

**“CAROL DAVILA” UNIVERSITY OF MEDICINE AND PHARMACY,
BUCHAREST**

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***EVOLUTIONARY PARTICULARITIES IN POST-BURN
SYNDROME – MEDIUM AND LONG-TERM IMPACT ON
QUALITY OF LIFE***

DOCTORAL THESIS SUMMARY

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Introduction

Burns occupy a distinct place within traumatic pathology, because their effects are not limited to destruction of the skin or to local wound treatment [1–3]. In clinical practice, the acute stage imposes immediate priorities: stabilisation of the patient, pain control, prevention of infection, coverage of skin defects and preservation of function in the affected segments [1,2,4]. However, for the patient, the course of the disease does not end with wound healing or discharge. Skin graft integration, healing of a burned surface or partial recovery of mobility do not always capture the true extent of the changes produced by the burn wound in daily life [2,3,5].

Advancements achieved in recent decades in intensive care, reconstructive surgery, infection control and medical rehabilitation have significantly increased the survival chances of patients with severe burns [1]. This reality has changed the way therapeutic success should be understood. Whereas survival was previously the main marker of medical outcome, it is now necessary to evaluate the patient's life after the acute period has been overcome [1,2]. Post-burn recovery therefore includes not only healing of the injury, but also the patient's ability to resume usual activities, family, social and professional roles, and to adapt psychologically to the changes produced by the trauma [2,6].

The consequences of burns are variable and depend on multiple clinical, individual and social factors. Beyond scars, tissue contractures, pain, pruritus or sensory disorders, the patient may experience important changes in body image, self-esteem and the way they relate to other people [2,7].

The psychological component of recovery is sometimes more difficult to quantify than functional deficit, but it is equally important [8]. The traumatic event, pain, prolonged hospitalisation, repeated surgical procedures and bodily changes may favour the development of anxiety, depression, sleep disorders, symptoms of post-traumatic stress and social isolation [8].

Professional reintegration is another essential aspect of recovery [9]. Return to work does not depend only on physical healing, but is also influenced by the location of sequelae, degree of mobility, persistent pain, scar appearance, professional demands, employer support and the patient's emotional state [9,10].

Health-related quality of life offers a broader perspective on these consequences [2,5]. Unlike objective clinical indicators, it includes the patient's perception of their own

physical, emotional and social condition [11]. In burns, this perspective is necessary because injury severity does not always overlap with the impact perceived by the patient [2,5].

I. General Part

1. Burn injuries and the scarring process

Burns are a major public health problem worldwide [12]. They represent the fourth most common type of trauma after road traffic accidents, falls and interpersonal violence [13]. It is estimated that burns cause approximately 180,000 deaths annually, most of them occurring in low- and middle-income countries. Non-fatal burns represent one of the major causes of morbidity [14].

Injuries caused by thermal, electrical or chemical agents to the skin and underlying tissues involve a central area of protein coagulation and tissue necrosis, surrounded by an area of decreased perfusion and ischaemia, with an outer area of increased perfusion and hyperaemia [15,16].

Wound healing is a complex succession of biological events, influenced by local signals from the injured tissue, by the wound microclimate and by the therapeutic interventions performed [17,18]. To understand the interaction between the biological processes that lead to wound healing, the following stages are described: haemostasis and inflammation, proliferation (granulation, vascularisation and wound closure - wound contraction and epithelialisation) and remodelling [17–19].

Optimal scar treatment must begin from the acute phase of the burn. The quality of the initial treatment, which should produce sequelae amenable to later reconstructive procedures, contributes to the success of the final treatment [20]. The purpose of the initial treatment is to prevent and treat potential multi-organ failure, hydro-electrolytic disorders or infections, thereby avoiding complications and notable functional sequelae (joint stiffness, bone exposure, limitation of thoracic expansion), as well as aesthetic sequelae [21].

2. Burn healing process: physical, psychological and social impact of burn injury

Quality of life after burn injury

In recent years, the target of burn care has shifted from survival itself towards addressing the consequences of the injury, emphasising the concept that “the quality of the outcome must be worth the pain of survival” [22]. Traditionally, research focused on outcomes such as early post-burn mortality, length of hospital stay, use of hospital resources (for example, ICU beds and ventilators) and the occurrence of specific physical complications.

The World Health Organization (WHO) defines health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity [23]. Quality of life includes multiple domains, including physical health, psychological state, level of independence, social relationships, personal beliefs and their interaction with the surrounding environment [24].

Patient-reported outcome measures (PROMs) have gained importance through standardised and validated questionnaires that capture the patient’s perspective before and after treatment. PROMs may be generic, assessing general aspects of health, or burn-specific, focusing on aspects such as scars, heat sensitivity and body image [25].

Most studies on post-burn quality of life use a combination of generic and burn-specific instruments, the most frequently used being the Burn Specific Health Scale-Brief (BSHS-B), Short Form-36 (SF-36) and EQ-5D [2]. Key domains measured in burn survivors include psychological health (anxiety, depression, mood disorders and stress), overall quality of life, physical abilities, pain, physical appearance, personality, coping behaviours, fatigue, stress disorder and post-traumatic growth, perceived stigma, substance use, social support, community integration, family environment, pruritus, physical exercise, and suicidal thoughts and behaviours [25].

Greater burn severity, reflected by the total body surface area (TBSA) and by injury depth, is generally associated with lower quality of life because of functional impairments, visible scars and psychological distress, which may affect return to school or work, social life and sexual relationships. However, the severity of injuries does not fully explain the variability of long-term adaptation [26]. Length of hospital stay (LOS) has proved to be a particularly relevant predictor of quality of life. Although it is strongly correlated with TBSA, LOS appears to have an independent and stronger association with

quality of life, influencing interpersonal relationships, employment status and the time needed for functional recovery [26]. In addition, the patient's support system strongly influences quality-of-life outcomes [26].

Physical and psychosocial impact of burn injury

Physical sequelae essentially determine the quality of life after a burn accident. Although wound healing in the acute phase represents an important stage of recovery, many survivors continue to face long-term symptoms that affect sensitivity, mobility, thermoregulation and physical appearance. These impairments often interact, amplifying disability and influencing psychosocial adaptation [27].

Chronic pain and pruritus have a high prevalence even years after the burn accident, profoundly affecting work, interpersonal relationships and quality of life. Chronic post-burn pain affects almost one third of burn survivors [27–30].

Burn survivors frequently experience long-term functional impairments, most often because of scar contractures. Contractures are generally described as the replacement of normal skin by rigid scar tissue that restricts the joints' range of motion [31].

Depression is frequent after burns, although its prevalence varies considerably. In the first month after burn, rates of up to 53% have been reported, decreasing to 13-35% at 12 months [32]. Social reintegration, especially return to work, is an essential factor that determines the level of recovery [33].

Models of quality of life recovery

Models of health-related quality-of-life (HRQL) recovery have been developed for children and young people with burns, but there is still no adult-specific model. Understanding how HRQL evolves over time in adult burn patients, evaluating factors such as age, sex, TBSA affected by burns and length of hospital stay, provides essential guidance for clinical care [34].

Analyses of EQ-5D dimensions have shown that pain and discomfort are the most frequent problems after burns. Although improvements have been observed over time, especially during the first 12 months, pain and discomfort persisted more frequently than complaints in other domains and compared with the general population [34].

Overall, the greatest HRQL improvements usually occur during the first six months, with modest subsequent improvements up to 18 months. Most EQ-5D dimensions improved over time, except pain/discomfort and anxiety/depression, which remained affected for up to seven years in both the mild/intermediate burn group and the severe burn group [34].

Recovery of health-related quality of life follows a non-linear trajectory and varies from one domain to another. The evolution of body image and social participation shows interconnected trajectories [35].

II Special Part

3. Study I - Short term evolution of post-burn patients

Working hypothesis, general objectives and methodology

Burns are among the leading causes of trauma worldwide, ranking after road traffic accidents, falls and acts of violence [36]. Beyond the severity of the acute episode, they represent an important public health problem because of the complexity of care, the high level of resource consumption and the physical and psychosocial sequelae they may produce in the long term.

Given the difficulty of evaluating these parameters, an emerging and easier-to-assess parameter is length of hospital stay, which has demonstrated its value in indicating the short- and long-term evolution of a burn injury. The objectives of the study were to evaluate all cases managed in a tertiary emergency centre and to identify factors associated with length of hospital stay.

The study was retrospective, and data was collected from the official reports of the Department of Plastic Surgery and Reconstructive Microsurgery from “Bagdasar-Arseni” Emergency Clinical Hospital, Bucharest, Romania. All patients were admitted through the Emergency Department between January 1st 2020 and December 31st 2023.

The following data was collected: cause of death, gender, burn mechanism, affected body regions, patient comorbidities, burn surface area and depth, age and length of hospital stay. For all statistical analyses, the threshold for statistical significance was set at 0.05.

Main results

During this period, a total of 337 patients with burn injuries were treated. By sex, 40.06% of patients were women and 59.05% were men. Most patients were aged between 51 and 60 years at admission.

A total of 49 deaths were recorded during hospitalisation, corresponding to a mortality rate of 14.54%. Of the 337 patients, 63 also presented inhalatory lesions (18.69%), with a mortality rate of 36.51% in this subgroup.

Regarding the body surface area affected by burns, most patients had burns covering less than 10% of their body surface area (50.45%); 27.30% had burns covering 10-20%, 7.12% covering 20-30%, 4.75% covering 30-40%, 3.56% covering 40-50%, 2.37% covering 50-60%, 2.37% covering 60-75% and 2.08% covering more than 75% of body surface area.

Regarding burn depth, most patients had third-degree burns (60.2%), followed by second-degree burns (39.2%); only one patient had a first-degree burn and one patient had a fourth-degree burn.

Length of hospital stay

On average, patients required 16.53 days of hospitalisation (SD 15.88) after the acute burn episode, of which on average 8.50 days were spent in the Burn Intensive Care Unit (ICU), and 3.30 days of mechanical ventilation were necessary. The median hospital stay was 12 days, the median stay in the Burn ICU was 2 days and the median duration of mechanical ventilation was 0 days.

Although older patients required, on average, a longer hospital stay and more time on mechanical ventilation, the difference between age groups was not statistically significant. However, when the correlation between length of stay and age was calculated, all correlations were positive, weak, but statistically significant.

On average, patients with third-degree burns required longer hospitalisation, longer Burn ICU stay and longer mechanical ventilation compared with those with second-degree burns, and the difference was statistically significant. Similarly, when comparing patients who survived with those who died as a result of the burn and its complications, the difference was statistically significant.

Discussions

The experience of the tertiary centre closely resembles the international experience regarding acute burn care. Known risk factors for mortality are advanced age, a large body surface area affected by burns, the presence of inhalation injuries and increased injury depth [37].

4. Study II - The evolution of discharged patients - healing process, medical and psychosocial long term impact of burn injury

Working hypothesis, general objectives and methodology

Burns are defined as traumatic injuries of the skin and underlying tissues caused by extreme heat, contact with chemical substances, electricity or radiation [38]. With advancements in acute care, survival rates after burn injuries have improved significantly in recent decades [39,40]. As a result, increasing attention has been paid to long-term sequelae characteristic of burns [41].

The purpose of this study was to gain an in-depth understanding of the medium- and long-term outcomes and effects of burns, with a special focus on health-related quality of life and on the impact of burn sequelae on daily activities.

The study was observational, retrospective, descriptive and analytical, conducted in the Department of Plastic Surgery and Reconstructive Microsurgery of “Bagdasar-Arseni” Emergency Clinical Hospital in Bucharest, Romania. The study included patients diagnosed and treated for burn injuries in the Functional Burns Unit of the “Bagdasar-Arseni” Emergency Clinical Hospital in Bucharest between January 1st 2022 and December 31st 2023. Patients who died during hospitalisation or during follow-up period were excluded.

Thus, 252 patients were identified, contacted and invited to participate in the study. Of these, 50 accepted participation, signed informed consent, completed the questionnaire and were included in the final analysis. The instrument used was a Romanian translated and adapted version of the Burn Specific Health Scale-Brief (BSHS-B) [42].

Preliminary evaluation and cohort characteristics

The questionnaire was structured into eight sections (subscales), each exploring a distinct dimension of quality of life in patients with burn injuries. The subscale referring to impairment of hand function and simple abilities (7 items) demonstrated excellent internal consistency. The subscale assessing the psycho-affective dimension (3 items) also demonstrated excellent internal consistency, while the social relationships subscale (3 items) demonstrated good internal consistency.

The subscale referring to sexual interest and physical intimacy (2 items) demonstrated good internal consistency, while the self-image evaluation subscale (3 items) demonstrated excellent internal consistency. The heat sensitivity evaluation subscale (4 items), as well as the treatment adaptability subscale (3 items), also demonstrated excellent

internal consistency, whereas the work adaptation subscale (2 items) demonstrated good internal consistency. The item referring to global satisfaction with life was analysed separately and was not included in a subscale

Results

In the analysed patient cohort, male patients predominated, representing 54% of cases, while female patients represented 46%. Respondents' age ranged from 22 to 81 years, with a mean age of 56.64 years and a median age of 58.50 years.

In most cases, burns were thermal (96%). Burns covering less than 10% of body surface area (64%) or 10-20% (24%) predominated, while burns covering 21-30% (4%), 31-40% (4%) and 51-60% (4%) were less frequent. Enrolled patients had second-degree burns in 44% of cases and third-degree burns in 56% of cases.

Impairment of hand function and simple tasks

The results generally indicate a high level of functional autonomy in basic activities. Most patients did not encounter difficulties in self-care activities: 70% had no difficulty washing themselves, 72% had no difficulty dressing, 70% had no difficulty sitting down and standing up from a chair, and writing was not a problem for 82% of participants

Activities requiring greater fine motor control were slightly more affected than self-care activities, although the proportion of cases without difficulties remained high: 60% had no difficulty tying shoelaces, and 68% had no problems picking up small objects (coins) from a flat surface.

Among all activities, returning to the previous workplace had a lower proportion of patients reporting no difficulty (64%) and was also the activity associated with the highest proportion of extreme difficulties (12%).

Burn wound infection during hospitalisation was directly and significantly associated with the level of difficulty encountered in washing independently. Burn wound infection was also significantly associated with post-burn difficulties in activities such as tying shoelaces.

Assessment of psycho-affective dimension

Most patients did not show high emotional difficulties, with “not at all” and “a little” responses predominating for all analysed items. Thus, loneliness was absent (46%) or reduced (30%) in more than three quarters of respondents, and in most cases sadness or depression was reported as absent (38%) or minimal (34%). However, a group of patients with at least moderate emotional impairment was also identified: 12 patients (24%) for

loneliness, 14 patients (28%) for sadness/depression and 11 patients (22%) for the perception of an emotional problem. Only a relatively small proportion of patients benefited from specialised psychological support in the post-burn period (30% - fewer than one in three patients).

There was a statistically significant and moderate association between patient's gender and loneliness, with women more frequently reporting moderate or increased levels of loneliness than men, whereas absence of loneliness predominated in men. A strong association was observed between loneliness and the perception of an emotional problem.

A statistically significant and moderate-to-strong association was observed between burn depth and frequency of sadness/depression, with patients with deeper burns presenting more pronounced depressive symptoms.

Assessment of interpersonal relationships and sexuality

Patients generally had a good level of social integration, frequently reporting complete absence of difficulties in social activities such as activities with friends (58%), visits (56%) or communicating their own problems (54%). However, a group of patients with social vulnerability was also observed, reflected by lack of interest in activities with friends (30%), visiting other people (32%) and communicating problems (14%).

In most cases, high family support was preserved, highlighted by the predominance of "not at all" responses to items such as distancing from family (92%), negative perception of family behaviour (96%) or fear of becoming a burden to the family (76%). However, a group of patients also reported varying levels of fear of becoming a burden to the family (12%).

A statistically significant and moderate association was observed between burn depth and lack of interest in activities with friends, greater burn severity being accompanied by more pronounced social disengagement.

Most patients did not report impairment of the sexual dimension: 80% had not lost interest in sexual activity, and 82% had not noticed a reduction in affective behaviours such as hugging or kissing. However, a subgroup of approximately 20% reported varying degrees of decreased sexual interest (including severe forms in 4% of cases and extreme forms in 2%), and 18% indicated reduced affective behaviours, most often moderate (8%), but also with isolated cases of extreme intensity (4%).

Assessment of self- perception

Most respondents did not perceive a major impact related to post-burn aesthetic changes. Thus, most participants stated that they did not wish to forget the changes in their appearance (64%), did not consider their scars unattractive to others (62%) and were not bothered by their appearance (58%). However, a group of patients reported discomfort of variable intensity, most often moderate in 12-16% of cases, especially regarding the perceived unattractiveness of scars and their impact on body image.

The analysis showed a statistically significant moderate association between burn surface area and the degree to which scar appearance was perceived as disturbing, with patients with more extensive burns reporting higher levels of discomfort.

Difficulties related to personal autonomy (washing), as well as those related to motor skills (writing, tying shoelaces, picking up coins from a flat surface) or resuming activity at the previous workplace, correlated with a stronger negative perception of the aesthetic consequences of burn scars. Patients with a negative perception of scar appearance showed significant deterioration in interpersonal relationships. Increased discomfort with one's own body was associated with more frequent avoidance of intimate closeness with others, especially physical affection such as hugging and kissing.

Assessment of heat sensitivity

In many cases, patients did not experience major discomfort related to exposure to environmental factors after the burn. However, a consistent group of patients reported discomfort of variable intensity, especially regarding increased skin sensitivity, where 26% indicated moderate levels, 22% increased levels and 10% extreme levels. In addition, for sun exposure, more than half of patients reported at least some degree of discomfort, and the proportion was similar for warm weather. These results indicate that sensory skin changes remain a frequent problem among burn patients.

Burn severity, quantified both by surface area and depth, was associated with a more pronounced perception of skin sensitivity. Patients with burns covering less than 10% predominantly reported low or moderate levels, whereas patients with burns covering 31-40% reported moderate-to-increased levels, and those with burns covering 51-60% exclusively indicated extreme discomfort. Patients with third-degree burns more frequently reported increased levels of sensitivity compared with those with second-degree burns, where low levels predominated.

Analysis of the relationship between functional difficulties and perceived increased skin sensitivity generally showed no statistically significant associations, but a consistent increase in difficulty performing these activities was observed as patients reported higher levels of skin sensitivity.

Overall, there is interdependence between the sensory and emotional components of post-burn recovery. Significant associations were observed between the emotional dimension related to body image and the perception of increased skin sensitivity. The degree to which scar appearance was perceived as disturbing showed the strongest association, indicating that patients with increased aesthetic discomfort also reported increased skin sensitivity.

A clear balance was observed between perceived skin sensitivity and the functional impact of environmental factors, indicating that patients with increased sensitivity experience limitations related to sun and heat exposure much more intensely. Thus, discomfort during sun exposure strongly correlated with skin sensitivity. Similar results were observed for discomfort in warm weather and limitation of outdoor activities; in both situations, patients with extreme skin sensitivity presented major discomfort in 40% of cases and extreme discomfort in 40% of cases.

Assessment of treatment adherence

In many cases, patients did not experience major discomfort related to burn care in daily life. There was a significant and moderate association between burn surface area and discomfort related to skin care, where patients with more extensive burns required increased care.

A significant but weak association was observed between discomfort related to skin care and fear of becoming a burden to the family. Overall, most patients did not report this fear, but as the effort required for skin care increased, anxiety about becoming a burden also increased.

Although most patients did not report changes related to physical affection, as discomfort in skin care became more pronounced, affective difficulties also appeared more frequently and more intensely.

Strong correlations were observed between discomfort related to skin care and skin sensitivity, with a higher level of discomfort being associated with increased sensitivity to environmental factors and with functional limitations in high-temperature conditions. Thus, discomfort was significantly associated with avoidance of sun exposure, most patients reporting increased levels of solar sensitivity when burns required more care.

Assessment of functional and economic adaptability

Most patients did not consider that the burn had affected their work skills (62%), while the proportions reporting high levels of impairment were low. Regarding financial impact, half of the participants perceived care costs as not stressful, although a relevant proportion indicated some level of stress.

Functional difficulties were most often associated with a significant increase in the perception of costs as a stress factor, the relationship being generally moderate or strong and more evident for activities involving fine motor skills.

A statistically significant and moderate association was identified between perceiving the costs of burn care as a stress factor and fear of becoming a burden to the family. Thus, as patients perceived costs as more stressful, the fear of becoming a burden to the family also increased.

Skin sensitivity and heat-related limitations were consistently associated with perceiving costs as a stress factor, indicating interdependence between physical discomfort and financial burden.

The effort required for burn care and its impact on daily activities were strongly associated with perceiving costs as a stress factor, the relationship becoming stronger as care interfered more with daily life.

Assessment of satisfaction with life (compared with before the burn accident)

Although the impact of burns on quality of life is considerable, many patients manage to reach a satisfactory degree of long-term adaptation and satisfaction. Most patients reported preserved satisfaction with life, while 16% perceived a slight decrease in satisfaction and 12% were no longer satisfied with their life compared with the period before the burn.

Post-burn satisfaction with life was associated with loneliness, sadness/depression and the wish to forget changes in appearance, being influenced especially by the burden of care, the impact on body image, skin sensitivity and some relational and affective difficulties, and less or not at all by burn characteristics (surface area, depth, location, or time elapsed since the burn) or by basic functional difficulties.

Quality of life assessment score

The global quality-of-life score was calculated by summing the 31 items from the subscales mentioned in the previous chapters, each item being rated from 0 (extreme impairment) to 4 (absence of impairment), except for the item referring to satisfaction with life, which was reverse-scored (0 - absence of satisfaction, 4 - extremely satisfied with life

as before the burn). This resulted in a possible total score ranging from 0 to 124. Higher scores indicate better quality of life.

The patients included in the study had a total quality-of-life score ranging from 43 to 124, with a mean value of 99.92. Thus, a good quality of life was observed among patients who responded to the questionnaire, with high scores predominating and indicating quality of life unaffected or minimally affected by the burn (76%); however, 12% indicated moderate impairment of quality of life, and 12% severe impairment. There were no cases of extreme impairment of quality of life.

A statistically significant and moderate association was observed between burn surface area and overall impairment of quality of life, with patients with larger burns reporting generally lower quality of life. As burn surface area increased, the total quality-of-life score was generally lower. Burn depth was also significantly associated with quality-of-life level, the relationship being moderate. Patients with second-degree burns presented almost exclusively minimally or unaffected quality of life (95.45%), without severe cases. By contrast, in the third-degree burn group, the proportion of patients with minimal or no impairment decreased to 60.71%, also showing moderate impairment (17.86%) and severe impairment (21.43%), all severe cases belonging to this group.

Burn wound infection, as an indicator of burn injury severity leading to delayed healing, was associated with a significant decrease in the quality-of-life score. Patients without burn wound infection predominantly had minimally or unaffected quality of life (82.50%), compared with only 50% among those with infection, where a higher frequency of severe quality-of-life impairment was observed.

Length of hospital stay was significantly associated with the subsequent quality-of-life score, with moderate-to-strong negative correlations. Thus, longer hospitalisation was strongly correlated with a lower quality-of-life score, and a similar, although moderate, tendency was observed for the length of stay in the intensive care unit. These results show that a more severe clinical course, reflected by prolonged hospitalisation, has a negative impact on subsequent quality of life.

The regression model led to the following conclusions regarding predictors of the post-burn quality-of-life score: a more extensive burn surface area is associated with a reduction in quality-of-life score; greater burn depth is associated with a reduction in quality-of-life score; burn wound infection is associated with a reduction in quality-of-life score; and older age is associated with a reduction in quality-of-life score.

Discussion and results interpretation

Physical sequelae, pain, pruritus, contractures and scars may persist long after burn injuries have healed and may significantly influence the quality of life of the burn patient [43]. Pain and discomfort negatively influence not only physical condition, but may interfere with sleep, focus, daily activities, social participation and return to work [31].

Functional limitations may persist in the long term, especially in patients with deep, extensive burns or burns located in functionally important areas. Contractures, reduced joint mobility and decreased dexterity may negatively influence daily activities and work skills. In addition, joint contractures are described as a major complication in patients with severe burns even when rehabilitation is initiated early [44].

Follow-up of burn patients should not stop in the first or second year after trauma. Some psychological, social and body-adaptation difficulties may persist long after wound healing.

The relatively small cohort size limits the generalisability of the results and reduces the robustness of subgroup analyses, a frequent issue in clinical studies with small cohorts [45]. The cross-sectional design does not allow causal relationships to be established between the analysed variables. Therefore, the identified associations should be interpreted as statistical relationships, not as evidence of direct causality [46]. Despite these limitations, the study provides useful information about late consequences of burns in patients evaluated more than 24 months after hospitalisation. This interval allows the identification of difficulties that may persist after wound healing and after completion of acute treatment. The assessment performed in this study provides useful information on late burn consequences for long-term functional and psychosocial adaptation.

5. Thesis conclusions and personal contributions

Thesis conclusions

The first study presented in this doctoral research, which addressed the short-term in-hospital evolution of burn patients, shows that four years of experience involved the management of more than 300 cases. Most patients were men, middle-aged, more than half had small-area burns involving less than 10% of body surface area, and most burns were third degree.

The mean hospital stay was 16.53 days, the mean duration spent in the Burn Intensive Care Unit was 8.50 days, and the mean duration of mechanical ventilation was

3.30 days. Mean in-hospital mortality was 14.54%, while mean in-hospital mortality among those who also had inhalatory lesions (18.69% of the total cohort) was 36.51%.

There were positive, statistically significant correlations between older age and longer hospital stay, longer ICU stay and longer need for mechanical ventilation. In the survivor group, only the correlation between age and length of hospital stay remained statistically significant, while the relationship with Burn ICU stay and mechanical ventilation was no longer significant.

From the second study presented in this doctoral research, which addressed the long-term evolution of burn patients, most patients did not report major limitations in basic activities: simple self-care was better preserved, while difficulties increased for activities involving fine motor skills or return to work.

Emotional impairment was not dominant, but an important subgroup of patients had significant psychological distress. Family support was well preserved, whereas wider social relationships were more fragile.

The aesthetic impact represented one of the most important dimensions for some patients, and sensitivity to environmental factors was one of the most clearly affected dimensions. Satisfaction with life was influenced mainly by psychosocial variables and by the consequences of the burn, rather than by clinical parameters.

Although most patients manage to reach a satisfactory degree of post-burn adaptation, the negative impact on quality of life persists in an important subgroup of patients. Psychosocial factors influence quality of life more strongly than the clinical characteristics of the burn. On the other hand, burn severity does not show direct significant associations with quality of life; instead, it influences quality of life indirectly through functional, aesthetic or sensory complications.

Personal contributions

This thesis starts from the idea that the evolution of the burn patient cannot be assessed only through survival, wound healing or length of hospital stay. By correlating clinical data from the acute phase with functional, emotional and social evaluation after discharge, the research aims to capture more accurately the course of the patient with burn injuries and the difficulties that may persist after the acute phase has been overcome.

A first contribution was the characterisation of burn patients treated in a Romanian tertiary centre over a four-year period. Another important contribution concerns the analysis of length of hospital stay. From this perspective, length of hospital stay may be

considered a useful indicator of case complexity, relevant both for assessing clinical evolution and for organising medical resources.

The second main direction of the research focused on the post-discharge period and on the impact of burns on quality of life. Methodologically, the thesis used a Romanian translated and adapted version of the Burn Specific Health Scale-Brief.

An important finding of the research is the observed relationship between functional limitations and emotional impairment. Difficulties in usual activities such as dressing, standing up from a chair, writing, tying shoelaces, handling small objects or resuming professional activity were associated with higher levels of sadness, depression and loneliness. The thesis also highlights the role of social and professional reintegration in post-burn recovery.

Another analysed aspect was the impact of burns on body image, sexuality and interpersonal relationships. These dimensions are sometimes insufficiently addressed in medical practice, although they can considerably influence the patient's life after discharge. The thesis results support the introduction of quality-of-life assessment in the follow-up of burn patients. Survival and wound healing are essential objectives, but they do not fully describe the therapeutic outcome.

The originality of the thesis lies in analysing the evolution of the burn patient in a Romanian tertiary centre by linking clinical data from the acute period with quality-of-life assessment after discharge. Future research directions should include complete validation of the Romanian version of the post-burn quality-of-life assessment instrument in larger and multicentre cohorts. Longitudinal studies are also necessary, following patients from admission to standardised intervals after discharge.

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