

Original article

Rehabilitation of female burns patients admitted in a tertiary care hospital: A longitudinal study

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Abstract

Background: Burn injuries have a considerable physical, psychological and economic impact on the patients, their families and society.

Objectives: To create a liaison between burn victims and rehabilitation services so as to help the patients lead a better life.

Methods: A longitudinal study of one and half year duration (May 2009 to October 2010) was conducted among female burn patients admitted in tertiary care hospital. Universal sampling method was employed. All the adult female burns patients above 18 years who were admitted during the study period and gave consent for study were included. Total number of study participants was 103. On first contact with the subject, a semi-structured questionnaire was used to obtain socio-demographic details and details about burns injury. Subsequently each of them was followed up for a period of two months after their discharge from hospital to know about their health status / social problems and utilization of rehabilitation services depending upon their needs. Statistical analysis was done using SPSS-17 version.

Results: Case fatality rate was found to be 35%. Out of 48 women who were followed up, only 3(6.2%) had undergone reconstructive surgery for contractures while 14(29.1%) women had developed contractures. Only 15(31.2%) women were regularly attending physiotherapy and occupational therapy sessions.

Conclusion: Counseling services for rehabilitation of victims should be strengthened not only during hospital stay but also after discharge to emphasize on

positive thinking, importance of physiotherapy and occupational therapy, prevention of secondary infections & contractures and vocational guidance for earning own livelihood.

Keywords: Burns, rehabilitation, reconstructive surgery, contracture

Introduction:

Burns are a global public health problem, accounting for an estimated 195000 deaths annually. Burns are among the leading causes of disability-adjusted life-years (DALYs) lost in low and middle-income countries¹. In India, approximately, there are 6 million burns cases annually, of which around 0.7 million cases require hospitalization, of which approximately, 0.12 millions die annually². Goldman describes burns as "*the silent epidemic*"³.

Rehabilitation is now an essential and integral part of burn treatment^(4, 5). The rehabilitation for patients with burn injuries starts from the day of injury, lasting for several years and requires multidisciplinary efforts. A comprehensive rehabilitation program is essential to decrease patient's post-traumatic effects and improve functional independence⁽⁶⁾. Severe burn survivors often undergo a prolonged course of rehabilitation that begins at the acute care hospital, transitions to an inpatient rehabilitation facility and is completed as an outpatient⁷.

Rehabilitation of burns patients is a continuum of active therapy starting from admission. There should be no delineation between an 'acute phase' and a 'rehabilitation phase'⁸ as this idea can promote the inequality of a secondary

disjointed scar management and/or functional rehabilitation team⁹.

There is little information on the pattern of outcome among burns patients and their rehabilitation. Hence, this study was conducted to gain an insight into the socio-cultural determinants of burns patients and the physical, mental and social sequel to burns injury. It will also identify the various modes of rehabilitation of burns patients and the various problems faced by patients, their relatives and the service providers in the rehabilitation of these female patients. Thus, the study will try and create a liaison between the burn victims and rehabilitation units so as to help the patients cope up with their injury and they are rehabilitated to lead a better life.

Material & methods:

A longitudinal study was conducted over a period of one and half year from May 2009 to October 2010 among adult female burns patients admitted in a tertiary care hospital in a metropolitan city. Universal sampling technique was employed for selection of study participants.

Inclusion and Exclusion Criteria:

All the female burns patients above 18 years of age who were admitted during the study period in the tertiary care institute and gave consent for the study were included in the study. The patients or legally accepted guardians, in case of serious patients, who did not give consent were excluded from the study. Also, patients who expired prior to the interview were excluded from the study.

Altogether 107 burns patients were admitted during the study duration. Of these, three patients did not give consent for the study and hence were not included while one patient expired prior to the first interview and hence was excluded from the study. Thus, the total sample size was 103.

A semi-structured questionnaire was designed after reviewing the literature.

On pilot basis, seven women were interviewed to test validity and response. The questionnaire was then suitably modified and used as a tool for data collection. The questionnaire included socio-demographic details of the participant as well as details about the burns injury. Participants were interviewed face to face after obtaining their informed consent after they were stabilized in the burns unit. The help of the nursing staff was taken to establish rapport with the subjects and their relatives. Each of the study participants and their relatives was linked with the medical social worker (MSW) for provision of counseling regarding financial concessions for drugs, procedures, etc as well as rehabilitation services on the first contact itself. The extent of burn injury was calculated according to Wallace rule of nine⁽¹⁰⁾. Kuppaswamy's method of socioeconomic status was used to determine social class to which women belonged¹¹.

Regular visits were paid to the female burn victims during their hospital stay and each visit reinforced the importance of rehabilitation among the subjects as well as their relatives. The subjects were offered rehabilitation services depending upon their needs in the following ways:

1) Medical: With the help of splints, pressure garments, skin grafting surgeries, corrective surgeries, etc. Referral to physiotherapy and occupational therapy after discharge

2) Vocational: With the help of the institutional MSW, the needy subjects were referred to rehabilitation centers considering their requirements, accessibility, affordability, educational qualifications, financial requirements, etc.

3) Psycho-social: Every opportunity was utilized, for optimizing the acceptance of the victim by the family members and in making an effort to tackle the social misconceptions by giving all subjects sufficient time for counseling individually

and motivating them that this is not the end.

After discharge, at weekly intervals for a period of two months, the subjects were contacted over telephone about their condition/ any complication/ any significant marital or social issue that may have arisen which she was unable to cope / acceptance at workplace, etc. In addition, in collaboration with the physiotherapy and occupational therapy staff, the date of follow up of the subject was fixed and then re-confirmed with the subjects so as not to miss the opportunity of personal contact and corroborate the reliability of the information obtained over telephonic conversation. Subjects who could not be contacted even telephonically were declared as lost to follow up.

Ethical considerations: Ethical clearance was obtained from the Institutional Ethics committee prior to the start of the study. Written informed consent was obtained from the study participants before obtaining any information from them. Utmost care was taken to maintain privacy and confidentiality.

Data analysis: Data entry and statistical analysis was done using SPSS version 17. Frequency distributions were calculated for all the variables.

Results:

In the present study, majority of the women 63(61.2%) were in the age group of 18-30 years. 21(21.4%) were in the age group of 30-45 years. Mean age was 31.4 years with standard deviation of 13.3 years. 78(75.7%) women were belonging to Hindu religion while only 23(22.3%) women belonged to Muslim religion. As regards to education, 23(22.3%) women were illiterate, 31(30.1%) were educated up to primary level, 28(27.2%) up to secondary level and 9(8.7%) women were graduates and above. Majority 74(71.8%) women were housewives while 5(4.9%) women were involved in skilled and professional work.

Table 1 shows the details about burns injury. It shows that flame burn was the most common cause of burns accounting for 80.6% of the total burns. No cases of chemical burns were found. Among flame burns, it was seen that kerosene stove was the most common cause of flame burns seen in 56(67.5%) subjects. According to the subject, accidental burns accounted for 86.4% burns i.e. in 89 cases while homicidal burns accounted for 9.7% cases.

Out of the total 103 subjects, 36(35%) expired during their hospital stay. A total of 67 women were available for follow up of which 22 women were discharged against medical advice. 18 women were lost to follow up as they could not be contacted which included 14 women residing out of the city in which the study was conducted. One woman had expired within two months of discharge from the hospital. Thus total 48 women were only followed up for the next two months after their discharge.

Table 2 shows the site of contractures among these subjects. 14(29.1%) of the followed-up women developed contractures out of which only 3(21.4%) underwent reconstructive surgery. Apart from contractures as a secondary complication, nine women required a re-hospitalization for complications like secondary wound infections. Other complications observed were pruritus in 24(47%) women and hypertrophied scar in 13(25.4%) women.

Table 3 shows the reasons for non usage of splints / pressure garments and for not attending physiotherapy / occupational therapy. Of the 46 women who were advised use of splints and pressure garments, only 21(45.7%) women were actually using it. 13(27.1%) burn victims did not require any physiotherapy, 15(31.3%) women were regularly attending physiotherapy-occupational therapy sessions while rest 20(41.6%) victims either attended physiotherapy irregularly or did not attend at all.

Table 4 shows that 12(25%) subjects were completely accepted by their families and

families were supportive of them. It was also observed that 26(54.1%) women

Table 1: Details about burns injury

Details about burn injury	Number	Percentage (%)
Mode of burns		
Flame	83	80.6
Scald	17	16.5
Electrical	3	2.9
Nature of burns		
Accidental	89	86.4
Suicidal	2	1.9
Homicidal	10	9.7
Percentage of TBSA involved		
< 25%	29	28.1
25 - 50%	38	36.8
50 - 75%	30	29.1
> 75%	6	5.8
Site of burns		
Head / neck / face	53	51.4
Upper limb	67	65.0
Lower limb	56	54.3
Trunk	39	37.8
Genitalia	14	13.5

Table 2: Site of contracture among follow up subjects (n = 14)

Site of contracture ^a	Number	Percentage (%)
Neck	11	22.4
Upper limb	Axillary region / Shoulder	6 12.2
	Elbow	2 4
	Wrist	1 2
	Fingers	2 4
Lower limb	Knee	1 2

^a Sites of contracture are not mutually exclusive

Table 3: Reasons for non utilization of medical rehabilitation services

Reasons for not using splints / pressure garments (n = 25)	Number	Percentage (%)
Did not feel it was important / necessary	16	64
Ignorance or neglect	9	36
Reasons for not attending regular physiotherapy (n = 20)	Number	Percentage (%)
Very frequent visits are required	17	85
Lack of motivation / low self esteem	8	40
Daily domestic chores are hampered	13	65

Table 4: Psycho – Social and vocational rehabilitation of burns victims

Post burn impact on day to day life (n = 48)	Number	Percentage (%)
Positive change	12	25
Negative change	21	43.7
No change	15	31.2
Post burn impact on job (n = 18)	Number	Percentage (%)
Resumed prior work duties	14	77.8
Vocational training for burns victims (n = 11)	Number	Percentage (%)
Tailoring	3	27.3
Vegetable packing	5	45.4
Floral packing	3	27.3

Table 5: Problems faced in rehabilitation of victims (n = 48)

Problems faced	Number	Percentage (%)	
Subject	Lack of motivation / low self esteem	14	29.1
	Daily domestic chores are hampered due to physiotherapy visits	29	60.4
	Abuse by in laws	17	35.4
Relatives	Not worth investing time and money for rehabilitation	18	37.5
	Daily domestic chores are affected	24	50
	Has to be accompanied every time affecting their routine activities	14	29.1
Service providers	Discharge against medical advice	22	45.8
	Poor follow up to determine the long term sequelae.	29	60.4

could carry out their daily activities normally, 17(35.4%) women with difficulty and the remaining 5(10.4%) women required help of family members for some of her daily activities. Out of the total 48 women, 18(37.5%) were earning members of family and rest 30(62.5%) were housewives. 14(77.8%) women resumed work normally but four could not because of development of contractures. These four women along with seven other

study subjects who were housewives were referred to different vocational rehabilitation centers with the help of medical social worker of the tertiary care institute.

Table 5 shows that problems faced by women in their rehabilitation. During the follow up visits it was observed that 14(29.1%) women had lack of motivation / low self esteem because of the disfigurement. The concerned spouse and

the in-laws were counseled by the medical social worker to facilitate the integration of burn victim in the family. Simultaneously family meetings were organized involving families of other burn victims of the study who had accepted the victims in their family. They shared their point of view with other families which did not accept the victims and positively motivated them to promote acceptance.

Discussion:

In the present study, 63(61.2%) of the women are in the age group of 18-30 years. Similar results were obtained in a study done in India which reported that 85% cases of burnt women were between the age of 16-30 years and the rest 15% were beyond the age of 30 years¹². Also, in a study done in South India observed that 40.9% of the female victims belonged to the age group of 15 to 24 years¹³. The triggering factors for burns in this young age were most probably inadequate precautions during cooking, exposure to hazardous situations at home and also dowry deaths, etc.

Flame burn was the most common cause of burns accounting for 80.6% of the total burns, kerosene stove accounting for 67.5%, followed by scald burn seen in 17(16.5%) subjects in the present study. This was mainly because of faulty and unsafe cooking practices. Similar results were obtained in various studies done in India as well as in other countries^{14,15}.

In the present study, upper limb and lower limb involvement was most commonly involved while in a study done in Indore, thorax and abdomen (67.9%) were found to be the most common areas involved in all types of burns¹⁶.

In the current study, it was seen that 16(64%) subjects did not feel the necessity of using splints / pressure garments and 9(36%) did not use it just because of their ignorance. It suggests the need for constant reinforcement and motivation among the women for utilization of medical rehabilitation

services. Counseling burns victim about the importance of use of splints is very essential as splinting is the only available therapeutic modality that applies controlled gentle forces to soft tissues for sufficient lengths of time to induce tissue re-modeling¹⁷.

It was also found that most women 17(85%) felt that it was not possible for them to go for physiotherapy so frequently. 13(65%) felt such frequent visits adversely affected their domestic chores while 8(40%) had a lack of motivation. This shows the need of expansion of physiotherapy and occupational therapy services in order to improve their accessibility for the needy persons. In another study done in Mumbai, only 5 women attended for physiotherapy. The remaining 69 were not aware of the need for physiotherapy. Thus, there was very poor awareness of the need for physiotherapy among these patients¹⁸.

In our study, it was observed that 12(25%) subjects had a positive change in life post burns i.e. they were completely accepted by their families. 21(43.7%) women were not completely accepted by their husband and in laws, were not properly taken care of, sometimes verbally abused. In another study, it was observed that the prevalence of psychosocial maladjustment among the adults was 10%¹⁹.

In our study, 14(77.8%) women resumed work normally. Rest 4(22.2%) were unable to return to work as a result of development of contractures. In a study done in Sweden, it was observed that 31% had not returned to work and had lower health-related quality of life²⁰. In a systematic review, it was found that an average of 66% of patients returned to work following their burn²¹.

The study had its limitations in the form that long term follow up of the burns victims was not undertaken and no home visits were paid to identify the actual post burns impact on the women's life. Also, although each subject had a psychiatric evaluation done during the hospital stay,

no such intervention was done at the time of follow up.

Conclusions:

Following a burn injury most of the victims can feel isolated and alone especially in case of women. These women should be encouraged in order to re-establish themselves in their social and vocational lives as soon as they are able to, and their family members should be encouraged to promote this behavior. Counseling services for rehabilitation of victims should be strengthened not only during hospital stay but also after discharge to emphasize on positive thinking, importance of physiotherapy and occupational therapy, prevention of secondary infections & contractures and vocational guidance for earning own livelihood.

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