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Coping with Severe Burns in the Early Stage After Burn Injury

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A B S T R A C T

This study examined the relationship between coping strategies, anxiety and depression levels and burn injury characteristics in the early phase of the treatment in burn-injured patients. Seventy patients with severe burns were interviewed within two weeks of their burn trauma. Coping strategies were measured by the coping with burns questionnaire (CBQ). Anxiety and depression levels were assessed with the Beck Depression Inventory and the Beck Anxiety Inventory. There were no statistically significant gender differences in various coping strategies. Avoidance was associated with higher levels of anxiety, depression and hopelessness. The percentage of total body surface area (TBSA) and localization of burns were not associated with coping patterns. Implications for the assessment and management of burn injured patients were discussed.

***Key words**: burns, coping, depression, anxiety*

Introduction

Being severely burned is a traumatic life event that affects the victim both physically and psychologically and may be considered as a »continuous traumatic stress disorder«[1]. The characteristics of severe burn trauma make an appropriate model for the study of health consequences of physical trauma in general[2]. Earlier studies have indicated that the perceived outcome after burn injury is the effect of interplay between the physical sequelae and psychosocial characteristics[3–5]. The growing number of individuals surviving severe burn injuries has prompted an increased focus on problems of rehabilitation, independence and psychosocial adjustment[6].

Previous studies have explored psychological as well as psychiatric aspects of post-burn morbidity in both adults and children[7–11]. Common psychiatric disorders following a burn injury are depression and posttraumatic stress disorder (PTSD)[12]. Also, in the long term period post-burn patients have previously shown somatization and phobic anxiety disorders[13]. Localization of visible burns (face and hands) causes difficulty in social reintegration. Functional limitation following burn injury have been shown to be predictors for depression[14]. It has also been shown that in accidental burns, a direct threat to life during the event predicts a poorer psychological prognosis[15]. The recovery of severe burns takes time, and for some patients, physical and psychological symptoms may remain for several years and even decades[16–18]. Psychological factors like personality traits and coping strategies are receiving increasing attention since it has been established that injury-specific factors alone do not explain the differences in health outcome[5,19–20]. Burn patients have previously been found to display a slightly higher degree of maladaptive personality traits than normal subjects do[9,21].

Coping refers to a person's cognitive and behavioural efforts to manage stressful situations and accompanying negative emotions[22]. In response to a stressful situation an individual often uses a variety of coping strategies[23]. The combinations or patterns of coping strategies may vary across individuals or groups of individuals with certain personality characteristics. The relationship between coping strategies and burn injury characteristics,

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sociodemographics and long-term outcome was evaluated in previous studies[24]. Willebrand et al. developed a coping instrument specific to burns, the coping with burns questionnaire (CBQ). The CBQ contains six factors corresponding to dimensions of coping: Revaluation/adjustment, Avoidance, Emotional support, Optimism/problem solving, Self-control and Instrumental action[25]. Examination of coping factors has shown that high levels of emotion-focused coping and low levels of acceptance coping are correlated with PTSD symptoms and with emotional distress in general[9]. Avoidance was related to PTSD and lower quality of life[25–26]. More women use emotion-focused coping styles[12]. Coping strategies can be targeted in rehabilitation and could thereby have clinical implications for the management of burn survivors, particularly since burn patients encounter the demands of adaptation over an extended time period. The purpose of this clinical study was to analyze the interrelationships between the coping patterns, burn characteristics and levels of anxiety and depression among burned adults at the very early stage after burn trauma.

Materials and Methods

Subjects

A total of 70 patients with severe burns, who were hospitalized during 2004 at the University Hospital of Traumatology in Zagreb, Croatia, were selected as the sample for this study.

Survey design and assessment instruments

During the first few days after stabilization of vital functions, patients were informed about the study and gave their consent to participation. Self-completion survey packs were administered to the patients who were interviewed within two weeks of their burn trauma. A questionnaire devised specifically this study was used to gather: demographic information, information about the burn injury/condition as well as about premorbid psychiatric and medical disorders.

The Beck Anxiety Inventory was used to assess anxiety within 2 weeks of the burn injury. The score of anxiety ranges from 0 to 63 and the higher the score, the more anxiety experienced. The Beck Anxiety Inventory is a validated self-report instrument designed to measure anxiety as a state[24].

The Beck Depression Inventory was used to assess depression within 2 weeks of the burn injury. The Beck Depression Inventory is a widely used clinical and research instrument which assesses current depressive symptomatology. The score of depression ranges from 0 to 63 and the higher the score, the more depression experienced. The scores less than 4 were considered as denial and the scores over 40 suggest possible characteristics of histrionic or borderline personality disorder[24].

The Beck Hopelessness Inventory was used to assess hopelessness within 2 weeks of the burn injury.

The CBQ scale was developed and designed to measure coping with burn injury[25]. The scale is based on the theory of coping as a process and the items selected are those previously found important in research on trauma or health status[23,27.] The subjects were instructed to think how much they used the strategies described in each item. Items were rated on a scale of 1–4 (1 – does not apply/not used, 2 – used somewhat, 3 – used quite a bit and 4 – used a great deal). The CBQ consists of 33 items divided into six subscales corresponding to different dimensions of coping: Revaluation/adjustment, Avoidance, Emotional support, Optimism/problem solving, Self-control and Instrumental action (Table 1).

Results

From the patients included in the study 48 (68.57%) were males, and 22 (31.43%) females. The patients aged from 15 to 84 years (X=44.17). The hospital stay ranged from 2 to 135 days (X=28.67; SD=27.31). All burns were accidental. Total body surface area (TBSA) that was burned was calculated by summing the percentage of second and third degree burns. The extent of burn injures ranged from small (1–9% TBSA – 30 patients), large (10–19% TBSA – 29 patients) and extensive (>20% TBSA-11 patients). The mean TBSA was 12.16% (ranged from 2–45%, SD=10.04). Burns on the face, hands and

TABLE 1
CONTENT OF SUBSCALES IN THE COPING WITH BURNS QUESTIONAIRE (CBQ)

CBQ subscales	Content of subscales
Avoidance	Cognitive and behavioural efforts to divert attention away from difficulties or reminders of the accident
Self-control	Restrained expression of feelings
Emotional support	Seeking social support of the emotional kind
Instrumental action	Instrumental support seeking and instrumental ways of problem solving
Revaluation-Adjustment	Statements about changing, adjusting and restricting thoughts about the accident and lifestyle in order to feel better
Optimism-problem solving	Strategies such as expending efforts to make things work, using cognitive strategies in solving problems and having a positive outlook regarding the future

neck were present in 53 patients (77.14%). The mortality rate was 2,85%. The depth of burns varied from the second-degree (IIA-3 patients, IIB-27 patients), third-degree (38 patients) and fourth-degree (2 patients). Twenty-five patients (35.71%) had previous psychiatric disorders. Ten of them (14,29%) had a past depressive episode, and 4 patients had a combat-related posttraumatic stress disorder. 2 presents X and SD for different subscales of the CBQ. The highest X-score was noted on the Emotional Support subscale (X=2.65, SD=0.60), and also on the Optimism/Problem Solving subscale (X=2.68, SD=0.47). The lowest mean score was noted on the Avoidance subscale (X=1.85, SD=0.46). There were no statistically significant gender differences in the copping patterns in any of the subscales of the CBQ. The biggest difference between men and women was found on Emotional Support subscale, but it wasn't statistically significant. Table 3 shows X and SD for different subscales of the CBQ in men and women. We found a statistically significant correlation between the level of depression and the level of anxiety (r=0.573, p=0.000). Higher levels of anxiety were associated with higher levels of depression. We also found a statistically significant correlation between the level of hopelessness and the level of depression (r=0.583, p=0.000) as well as between the level of hopelessness and the level of anxiety (r=0.400, p=0.001). Higher levels of hopelessness were associated with higher levels of anxiety and depression. Significant correlation was found between the score of Avoidance subscale and the level of depression (r=0.339, p=0.006). Higher levels of depression were associated with higher scores on the Avoidance subscale. A statistically significant correlation was also found between the score on the Avoidance subscale and the level of hopelessness (r=0.391, p=0.001). We did not find a statistically significant correlation between the avoidance subscale and the level of anxiety. Forty-seven patients (67.14%) reported very low anxiety, 17 patients (24.29%) reported moderate anxiety, and 6 patients (8.57%) reported severe anxiety. Thirty-six patients (51.43%) were not depressed, 14 patients (20%) reported mild depression, 15 patients (21.43%) reported moderate depression and 5 patients (7.13%) had severe depressive symptomatology. Twenty--six patients (37.1%) denied their depressive symptomatology. We didn't find any statistically significant correlation between the TBSA and coping patterns as well as between the localization of burns and coping.

TABLE 2
DESCRIPTIVE STATISTICS FOR DIFFERENT SUBSCALES OF THE COPING WITH BURNS QUESTIONNAIRE (CBQ)

Variable	N	Min	Max	X	SD
Emotional support	64	1.00	3.67	2,6510	0.59519
Optimism/problem solving	64	1.50	3.63	2,6777	0.47130
Avoidance	64	1.00	2.71	1,8504	0.46269
Revaluation/adjustment	64	1.13	3.50	2,5527	0.49391
Self control	64	1.00	4.00	2,1927	0.61666
Instrumental action	64	1.00	3.50	2,1367	0.58406

Min – minimum, Max – maximum

TABLE 3
DESCRIPTIVE STATISTICS FOR DIFFERENT SUBSCALES OF THE COPING WITH BURNS QUESTIONNAIRE (CBQ) IN MAN AND WOMEN

	Sex	N	X	SD	SEM
Emotional support	Man	45	2.5926	0.58985	0.08793
	Women	19	2.7895	0.60052	0.13777
Optimism/problem solving	Man	45	2.7167	0.47479	0.07078
	Women	19	2.5855	0.46220	0.10604
Avoidance	Man	45	1.8444	0.43483	0.06482
	Women	19	1.8647	0.53553	0.12286
Revaluation/adjustment	Man	45	2.5306	0.50646	0.07550
	Women	19	2.6053	0.47189	0.10826
Self control	Man	45	2.2444	0.66818	0.09961
	Women	19	2.0702	0.46586	0.10688
Instrumental action	Man	45	2.1333	0.58290	0.08689
	Women	19	2.1442	0.60275	0.13828

SEM – standard error mean

Discussion

The aim of this study was to explore relations between coping during the very early stage after burn injury and some of the burn injury characteristics, patient's gender, and levels of anxiety, depression and hopelessness. It is necessary to be aware of the nature of the patient's psychological response to burn injury in different phases of the burn injury management. Certain responses are an expected part of the patient's normal process of coping with the trauma. In our study, a significant number of patients had high levels of anxiety, depression and hopelessness, which is similar to other recent studies in the early stage of recovery[28–29]. A significant number of patients had previous psychiatric history. Rockwell found that pre-morbid psychopathology may indirectly or directly add to the risk of being burned, to the severity of burn, and to the length of hospitalization[30]. The use of certain coping strategies is proposed to have a beneficial effect on health by affecting the stress response as well as health-promoting behaviours[23]. Kildal and coworkers also found that coping is highly related to poor bad perceived health status a long time after burn injury. Some coping strategies may be more dependent on life situation, and others may be more stable and dependent on personality traits. In our study, the highest mean score was on the Emotional Support subscale and than on the Optimism-Problem Solving subscale. It was found that the strategies Emotional Support and Optimism-Problem solving were related to better health status, while Avoidance, Revaluation-Adjustment, Self-Control and Instrumental Action were related to poorer health status[25]. But, it is necessary to stress that we interviewed patients during the very early stage after burn trauma. Avoidant coping is generally thought of as a maladaptive coping strategy[31–33]. Emotional Support strategies were related to a better quality of life in a study of patients with breast cancer[34]. Optimism/Problem Solving strategies are often related to a positive adaptation[35–36], although there are conflicting findings[37]. Tedstone and coworkers found that only beneficial coping strategy related to adaptation at 3 months post-burn was acceptance, while other forms of coping were related more to symptoms of PTSD and depression[5]. In the recent study, Willebrandt had identified three subgroups of patients-extensive, adaptive and avoidant copers. The avoidant copers displayed the lowest health status and the highest ratings on neuroticism and aggressiveness. The extensive copers had intermediate ratings, while the adaptive copers had the most favourable outcome and personality ratings[38]. Our results (means and SD of different coping subscales) are more homogenous than in the study of Willebrandt, probably because of the fact that our study was not retrospective. The retrospective assessment of coping is a limitation, as the ratings might have been influenced by personality traits and selective memory processes. Recent studies has also shown that the level of coping use is less important than the actual pattern of coping strategies. For instance, the use of avoidance is related to poor health status, especially when the same individuals rate a low use of other more adaptive coping strategies[36,38]. It has been reported that many patients afflicted by burn injury use avoidant coping strategies[39]. Avoidance has been found to be an adaptive strategy in the very early stages of the coping process, possibly as a protection against overwhelming impressions, but not in the long term[33–34]. In previous studies we have seen that avoidant coping has a strong relationship with all aspects of poorer perceived health[25], and emotion-focused coping has previously been associated with body image dissatisfaction after burn injury[40]. In our study, statistically significant relationships were also found between avoidance and levels of depression and hopelessness. According to the recent studies, the best predictor for depression was pre-morbid psychopathology**.** This study showed that significant number of patients suffer from depressive symptomatology, anxiety and hopelessness even in acute phase after burn trauma. The very high number of patients who denied depressive symptomatology is probably because of early phase of treatment. In this study, we found no gender differences in coping patterns, which is similar with the results of other studies[24–25]. Consistent with the published literature[25–26], no differences between patients with large burn extent and smaller burns were found. Pruzinsky and coworkers found no direct correlation between the extent of the injury and the psychological adjustment of the patient[41], and some papers suggest that small burns can result in large psychological problems[42]. Consistent throughout the disfigurement literature, there appears to be no direct relationship between severity of a disfigurement and psychological distress[43], which is similar to our results. The studies of Willebrandt lend support to the hypothesis that subgroups of individuals react differently after burn trauma as a result of environmental and constitutional factors[36,38]. It is highly likely that these diverse groups of individuals require different types of support, which means that different treatment strategies should be individually tailored to the specific needs of the patient. The main strength of this investigation is the inclusion of burn injured patients into the acute phase of the treatment. A weakness in the design is that coping strategies were assessed in a relatively small sample of the patients and without a follow up.

Conclusion

Being severely burn-injured is a stressful experience that challenges both physical and psychological resources of the patient. The identification of individual coping patterns may be of value in optimizing rehabilitation. This study provided empirical evidence that demonstrated coping strategies in the early stage after burn trauma and their relationships with burn characteristics, patient's gender and levels of anxiety and depression. Our results indicate that analysis of coping patterns as well as of psychiatric comorbidity should be introduced relatively early in the course of treatment so as to prevent the chronification of comorbid psychiatric disorders. The identification of coping patterns in the short and long-

term adaptation after burn injury can help the medical staff to identify patients who might land up in a negative process of adaptation. As well as to help them with specific psychotherapeutical interventions. It is necessary to develop screening tools for the usage in burn units even at the very early stage of burn injury management.

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SUOČAVANJE S OPSEŽNOM OPEKLINOM U RANOJ FAZI NAKON OZLJEDE

SAŽETAK

U ovom je radu istraživan odnos između načina suočavanja, razine anksioznosti i depresije te karakteristika opekline u ranoj fazi liječenja bolesnika s opeklinama. Sedamdeset bolesnka s opsežnim opeklinama intervjuirani su unutar dva tjedna nakon nastanka opekline. Strategije suočavanja mjerene su upitnikom za suočavanje s opeklinama (CBQ). Razina anksioznosti i depresije mjerena je pomoću Beckovog upitnika depresivnosti i Beckovog upitnika anksioznosti. Nisu pronađene statisticki značajne spolne razlike u različitim strategijama suočavanja. Izbjegavajuće je ponašanje povezano s višom razinom anksioznosti, depresije i beznađa. Postotak opečene površine tijela (TBSA) i lokalizacija opekline nisu povezane sa oblicima suočavanja. Analizirana je moguća primjena dobivenih rezultata u procjeni i liječenju bolesnika s opeklinama.