cities of Pakistan were 29.7% in Wah¹⁶, 19% in Peshawar¹⁷ and 21% in Rawalpindi¹⁸. The reported mortality rate due to burns in different Asian countries is variable Sharma et al reported a relatively low annual mortality rate of 0.6 per 1,00,000 in Kuwait¹⁹. Mashkarey et al reported a mortality rate of 2.2 per 100,000 in Bangladesh in the year 2011²⁰. A study from Iran reported an annual fatality rate of 5.6 death per 100,000²¹. A study from India reported an even higher mortality rate of about 15.1 per 100,000 in year 2003²².

The non-fatal cases show the morbidity rate of 62.27%, out of which majority of patients were recovered and discharged from the hospital, some patients left against medical advice and very few patients were referred to other departments of the hospital.

In this abstraction 76.11% of the total cases were of fire burn followed by scalds (13%), electrical burn (8.80%) and chemical burns as (2.02%). A similar study was conducted in Civil Hospital Karachi during the period of 2006 to 2010 showing that fire burn (79%) was the most common followed by electrical burn (7.7%), scalds (5.2%) and chemical burns (3%) respectively²³. Males are usual victims of burn injuries as observed in our study as it is the responsibility of male to earn money and for which he has to go outside and adopt different occupations at different places with more risk for injuries including burn injuries. We found that males (61.33%) are more affected than females (38.67%) with a ratio of 1.58:1.0 in our study. The study at Khyber teaching hospital, Peshawar in 2011 also showed male dominance of 51.1% over female 48.8% with a ratio of 1.04:1²⁴. A five year study period from 2006 to 2010 of burn injury by Ahmer, et al in Civil hospital highlighted male to female ratio of 1:0.8²³.

Major complications of burn are infection which may cause septicemia, dehydration leading to shock, disfigurement and disability. Despite major advances in therapeutic strategies for the management of patients with severe burns, including improved resuscitation, enhanced wound coverage, infection control and management of inhalation injuries, the consequences of severe burns are acromatic and results in complex metabolic changes that can adversely affect every organ system²⁵⁻²⁷. The results we found are needed to be taken under consideration as the incidence of burn injuries are accounting a large number of deaths among people due to shock and sepsis. In addition these burn injuries sometimes result in a long duration of admission in the hospital requiring lot of consternation and support which affects the patients physically, psychologically and economically. A large number of cases require

surgical intervention to limit the disabilities. But inspite of all these measures most of the patients suffer from ruination which eventually lead into death.

CONCLUSION

Majority of burn victims were male and sustained injury from fire burn. An intensive cognizance program is needed to reduce and prevent the burn injuries. The most important step in reducing the incidence of burn injuries is through proper mass education. Effective prevention requires a thorough understanding of major risk factors.

Suggestions: Action which can reduce the risk for burn include installing smoke detectors, teaching children about fire and burn prevention in schools, stop smoking and heavy alcohol use, wearing flame retardant clothes, planning emergency exits route in houses, schools and work places, practicing fire drills and fire extinguisher should be made available to more places and people should provided with awareness for their use. Actions to reduce the severity of burns once it occurs are given first aid immediately, getting prompt medical attention, if hospitalization is necessary being treated by dedicated burn unit with staff specially trained in burn care.

Keeping in view enormity of the problem and the size of the city, the number of specialized units for treating exclusive burn injuries should be increased. Emergency response teams should be formed comprising of trained and skilled staff that can respond and take charge of burn cases in outdoor situations.

To raise funds for burn units, philanthropists should be taken on board and encouraged to donate generously. The government could facilitate by giving tax exemptions to the donors. Many of the fire incidents being due to short circuiting of substandard electrical installation, the government should frame rules for quality control of electrical wiring and goods both at residential and industrial set-ups.

Author's Contribution:

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Revisiting Critically:	Roohi Ehsan, M. Faiz ud Din
Final Approval of version:	Roohi Ehsan

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REFERENCES

1. Loyd JR, Imamoglu K, Thermal injuries. In: Walt AJ Wilson RF, editors. Management of Trauma.

- Pitfalls and Practice. Philadelphia: Lea and Febiger; 2005.p.438-59.
2. Forjuoh SN. Burns in low and middle income countries: a review of available literature on descriptive epidemiology, risk factors, treatment and prevention. *Burns* 2006; 32:529-37.
 3. Peck MD, Kruger GE, Merwe AE, Godakumbura W, Ahuja RB. Burns and fires from non-electric domestic appliances in low and middle income countries Part 1. The scope of the problem, *Burns* 2008; 34:303-11.
 4. Stone NH, Boswick JA. Specialized burn care. *Surg Clin N Am* 2000;50:1437-46
 5. Chaurasia AR. Mortality from burns in developing countries. *Burns* 1983;9:184-86
 6. Peck MD. Epidemiology of burns throughout the world. Part 1: Distribution and risk factors. *Burns: Journal of the International Society for Burn Injuries* 2011; 37(7): 1087-1100.
 7. Gupta M, Gupta OK, Yaduvanshi RK, Upadhyaya J. Burn Epidemiology; The Pink City scene. *Burns* 1999; 19:47-51.
 8. Haberal M, Ucar N, Bilgin N. Epidemiological Survey of Burns Treated In Ankara, Turkey and Desirable Burn Prevention Strategies. *Burns* 1995; 21:601-6.
 9. Murray CJ, Lopez AD. The global burden of disease: a comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projected to 2020 (Global Burden of Disease and Injury Series). World Health Organization, Geneva, Switzerland 1996.
 10. PC Dikshit. Thermal Injuries, Text book of Forensic Medicine and Toxicology, Peepee Publishers, New Delhi; 2007.p.247-248
 11. Siddiqui NA. Burn-injury is preventable: An analysis of 716 cases in a burns unit. *JCPSP* 1998; 8:148-52.
 12. Ahuja RB, Bhattacharya S. Burns in the developing world and burn disasters. *BMJ Clin Res* 2004; 329(7463): 447-9.
 13. Olaitan PB, Jiburum BC: Analysis of burn mortality in a burn centre. *Ann Burns Fire Disaster* 2006, 19(2): 59-62.
 14. Bloemsma GC, Dokter J, Boxma H, Oen IM. Mortality and causes of death in a Burns centre. *Burns* 2008, 34(8): 1103-1107.
 15. Aldemir M, Kara IH, Girgin S, Guloglu C. Factors affecting mortality and epidemiological data in patients hospitalized with burns in Diyarbakir, Turkey. *S Afr J Surg* 2005;43(4): 159-162.
 16. Khan N, Malik MA. Presentation of burn injuries and their management outcome. *J Pak Med Assoc* 2006;56: 394-397.
 17. Muqim R, Zareen M, Dilbag Hiyat M, Khan I. Epidemiology and outcome of burns at Khyber teaching hospital Peshawar. *Pak J Med Sci* 2007; 23:420-424.
 18. Chaudhary IA. Burns : frequency and mortality related to various age groups. *J Surg Pak* 2009; 14(2): 67-71.
 19. Sharma PN, et al. Predicting factors influencing the fatal outcome of burns in Kuwait. *Burn* 2005; 31(2):188-192.
 20. Mashkarey SR, Rahman A, Svanstrom L, Khan TF, Rahman F. Burn mortality in Bangladesh: findings of national health and injury survey. *Injury* 2011;42(5):507-510.
 21. Maghsoudi H, Pourzand A, Azarmir G. Etiology and outcome of burns in Tabriz, Iran. An analysis of 2963 cases. *Scand J Surg* 2005;94(1):77-81.
 22. Batra AK. Burn mortality: recent trends and sociocultural determinants in rural India. *Burns* 2003;29(3):270-275.
 23. Al- Ibran E, Rao HM, Ali AS. Epidemiologic Profile and outcome of Hospitalized Burn Patients, Civil Hospital, Karachi. *J Dow Univ Health Sci* 2012;6(1):29-31.
 24. Shah A, Khan HC, Azher W: Pattern of Burn Injuries at Khyber teaching Hospital, Peshawar. *J Med Sci* 2011;19(4):160-162.
 25. Jeschke MG, Williams FN, Gauglitz GG, Herndon DN. Burns. In: Sabiston Textbook of Surgery, Townsend M, Beauchamp RD, Evers MB, Kenneth ML, editors. Elsevier: Philadelphia, PA; 2012.p.521.
 26. Herndon DM, Tompkins RG. Support of the metabolic response to burn injury. *Lancet* 2004;363:1895.
 27. McCowen KC, Malhotra A, Bristian BR. Stress-induced hyperglycemia. *Crit Care Clin* 2001; 17: 107.