

Clinical and Psychological Sequelae in Major Post Burn Adult Survivors- A Study of 600 Cases

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ABSTRACT

BACKGROUND

Post burn survivors experience a series of traumatic events related to disease symptoms, functional capability, role performance, well-being, social stigmata and psychological adjustments to post burn disfigurement, although individual differences also play a key role. Almost all major post burn survivors suffer varying degrees of social and psychological disturbances. A burn injury leads to damage of tissues to varying degrees and up to varying levels. This finally leads to disfigurement and varying degrees of social withdrawal. We wanted to evaluate and analyse clinical sequelae of major burn injuries and their psychological effects in post burn adult survivors in case of major burns.

METHODS

We have included all patients coming to us through emergency department from September 2017 to December 2019. The patients included in this study are adult patients who suffered major burns. Patients with pre-existing psychological disorders or any post burn sequelae were not included.

RESULTS

In our study most of the burns were self-inflicted and were more common in females. Most commonly affected age group was 25-30 year. 70% patients were married. Psychological disturbances were also quite common as well as post burn complications.

CONCLUSIONS

A burn survivor is to be cared both at physical and psychological level. It is usually difficult for a burn victim to re-associate himself to the society, because of a group of emotions termed as "SCARED" i.e. Staring, Curiosity, Anguish, Recoil, Embarrassment and Dread.¹³ So, a holistic approach is needed towards survivors of burns and every effort should be made to re-associate them with the society.

KEYWORDS

Major Burn, Post Burn Psychological Disorder, Post Burn Sequelae

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BACKGROUND

Burn injuries are very frequent and common occurrences around the globe. Post burn sequelae include scarring, different degrees of post burn contractures, limitations of movements, loss of eye and vision and so on. All these factors lead to psychological maladjustment and social withdrawal. The prevalence and distribution of risk factors are different and varies according to the age, gender and social and cultural background. Burn injury is measured in TBSA i.e. total body surface area affected by burn injury. A relationship between TBSA and psychosocial adjustment has been identified. Another common sequelae for post burn major burn survivors is visible scarring. The visible scarring relates to body image of the patients. The effects of burns on survivors are multidimensional and ranges from physically, emotionally, psychologically and socially.¹ Injury circumstances may be work related, intentional and non-intentional or may be due to suspected abuse or assault. Patients are treated in intensive care phase, acute care phase and rehabilitative phase.² Clinical sequelae may range from residual hypo or hyperpigmentation, simple scarring or hypertrophic scarring, post burn contractures leading to disfigurement. Hypopigmentation is very common after the burns involving the basal layer of skin. This is also one of the causes which leads to various degrees of psychiatric illness, social stigmata and social withdrawal.³ Scarring may be hypertrophic or superficial without restriction of movements. Scar visibility has been found to be related to burn victim's reduced satisfaction regarding appearance, sensitization towards negative reactions of others and finally social stigmatization.⁴ Hypertrophic scarring and keloids may be annoying and leads to loss of sleep, social withdrawal and absence from work. Post burn contractures can cause disfigurement and limitations of joint movements. Psychological distress is among the most frequent and debilitating complications post burn injury. Severe psychological distress is an important secondary complication of major burn injuries leading to long term complications. Body image dissatisfaction is one of them. Disturbed sleep hygiene, post traumatic distress disorder (PTSD) symptoms and scar related problems are highly interrelated.⁵ PTSD is characterized by group of three symptoms: i) re-experiencing intrusive, distressing thoughts, dreams or images of traumatic events ii) avoidance of trauma related thoughts, feelings and situations and iii) hyperarousal i.e. persistence sleep disturbance, easy startle, increased tension and irritability. PTSD is not found to be related to the severity of the injury in post burn survivors and around 20-60% of survivors are affected by PTSD in one or the other way. Post burn distress has been found positively related to the intensity of pain during hospitalization. Social stigmata/social withdrawal is very common amongst these patients due to body image dissatisfaction problems related to scarring, appearance and limitation of range of motion.⁶

Objective of this study is to evaluate and analyse clinical sequelae the of major burn injury and its psychological

effects in post burn adult survivors in case of major burns. In this study visible scarring, hyperpigmentation, hypopigmentation, hypertrophic scarring, contractures and limitation of range of motion were considered. Visible scarring has been defined in terms of location, severity and degree of TBSA. For psychological evaluation, acute distress, post-traumatic stress disorder (PTSD), depression, schizophrenia, and fearfulness to returning to work were all taken into consideration.

METHODS

The study was conducted between September 2017 to December 2019. The average daily admission rate is approximately two to three patients. Injury circumstances were suicidal, homicidal or accidental in nature. Study population were those who admitted in our hospital within 24 hours post burn. Adult patients between the age of 20-45 yrs who suffered major burns are only included in the study. We have taken major burns which have been more than 15% TBSA. Patients with pre injury significant functional impairment were excluded from the study. Baseline data is recorded as soon as possible to gather pre burn status. Post injury data collection was done at one month and three months post burn for clinical and psychological effects. Patients were assessed at the time of admission, at the time of discharge, one month after discharge and three month after discharge from hospital. Patients who showed unwillingness or those who refused to consent for being part of the study, patients below the age of 20 years and those with pre-existing psychological problems, pre-existing post burn sequelae and readmitted patients were also not included in this study. At the time of admission baseline data is recorded as early as possible since the patient is admitted. Circumstances of injury were enquired related to work, non-work related, intentional or non-intentional, suicidal or homicidal or related to assault.

RESULTS

The patients admitted in the burn unit of department of plastic surgery, UPUMS between September 2017 to December 2019 were included in this study. The total number of patients were 600. All the patients between the ages of 20-45 years were included in this study. Approximately 45% patients were due to self-inflicted or suicidal burns, accidental burns due to domestic and work related was the second common cause (20%) of burns. Homicidal burns were 10% and burns unrelated to work was 10% (Table 1). Among 600 patients approximately 40% patients were males while the females 60% (Table 2). Among all patients the burns were common in married population i.e. 70% but unmarried were 30% (Table 2). Females were 15% in 20-25 years age group while maximum percentage was among 25-30 years age group. Similar incidence for males was found in 25-30 years age

group. An incidence of 5% was found in 30-35 years of age and in 35-40 years group it was 7% (Figure 3).

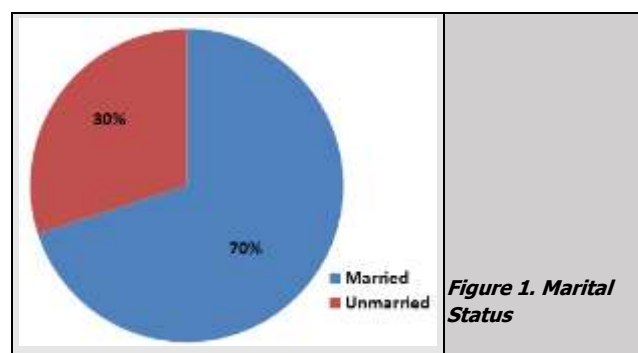


Figure 1. Marital Status

Suicidal Burns	45%
Accidental (Domestic & work related)	20%
Not work Related	15%
Homicidal	10%

Table 1. Mode of Injury

Age Group (Yrs.)	% Males	% Females	Total % of Patients
20-25	10	15	25
25-30	10	20	30
30-35	5	15	20
35-40	5	10	15
40-45	3	7	10

Table 2. Age and Gender Distribution

Type of Scarring	1 Month Post Burn	3 Months Post Burn
Hyperpigmentation	70%	15%
Hypopigmentation	80%	10%
Hypertrophic Scarring	62%	40%

Table 3. Incidence of Post Burn Scarring

Incidence of hyperpigmentation was 70% one-month post burn, but it settled to 15% three months post burn. Hypopigmentation was found in 80% of patient's one-month post burn but gradually settled to 10% three months post burn. Hypertrophic scarring was found up to 62% on one month post burn and slowly decreased to 40% three month post burn (Table 3). Untreated and neglected hypertrophic scarring resulted in contractures. Approximately 35% of patients suffered contractures of different sites of body (Table 4), the most common site being the neck.

Site	No. of Patients	%
Neck	60	10
Axilla	30	5
Elbow	36	6
Wrist & Hand	48	8
Eyelid	12	2
Mouth	24	4

Table 4. Post Burn Contractures Incidence

Post-Traumatic Stress Disorder (PTSD)	65%
Schizophrenia	19%
Acute Stress	16%

Table 5. Evaluation after One Month of Discharge from Hospital

Post-Traumatic Stress Disorder (PTSD)	40%
Schizophrenia	20%
Fearfulness in returning to work	40%

Table 6. Evaluation after Three Months of Discharge from Hospital

Psychological evaluation was done one month after discharge from the hospital and three months after discharge from the hospital. Posttraumatic stress disorder

(PTSD) was 65% and 40% in one month and three months after discharge from the hospital respectively. The incidence of schizophrenia was almost same in one month and three months after discharge. Acute stress was 16% one month after discharge. The fearfulness in returning to work was approximately 40% (Table 4, 5).

DISCUSSION

TBSA and visibility of burn scar visibility are related to psychosocial adjustments. Burn and problems related to burn injury are very common in our country. The incidence also varies according to regions, socioeconomic status and other factors. The mode of injury is also a variable factor. Although with advent of many safe cooking fuel, the incidence is gradually going down. Females outnumber males in our country while in developed countries the incidence is more among males. Lack of education, unemployment, rape, financial dissatisfaction and discordance in family are also among major reasons for burns. This study primarily focuses on the clinical and psychological outcomes for hospitalized patients.

Clinical sequelae among survivors include eyelid contractures leading to ectropion, microstomia, contractures of neck, axilla, elbow, wrist, hand, knee and feet. Psychiatric disorders are very common in post burn survivors and it has been reported to be 8% to 75% of all burn. Patterson et al reported higher psychological distress than normal patients.² In our study, PTSD was very common in acute phase and one to three months after discharge from the hospital, but the percentage of PTSD decreased from 65% to 50%. Acute stress was around 16% while schizophrenia was around 16%. It has been observed that as the patient is discharged from the hospital the incidence of schizophrenia also reduced from 16% to 10% but the patients were suffering from fearfulness to return to normalcy (40%). It has also been reported that psychological healing occurs over the time which is relatively predictable and consistent⁷ It has been described by Shriners Burns Hospital, Texas in four phases i.e. Admission, Critical care phase, In-hospital recuperation, and rehabilitation.⁸

The incidence of scarring in our study was 62% which settled to 40% post three months. It is not only physical but also affects psychologically. Hyperpigmentation and hypopigmentation were also common, 70% and 80% respectively. It improved significantly over three months. Some patients in the range of 15-20% had residual hypopigmentation. Hypertrophic scarring was also very common (62%) and settled but in some cases progressed to contractures. Post burn contractures occur where the skin over the joints was involved. The most common and debilitating ones are those of eyelids, neck, upper and lower limb, and hands. Contractures further require release and resurfacing by split skin grafts followed by physiotherapy.^{9,10} Sudden skin injury as in case of burns causes fear and feeling of psychological, emotional and functional losses where the patient suffers negative feelings.¹¹ Pain during

hospitalization also adds to anxiety and stress which leads to emotional exhaustion and possibly emotional breakdown.¹² The incidence of anxiety and depression were also very common. Mild depression and mild anxiety were present in 25 to 30% of cases although clinical trials have shown lower rates for depression (12%) and anxiety (20%).

CONCLUSIONS

A burn survivor is to be cared both at physical and psychological level. It is usually difficult for a burn victim to re-associate himself to the society, because of a group of emotions termed as "SCARED" i.e. Staring, Curiosity, Anguish, Recoil, Embarrassment and Dread.¹³ So, a holistic approach is needed towards survivors of burns and every effort should be made to re-associate them with the society.

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