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Assessment of burn-specific health-related quality of life and patient scar status following burn

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ABSTRACT

Introduction: This study assessed patient-perceived levels of scar assessment and burn-specific quality of life (QOL) in Korean burn patients admitted to burn care centers and identified differences in scar assessment and QOL based on various patient characteristics.
Methods: A cross-sectional descriptive study using anonymous paper-based survey methods was conducted with 100 burn patients from three burn centers specializing in burn care in South Korea.
Results: Mean subject age was 44.5 years old, and 69% of the subjects were men. The overall mean QOL was 2.91 out of 5. QOL was lowest for the work subdomain (2.25 ± 1.45) followed by the treatment regimen subdomain (2.32 ± 1.16). The subjects' mean total scar assessment score was 35.51 out of 60, and subjects were most unsatisfied with scar color. Subjects with low income, flame-source burns, severe burns, visible scars, and scars on face or hand reported significantly lower QOL. Subjects with severe burn degree and burn range perceived their burn scar condition to be worse than that of others.
Conclusion: The results show that burn subjects experience the most difficulties with their work and the treatment regimen. Subjects with severe burn and visible scarring have a reduced QOL and a poor scar status. Scar management intervention may improve QOL of burn patients especially those with severe burn and visible scars. Further studies are warranted to evaluate the relationship between scar assessment and QOL.

1. Introduction

Comprehensive outcome assessments of burn treatment for massive burn survivors have shifted from evaluating mortality and length of hospital stay to examining quality of life (QOL) and functionality [1,2]. Because of the multifactorial nature of QOL, evaluation of burn care outcome has become focused on both physical and psychological aspects of burn survivors' health [1,3,4]. Burn patients experience esthetic and functional changes due to their burn wounds. Since burn patients face complex and specific problems, including scar- and psycho-social-related issues [1], burn-specific health-related quality of life (HRQOL) assessment is critical to elucidating the experiences of burn patients. Various burn-specific factors such as the ratio of burn area to total body surface (TBSA), degree of the burn, and burn location have negative effects on burn survivors' QOL [3].

The Burn-Specific Health Scale (BSHS) was developed in 1982 to measure the QOL in burn patients [5]. The original BSHS

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was a 114-item questionnaire, which was later reduced to 80 items (i.e., the abbreviated BSHS, BSHS-A) that evaluated four domains: physical, mental, social, and general [5–7]. The BSHS-A was then divided into nine burn-specific subdomains including heat sensitivity, affect, hand function, treatment regimens, work, sexuality, interpersonal relationships, simple abilities, and body image. A brief Korean version of BSHS (BSHS-B-K) has been validated as a reliable outcome measurement scale for burn patients [6,7].

The importance of scar assessment is emphasized when attempting to describe the subjective perceptions associated with patient's scars and when evaluating the effectiveness of burn treatments [8]. Typically, experts in scar appearance assessment perform scar assessments, but subjective features such as pain and itching are often ignored [8,9]. However, the significance of understanding the perceptions of burn scar from a patient's perspective is a core element of burn-specific HRQOL [9]. Since burn survivors experience various complications from burn scarring including contracture, itching, and changes in skin pliability, subjective scar assessment is important when describing functional outcomes and HRQOL perceptions of this population [9–11]. The purposes of the present study were: (1) to assess the level of burn-specific HRQOL and burn scar status by using a BSHS and a patient scar assessment scale, and (2) to identify differences in scar assessment and HRQOL related to the general characteristics of Korean burn patients.

2. Method

2.1. Study design

A cross-sectional descriptive study design was used.

2.2. Sample and data collection method

A convenience sample of burned patients was recruited from three specialized burn care centers located in Seoul, Daejeon, and Bucheon, South Korea. Subjects were eligible for this study if they (1) had been admitted to one of the target burn centers with initial burns that required at least one week of hospitalization, and (2) were clinically stable and did not have psychiatric or cognitive problems. Potential subjects were approached by trained research assistants on the day of their discharge. They were told about the purpose of the research and were assured that their participation would be voluntary and anonymous. Before distributing questionnaires, written consent was obtained from those who agreed to participate. Of the 116 subjects who completed the questionnaire, 16 had an excess of missing data for several study variables and were excluded. Thus, there was a final sample of 100 subjects included in our analyses. Data were collected between January and June 2015.

2.3. Measurements

2.3.1. Socio-demographics and burn-related characteristics

Socio-demographic characteristics, such as gender, age, marital status, and household income were self-reported. Burn-related characteristics included burn cause, burn degree, burn range, visible scar (yes or no), scar location, and days of hospitalization.

2.3.2. Scar assessment

A previously developed patient scar assessment scale was used to determine the subjects' perspectives on scar status [8]. The scale consists of six items that assess the levels of pain, itching, scar color, pliability, thickness, and irritability of the burn scar. Each is scored within a numeric range of 1–10 with a score of 1 indicating normal skin features and a score of 10 indicating the worst imaginable scar feature. The possible range of total patient scar assessment scores was 6–60, with high scores representing self-perceived poor scar status. Cronbach's alpha for a sample of Korean burned inpatients was reported to be 0.74 [12], while the Cronbach's alpha was 0.92 in this study.

2.3.3. Burn-specific health-related quality of life

We used the culture-specific, 40-item BSHS-B-K [7] to assess the burn-specific HRQOL. The scale consists of nine subscales: simple abilities (3 items), heat sensitivity (5 items), hand function (5 items), treatment regimen (5 items), work (4 items), body image (4 items), affect (7 items), interpersonal relationships (4 items), and sexuality (3 items). Each item was rated on a 5-point Likert scale from 0 (the worst) to 4 (the best). An overall burn-specific HRQOL score was calculated by adding the scores for each item and the total score ranged from 0 to 160. Higher scores indicate better burn-specific HRQOL. In previous studies, Cronbach's alpha coefficients for BSHS results have been in the range of 0.81–0.93 [6,7], while the Cronbach's alpha coefficient for the current study was 0.94.

2.4. Statistical analysis

Statistical analyses were performed by using IBM SPSS 22.0 (SPSS, Inc., Chicago, IL, USA). Levels of scar assessment and HRQOL are presented as descriptive statistics. Student's t-tests and ANOVAs were used to identify any differences in the levels of scar assessment and burn-specific HRQOL for the various socio-demographic and burn-related characteristics.

2.5. Ethical aspects

This study was approved by the Institutional Review Board of G University (IRB #1044396-201411-HR-032-01).

3. Results

Table 1 summarizes the socio-demographic and burn-related characteristics of the subjects. Sixty-nine percent of the subjects were men, and the mean age of all subjects was 44.52 (±13.23). Approximately 28% of the subjects perceived their current household income level to be low. The most common source of the burn was flame (37.6%), whereas 31.2% were scalded, and 31.2% were burned in other ways. Most subjects (72.6%) were reported to have third-degree burns, and 75% of the subjects had visible scars. The average TBSA was