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End-of-life decisions in Burn Intensive Care Units – An International Survey

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ABSTRACT

Introduction: Burn victims and their families are faced with an unexpected, life changing injury, and they don't have the necessary time to adjust to the trauma. Even though there is extensive literature exploring the attitudes of intensive care physicians on forgoing life-sustaining treatment, little is known about end-of-life practices in specialised burn intensive care units (ICUs). The aim of this study was to evaluate physician beliefs, values, considerations and difficulties in end-of-life decisions in burn ICUs.

Methods: Two hundred and fifty questionnaires were distributed via electronic mail to burn specialists, randomly selected from the directories of the 45th annual meeting of American Burn Association and the 15th European Burns Association Congresses.

Results: A moral difference between withdrawing and withholding was stated by 73% of physicians, with withholding being viewed as more preferable (42% vs 37%). Primary reasons given by physicians for the decision to withhold/withdraw the treatment were the patient's medical condition/high probability of death (68%), unresponsiveness to therapy (68%), severity of burn (78%) and poor outcome in terms of quality of life (44%). Vasopressors (85%), blood products (68%) and renal replacement therapy (85%) were the common modalities withheld/withdrawn. Almost 50% involved the patients in the end-of-life decisions and 66% involved the family.

Conclusions: In this first international study on end-of-life attitudes, burn ICU physicians clearly distinguish between withhold and withdrawal decisions, with the majority preferring the former. In contrast to general ICUs, treatment limitation accounts only for the minority of the deaths.

1. Introduction

Even though most burns result in limited tissue loss, 3.3% of the reported cases experience 40% or more total body surface area (TBSA) burn size, and are associated with more than 50% mortality [1]. Recent advances in intensive care medicine and burn care (early excision and wound covering, early and adequate nutrition, aggressive antimicrobial therapy) have led to the improved survival of burn patients. Unfortunately, advancing age, increasing burn size, and presence of inhalational injury are still associated with

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Abbreviations: ICU, intensive care unit; EoL, end-of-life; TBSA, total body surface area; WH, withhold; WD, withdraw; DNAR, Do Not Attempt Resuscitation; CPR, cardiopulmonary resuscitation.

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particularly poor prognosis with 300 in-hospital deaths every year in the UK [2].

Burn victims and their families are faced with an unexpected, life changing injury, and they don't have the necessary time to adjust to the trauma. Patients are young (mean age 32 years old) [1], without significant co-morbidities or advance directives, and ICU clinicians are often asked to make difficult end-of-life (EoL) decisions. There is extensive literature exploring the attitudes of ICU physicians on forgoing life-sustaining treatment over the last decade [3–12], yet little is known about EoL practices in specialised burn ICUs [13–16].

The aim of this study was to evaluate physician beliefs, values, considerations and difficulties in EoL decisions in burn ICUs.

2. Materials and methods

The questionnaire was designed by the authors and was assessed by two intensive care consultants who work in the specialised burn ICU of the second author. The reviewing consultants were not involved in the conduction of the survey and their comments resulted in minor modifications to improve the clarity of the questionnaire.

A total of 150 questionnaires were distributed electronically to burn ICU physicians who were randomly selected from the directories of the 45th annual meeting of American Burn Association and the 15th European Burns Association Congresses. Participation in the survey was voluntary and anonymous. The collection time (time the survey remained open) was 2 months.

The questionnaire consisted of two parts: the first collected physician and institutional demographics, and the second explored the opinions and attitudes of the intensivists regarding decisions to forgo life-sustaining treatment for ICU, burn injury patients. The questionnaire was based on Sprung et al. [3] with slight modifications and is available as supplementary material.

The following definitions were used [3]:

1. Withdrawing treatment: the deliberate cessation of a life-sustaining treatment, without providing another one, in the awareness that this will lead to the patient's death.
2. Withholding treatment: the decision not to give a life-sustaining treatment.

2.1. Statistical analysis

Statistical analysis was performed using Stata/IC 12.1 (StataCorp LP, Texas USA). Descriptive statistics, multivariate analysis and analysis of variance (ANOVA) tests were used when appropriate. We examined the relationship between personal characteristics (gender, age, working experience and religion) and selected reported practices (withdraw and withhold decisions, family involvement). All variables were taken as categorical and were dichotomised where appropriate. Test results were considered to be statistically significant if the p value was less than 0.05.

3. Results

Of the 150 questionnaires distributed, 41 (27%) were returned in full. The characteristics of the responders and their ICUs are shown in Tables 1 and 2. The first part of the questionnaire (patient and hospital demographics) was completed by 48 physicians (32%), whereas questions regarding preference and modalities of treatment limitation, as well as documentation and family involvement were not answered by a number (7) of physicians.

Fifty-four percent of ICU physicians stated that if there was a 'Do Not Attempt Resuscitation' (DNAR) form signed, they would not proceed in cardiopulmonary resuscitation (CPR) in case of a cardiac arrest; twelve percent believed that every patient in ICU should receive CPR. An Ethics Committee was present in 71% of the centres but only 15% of the participants frequently involved them in EoL decisions.

3.1. Ethical attitudes on end-of-life practices

The majority of the responders (54%) reported that between 1 and 20% of the deaths in their ICUs was a result of treatment limitation decisions, whereas 17% stated that more than 60% of the deaths followed a decision to forgo treatment. Thirty percent of the ICU physicians would withdraw (WD) or withhold (WH) the treatment of a conscious patient without prior discussing that decision with the patient, and almost the same proportion (24%) would not involve the patient's family/next kin in making life-limiting decisions. Interestingly, the majority of the intensivists (81%) would not forgo treatment if the family/next of kin of the patient held a different opinion. This decision was not associated with religion affiliation ($p = 0.58$), age ($p = 0.35$), gender ($p = 0.50$) and working experience ($p = 0.92$).

An ethical difference between WH and WD decisions was felt by 73% of the participants with women experiencing that difference more commonly than men ($p = 0.007$, 95%CI 0.10–0.61). When a decision to forgo treatment was made, the majority of ICU physicians would chose to WH treatment

Table 1 – Patient demographics.

Demographics	Response %
Male	65
Age	
<35	10
35–50	48
>50	42
Specialty	
Anaesthetics	21
Medicine	6
Surgery	54
Other	19
Religion	
Catholic	10
Jewish	4
Greek Orthodox	27
Muslim	4
Protestant	23
Other	32