

CAUSES OF BURN IN PATIENTS OF GOVERNMENT AND PRIVATE HOSPITALS OF LAHORE.

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ABSTRACT

Background: Burns are the most well-known and wrecking types of injury. Patients with genuine warm damage require prompt specific care keeping in mind the end goal to limit dismalness and mortality. Huge wounds incite a condition of immunosuppression that inclines patient of burn to irresistible complexities. Confirmation proposes that the pathophysiological stretch reaction to serious burn injury holds on for a few years after damage. **Objective:** To determine the causes of burn in patients of private and government hospitals of Lahore. **Methods and Methodology:** This descriptive study was conducted in Lahore, Pakistan in 2017. The study involved 138 patients. Sample size was calculated from Rao soft convenient sampling technique was used. Inclusion criteria included burn patients of government and private hospitals of Lahore and exclusion criteria included patients having previous trauma and skin diseases. Self-structured questionnaire was used during this research. **Results:** The study related that the causes of burns are explosion, accident, fire, hot liquid, steam, electric current, chemicals, radiation therapy and acid burn. **Conclusion:** The study concluded that burns are mostly caused unintentionally and the main reasons are due to hot liquid and steam. Hands, face and arms are the most burnt areas respectively.

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INTRODUCTION

Burn are the most well-known and wrecking types of injury. Patients with genuine warm damage require prompt specific care keeping in mind the end goal to limit dismalness and mortality. Huge wounds incite a condition of immunosuppression that inclines patient of burn to irresistible complexities.¹

The quantity of burn damage casualties in the United States is evaluated to be 1.2 million every year, with a yearly frequency of 2 million fire mischances reported. Among these wounds, 75% are viewed as gentle, treated on an outpatient premise, while by and large 50,000 consume patients expect admission to a clinic or significant consume focus.²

Significant burns incite a significant anxiety reaction, which is unrivaled as far as its size and term. Confirmation proposes that the

pathophysiological stretch reaction to serious burn injury holds on for a few years after damage.³ First degree burns are shallow burns including the epidermal layer of skin. The skin is the biggest organ of the human body, with its weight involving up 16% of aggregate body weight. The layers of skin comprise of the epidermis, dermis, and hypodermis.⁴

The elements of skin incorporate giving a defensive boundary, directing temperature, controlling dissipation, discharge, and electrical copies are more extreme than different structures of contact consume damage. They prompt a variety of difficulties that include different frameworks, including cardiovascular arrhythmias furthermore, rhabdomyolysis. Rather than the medicinal complexities, delicate tissue wounds are pulverizing and surgically demanding. The surgical medications rehearsed are escharotomy or fasciotomy, excisional

debridement and appendage removal. Early fasciotomy was generally utilized to treat compartment disorder caused by profound muscle putrefaction and tissue edema.⁵

Inhalational burns remain a noteworthy test to otolaryngologists around the world, but then there is no agreement on a legitimate, methodical, prove based way to deal with treat patients in this intense setting. It has been demonstrated that inhalational damage, notwithstanding all out consume surface range and age, is one of the three most imperative indicators of mortality consequent to a consume damage.⁶

Absence of legitimate supervision and not following counteractive action rules are basic reasons for consumes in youngsters. It has been detailed that consumes are the third most basic unexpected deadly damage in the paediatric population. Risk of consume wounds furthermore, their treatment is a noteworthy issue for human services frameworks. Most youngsters who survive extreme consumes experience the ill effects of long haul incapacitating inconveniences, for example, appendage development impediments because of contractures, distorting scars, mental issues also, social detachment, which brings about a critical loss of profitable life years. Sadly, these wounds frequently remain long lasting. Because of settle for what is most convenient option of living conditions, consumes are more typical in creating nations.⁷

Current burn care has prompted remarkable survival rates for consume patients whose wounds were viewed as lethal a couple of decades back. Enhanced survival has been addressed with new difficulties in the administration of patients of burn. Diseases are the most widely recognized difficulties after consumes, with pneumonia, urinary tract contaminations, and cellulitis being the most regular inconveniences in hospitalized patients of burn.⁸1.2:

LITERATURE REVIEW

Siddiqui et al, a cross sectional survey concluded that it is possible to determine the burn injuries without the specification of the burn centres. Almost half of the burn patients were aged between 10 – 29 years. And the study also concluded that there were no specific differences between burn injuries and part of the body burned.⁹

Quan li et al this study concluded that the most important and common injury of burn is of electrical burns among amputees. And all data of patients was reviewed in their profiles including major amputations. Escharotomy in electrical burns was performed among amputees and rate of escharotomy performed was higher among amputees as compared to other groups. And the first amputation was performed in electrical burn group as compared to the etiology group.¹⁰

Haishengli et al, this retrospective study was performed at the Institute of Burn Research of the Third Military Medical University during 2013-2015. This study concluded that most burn were full thickness burns and involved a surface area of 8 to 11. Operation times were different for different type of burns they were higher for high voltage and current burns and lower for low voltage and arc burns. Patients that undergo more operations more hospital stay and more current burns had higher risk of amputation. For management of electrical burns various skin grafts and auto flaps were used. The study made a conclusion that more methods and more research is required to decrease the risk of amputation in burn patients.¹¹

Sharma N et al, This study focused on ocular burn injuries to remove the offending agent and minimize damage immediate copious irrigation is required for acute ocular burn injuries. Conventional medical therapy and of the use of epithelization promoting agents are required for healing of burns. Adjuncts to conventional therapy biological fluids for example, autologous

serum, umbilical cord blood serum, platelet-rich plasma, and amniotic membrane suspension are greatly used as a source of growth factors and promoting healing.¹²

Abou Dagher Gilbert et al, a retrospective cohort study conducted in the ED of a tertiary care hospital, in Beirut, Lebanon. In study study patients who met the inclusion criteria that was if they had final ED diagnosis of burn were included. The study included a descriptive analysis of burn patients highlighting their causes, and then compared the patients by placing them into two groups admitted and discharged groups. Almost half of the patients were males, and most common mechanism of burn was scalding the second most common cause was contact with hot object and flame.¹³

JohnsonEL et al, a prospective cross-sectional study was conducted in Manchester, and included six emergency departments, among which 3 minor injury units and 3 burn units. This study focused on data collection among children who were less than 16 years of age and the causes of burns included were scald, contact, flame, radiation, chemical, electrical, friction. Most common cause was contact burn and mostly included one anatomical site or only hands. Hairstyling devices and burn during preparation of food were the most common agent of contact burns, the study concluded that Parents of toddlers must be taught and given awareness to learn safe storage of hazardous items meanwhile teenager girls should be taught proper ways to handle hairstyling devices and care during preparation of food.¹⁴

Sanjib Tripathee et al, conducted a retrospective case series study in Nepal in 2015 on 284 patients. He found out that more female patients sustained injuries than male and burns were common in winter. Flame burns were the most common type followed by scald burns but the study was highest amongst electrical burn patients. 25.4% was the overall mortality mostly due to sepsis and

pneumonia.¹⁵

MATERIAL AND METHOD

3.1. Study design:

Descriptive cross sectional study

3.2. Setting:

Mayo Hospital Lahore.

Jinnah Hospital.

National Hospital.

Shalamar Hospital.

3.3. Duration:

3 months.

3.4. Sampling Technique:

Convenient random sampling

3.5. Sample Size/collection:

Formula taken from Rao soft and will be used for sample size estimation:

X	=	$Z (C/100)^2 r (100-r)$
N	=	$\frac{N \times /}{((N-1)E + x)}$
E	=	$Sqrt [\frac{(N-n) \times}{n (N-1)}]$

In this formula;

n = sample size

E = Margin of error

N= size of population

r = fraction of responses

Z(c/100) = critical value for the confidence level c.

In this sample size formula, we calculated sample size by taking following values:

E = 5%

Confidence level: 90%

N = 20000

r = 85%

Software gave 138 as sample size.

3.6. Sample Selection Criteria:

3.6.1. Inclusion criteria:

Burn patients of Government Hospitals

Burn patients of Private Hospitals

3.6.2. Exclusion criteria:

Previous trauma excluding burn

Skin Diseases

Data Collection Tools:

Self-structured questionnaire.

Data Collection Procedure:

The study was conducted in government and private hospitals after the approval from the

ethical review board of the concerned hospitals. Signatures and stamps of the respective hospitals were taken on the permission letter issued by the ethical committee of AZRA NAHEED MEDICAL COLLEGE as a proof of approval for further proceedings. In the beginning 8 physiotherapist were consulted for validation of self-structured questionnaire being used in the study. The validation of self-structured questionnaire is 0.98. This questionnaire was then used for data collection. After that 138 patients were selected which fulfilled the eligibility criteria. Information letters were given to hospitals authorities that provided information about purpose of study and permission for data collection.

Ethical Issues:

Data will be taken from government and private hospitals of Lahore by consent form. It does not affect the participants ethical value, researcher followed all ethics of medical field.

3.10 Statistical Analysis:

All collected data will be entered in computer program SPSS version 22 and calculated throughout this software. Descriptive statistics (Mean ± SD) was used for variables. Mean and standard deviation was measured for variables.

RESULTS

Table 1: Age of Participants

Age	Frequency n=138	Percentage
5 – 25	77	55.8
26 – 45	47	34.1
46 – 65	14	10.1

A total of 138 participants were selected from 2 governments and 2 private hospitals of Lahore. Ages were selected in ranges 5-25 (56%), 26-45 (35%), 46-65 (11%).

Table 2: Gender of Participants

Gender	Frequency	Percentage
Male	62	44.9
Female	76	55.1

Data was collected from 45% male and 55%

Table 3 Frequency of Areas of Body Burned

Areas	Frequency n=138	Percentage
Feet	15	10.9
Legs	19	13.8
Buttocks	7	5.1
Trunk	13	9.4
Arms	16	11.6
Hands	35	25.4
Neck	15	10.9
Face	18	13.0

female.

Areas of body burned were feet (11%), legs (14%), buttocks (5%), trunk (10%), arms (12%), hands

Table 4: Suffer from any explosion

	Frequency n=138	Percentage
YES	11	8.0
NO	127	92.0

(26%), neck (11%), face (14%)

8% suffered from explosion and 92% did not

Table 5: Experience any accident

	Frequency n=138	Percentage
YES	24	17.4
NO	114	82.6

suffered.

18% experience any accident and 83% did not

Table 6: Burn from Fire

	Frequency n=138	Percentage
YES	17	12.3
NO	121	87.7

experienced.

Table 7: Hot Liquid

	Frequency n=138	Percentage
YES	40	29.0
NO	98	71.0

13% burn from fire and 88% did not burned.\

Table 8: Steam

	Frequency n=138	Percentage
YES	11	8.0
NO	127	92.0

29% hot liquid and 71% did not.

Table 9: Electric Current

	Frequency n=138	Percentage
YES	16	11.6
NO	122	88.4

8% steam and 92% did not.

Table 10: Chemicals

	Frequency n=138	Percentage
YES	5	3.6
NO	133	96.4

12% from electric current and 89% did not.
4% suffered from chemical burn and 97% did not suffered.

Table 11: Radiation Therapy

	Frequency n=138	Percentage
YES	1	0.7
NO	137	99.3

0% suffered from radiation therapy and 99% did not suffered.

Table 12: Acid Burn

	Frequency n=138	Percentage
YES	13	125
NO	9.4	90.6

10% suffered from acid burn and 91% did not suffered.

Table 13: By Whom Burn Causes

	Frequency n=138	Percentage
Self-Inflicted	10	7.2
Assault	11	8.0
Unintentional	117	84.8

7 % were self-inflicted burns, 8% were assault and 85% were unintentional burns.

Table 14: Showing Mean and Standard deviation of variables

Variable	Mean ± Standard Deviation
Age	0.54 ± 0.674
Gender	0.55 ± 0.499
Areas of body Burned	3.82 ± 2.268
Suffered from any explosion	0.92 ± 0.272
Experience any accident	0.83 ± 0.380
Fire	0.88 ± 0.330
Hot Liquid	0.71 ± 0.455
Steam	0.92 ± 0.272
Electric Current	0.88 ± 0.321
Chemicals	0.96 ± 0.188
Radiation Therapy	0.99 ± 0.085
Acid Burn	0.91 ± 0.293
By whom Burn caused	0.178 ± 0.567

DISCUSSION

The aim of this study is to determine the causes of burn in patients from different hospitals. A burn is when a person undergoes fastest combustion or may consume fuel in such way that cause damage to body in terms of heat, gases, light and fire. The constituents of skin accompany a defensive boundary, controlling dissipation, directing temperature and electrical copies are maximal than structures of contact consume damage.⁵

The main cause that are usually caused by burns are explosion, chemical like acid, flame burn, inhalational steam, electric current, accidental and hot liquid. And after these kind of burns patients also experienced some diseases such as pneumonia, urinary tract contaminations and cellulitis are mostly observed in hospitalized patients. And in previous studies pathophysiological stretch marks observed in some serious burn injury patients after sometime of burns.⁸

In my study a total of 138 participants are included and 2 private and 2 governments hospitals are selected from which data is collected. 44.9% male and 55.1% females take part in this study. Mean and SD of area of body burned are 3.82 ± 2.268 . Causes of burns are Explosion 0.92 ± 0.272 , Accident 0.83 ± 0.380 , Fire 0.88 ± 0.330 , Hot liquid 0.71 ± 0.455 , Steam 0.92 ± 0.272 , Electric current 0.88 ± 0.321 , Chemicals 0.96 ± 0.188 , Radiation Therapy 0.99 ± 0.085 and Acid burn 0.91 ± 0.293 . The reason why burn causes are self-inflicted burns (7%), Assault burns (8%) and unintentional were (85%). Mean and SD is 0.178 ± 0.567 .

A previous study includes a no of 468 patients with medium level of burn admitted in hospitals from 2 years previously. Different causes of burn percentage are Hot liquid burns 40.17%, electric burns 7.26%, hot steam burns 2.48%. Face sustained injures by thigh (13.8%), face (12.06%) and buttock (9.20%). This study concluded that

Hot liquid burns 29%, electrical burns 12%, hot steam burns 8%. And areas of body burn of this study are thigh 13.8%, face 13.0% and buttock 5.1%.¹⁵

Another previous study showed that most common reason for referral was partial thickness burn and area of burn include facial burn 32%. This study include facia burns percentage is 13%.¹⁶

CONCLUSION


This study shows that the main causes of burn is unintentionally in 117 out of 138 patients. And the most common area that is burned hands 25.4% then face 13% then arms 11.6%. the most common cause in this study of burn is hot liquid 29% and steam burn has 8%.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
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