

Discrepancies On Burn Management Knowledge Among General Physicians In West Nusa Tenggara, Indonesia

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Abstract

Keyword :
Burn,
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Background: ISBI Practice guidelines (PGs) for burn care are designed to improve burn care in resource-limited setting (RLS) and also become the standard of burn care. Discrepancy of burn care knowledge among emergency physicians will influence the implementation of ISBI PGs. **Objective:** of this study is to determine the discrepancy of burn care knowledge among the general physicians working in emergency unit of public hospitals in West Nusa Tenggara, Indonesia. **Method:** Validated questionnaires were distributed to emergency unit of 12 hospitals in West Nusa Tenggara, Indonesia. The questionnaire consist of 9 topics regarding: (a) burn center description, (b) referral criteria, (c) complications of burn trauma, (d) initial assessment, (e) burn extent calculation, (f) initial resuscitation, (g) monitoring, (h) inhalation injury and (i) wound management. Each topic consists of 10 questions or statements regarding burn care with ISBI PGs as the reference. The score for each question was 1 or 0. Total score of each topic was 10. The total score was divided into 3 categories (low score was 0-30, moderate score was 31-60 and high score was 61-90). **Result:** As many as 94 questionnaires were returned out of 108 questionnaires that were distributed. As many as 78% of respondents had high knowledge score while the remaining 22% of respondents had moderate knowledge score. **Conclusion:** The majority of emergency physicians in West Nusa Tenggara had high knowledge level of burn care. The lowest knowledge level is on initial burn assessment and resuscitation, monitoring of burn resuscitation and burn wound management topics.

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BACKGROUND

ISBI Practice guidelines (PGs) for burn care are designed to improve burn care in resource-limited setting (RLS) and also become the standard of burn care. The mission of the ISBI Practice Guidelines Committee is to create a set of clinical guidelines to improve the care of burn patients and reduce costs by outlining recommendations for management of specific medical problems encountered in burn care.¹

Indonesia is an archipelagic country that includes the RLS area. Various factors

such as distance, different geographic conditions, limited communication and transportation facilities, the rate of progress of each region, the existing medical facilities and the deployment of medical experts with different educational backgrounds cause potential problems in the referral system of burn patient.

The time taken to reach definitive burn care has been shown to impact negatively on burn outcome in children. Increased risks of infection and suboptimal fluid resuscitation have been reported with delayed transfer to a burns unit.²

Discrepancy of burn care knowledge among emergency physicians will influence

the implementation of ISBI PGs as the standardized burn care that will ensure the sustainability of management in burn referral system. This will influence the best achievement in optimal clinical outcomes in burn patients.

There is no burn unit and organized system on burn management in West Nusa Tenggara province that include 2 big islands and some small islands.

The aim of this study is to determine the discrepancy of burn care knowledge among the general physicians working in emergency unit of public hospitals in West Nusa Tenggara, Indonesia.

METHOD

Validated questionnaires were distributed to emergency unit of public general hospitals in West Nusa Tenggara, Indonesia, with request for participation. The participants were all general physicians working at emergency units of public general hospitals in West Nusa Tenggara (12 hospitals). The 12 hospitals were distributed in 2 islands, Lombok Island and Sumbawa Island. There were all 7 hospitals in Lombok and 5 hospitals in Sumbawa under NTB province general hospital as the referral hospital in West Nusa Tenggara.

All centers that did not respond within 2 weeks were additionally contacted via email or phone. The completed forms were returned by mail, fax or email. The questionnaire was thematically structured into 9 topics regarding: (a) burn centre description, (b) referral criteria, (c) complications of burn trauma, (d) initial assessment, (e) burn extent calculation, (f) initial resuscitation, (g) monitoring, (h) inhalation injury and (i) wound management. Each topic consisted of 10 questions or statements regarding burn care with ISBI PGs as the reference.

The score for each question was 1 for the true answer and 0 for the wrong answer.

Total score of each topic was 10 if all answers were true. The total score was divided into 3 categories (low score was 0-30, moderate score was 31-60 and high score was 61-90). The data then were processed statistically to determine differences between each score level group and score group between two islands using Mann whitney test. The data then were presented with tables, graphs and narrative in this descriptive research.

RESULTS

As many as 94 questionnaires were returned out of 108 questionnaires that were distributed. Results on knowledge score achievement of respondents are displayed in Figure 1. Out of all 94 respondents, none of which had a score under 30. Twenty-one (23%) out of 94 respondents had a moderate knowledge score (31-60) while the remaining 73 respondents (77%) had high knowledge score. The burn care knowledge was not different significantly between the moderate score group and high score group ($p > 0.001$).

Results on burn care knowledge level comparison of respondents in Lombok and Sumbawa are displayed in Figure 2. Out of all 94 respondents, sixty-five (69%) respondents work at emergency department at Lombok Island while the remaining 29 respondents (31%) work at emergency department at Sumbawa Island. Out of all 65 respondents in Lombok Island, fifteen (23%) respondents had a moderate knowledge score (31-60) while the remaining 50 respondents (77%) had high knowledge score. Out of all 29 respondents in Sumbawa Island, six (21%) respondents had a moderate knowledge score (31-60) while the remaining 23 respondents (79%) had high knowledge score. The Burn care knowledge level was not significantly different between Lombok and Sumbawa groups ($p > 0.001$).

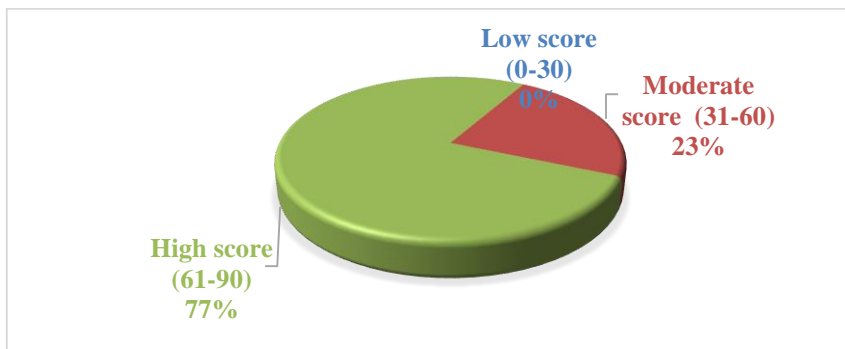


Figure 1. Burn care knowledge level of emergency physicians in West Nusa Tenggara

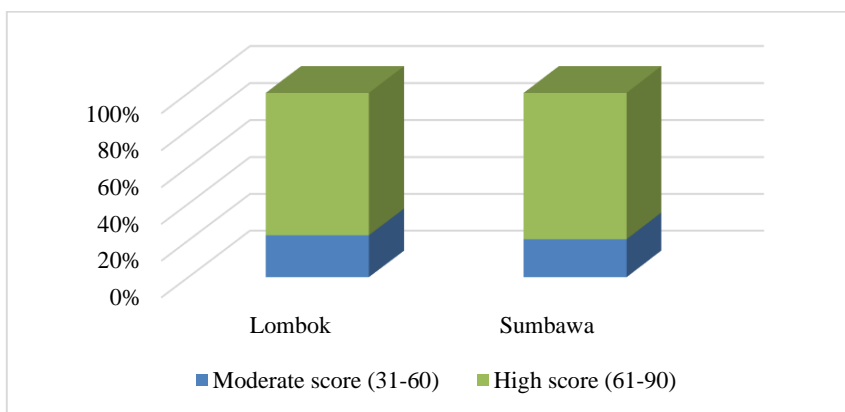


Figure 2. Burn care knowledge level comparison of emergency physicians in Lombok and Sumbawa Island in West Nusa Tenggara

Figure 3 displays the average score of topics in burn care of respondents in West Nusa Tenggara. The highest score achievement was on the topic of burn centre description (8,0) while the lowest score achievement was on the topic burn resuscitation monitoring (6,5). The average score on the topic of referral criteria was

7,7, seven point five for burn extent calculation topic, seven point four for inhalation injury topic and 7,2 for complication of burn trauma topic. The average score on the topic of wound management and initial resuscitation had the same score (7,0) while initial assessment topic was in lower average score (6,9).

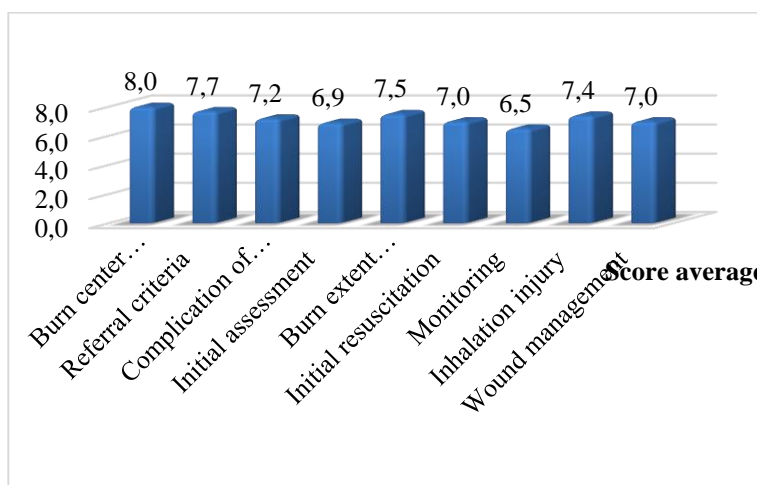


Figure 3. Average score of topics in burn care of emergency physicians in West Nusa Tenggara

DISCUSSION

Most respondents have a high level burn care knowledge while the remaining have a moderate burn care knowledge which are not differ significantly between that two groups. Various factors can influence the level of knowledge in burn care. Training, course and consensus formulation are created to increase the burn care knowledge level. Medical staff members who have participated in training have a better knowledge of emergency management and are more effective in the management of a simulated burn case.³ Pre-hospital care consensus is created to be performed by medical staff before reaching specialist burn care in hospital.^{4,5} Practical guidelines are also created by ISBI to communicate a consensus opinion on recommendations for burn care for different aspects of burn management in more effective and efficient way.¹ Several guidelines and training courses ensure a constant quality in providing evidence-based treatment for the patient.^{6,7} An inclusive trauma system with burns services co-located at the major trauma services resulted in almost complete referral of severe burns cases to burns services for management. Half of the cases arrived at the burns services directly from the scene of injury, highlighting the importance of ongoing clinical education about the initial management of severe burns at non-burns service hospitals.⁸

Most respondents in Lombok and Sumbawa Island groups have a high level burn care knowledge while the remaining have a moderate burn care knowledge which are not differ significantly between that two groups. Burn care knowledge discrepancy will influence the burn management in the referral process. Burn size estimates differed significantly between referring providers and burn center physicians so it will influence the next burn management step. The difficulties in the referral process were loss of or inability to secure intravenous access and inability to secure an airway.⁹ The concentration of specialized burn care

to relatively few centers within relatively large geographic regions requires an organized system of patient triage, referral, and transport. The patients can be transported safely and efficiently over long distances to a regional burn center and the consensus of burn management become the important thing that will ensure

The sustainability of burn care in referral system.^{9,10} Transfer status is not a significant indicator of RR of death or hospital stay among patients who received care at primary care facilities before transport to regional burn centers. However, rural populations experienced an increased risk of total mortality significantly compared with urban populations.¹¹ Time to admission and direct admission to a burn center did not independently influence burn mortality except when patients with inhalation injury took >16 h to transfer to definitive care.² It contradictive with the other study that say The early transfer of burn patient (< 24 hours) is significantly more bacteremia, wound sepsis, renal dysfunction, greater total lengths of hospital stay and more rehabilitation days compared with delayed transfer group.¹²

Burn centre description is the highest score achievement topic. The description of an ideal burn centre regarding the architectural and medical infrastructure, available equipment and care-providing personnel are well known by emergency physicians in West Nusa Tenggara. A burn care facility must provide a single location for optimal care of all burn patients, isolate patients from sources of infection, and provide a suitable environment for both progressive and long-term burn treatment. In addition, a burn care facility must provide a suitable teaching and research environment for burn patient care, and abide by legal and/or otherwise binding restrictions beyond the control of the hospital and the planning committees. While both burn units and burn centers qualify as burn care facilities, the differences are dependent on the size of the burn care facility, the number of burn patients treated per year, and the intensity

and quality of burn care treatment, research and teaching.⁷ Burn center description are only can be known theoretically in the journal of burn. There are still no data of burn unit or burn center in Indonesia that can be learned formally by medical personnel. The question about description of burn center in the questionnaire in this study are not very detailed but only the important principles of burn care.

The second highest score topic in this study is about referral criteria. Similar with the topic of burn center description, this topic only can be learned in journal. There still no regulation in Indonesia that can be used as a benchmark to distributes the burn patients in the referral system. Evidence has shown that in many instances direct transport to level 1 or level 2 trauma centers reduces mortality and improves outcomes. A recurring speculation is that adverse events among indirectly transported patients are caused by the quality of care or capacity to provide care within rural hospitals.¹¹ One study say that Transfer status is not a significant indicator of RR of death or hospital stay among patients who received care at primary care facilities before transport to regional burn centers. However, significant differences in pre hospital mortality show that improvements in rural mortality can still be made.¹¹

The lowest topics score is Initial assessment, resuscitation, monitoring & wound management. There seems to be a wide variation in the basic approach to the first-aid and pre-hospital care of burns patients. A significant improvement in management for patients is achievable, if a standard approach across all ambulance services could be achieved.^{5,13} The most contentious issues in burn trauma management involve initial volume resuscitation, management of inhalation trauma and topical burn wound treatment. Further debate and studies are necessary to dissolve existing discrepancy in the use of colloidal solutions, epidermal substitutes in deep partial thickness burns (2b) and

enzymatic debridement in initial treatment.¹³ Burn injuries treated with adequate immediate first aid are associated with more favorable outcomes, limiting tissue damage and subsequent morbidity including the need for surgery.¹⁴ Optimal burn resuscitation requires the close scrutiny of an experienced burn provider to minimize complication. Then air evacuation across three continents with care delivered by multiple teams of providers along the way, significantly increases the degree of difficulty in achieving an optimal resuscitation.¹⁴ The survey performed in ABA & ISBI members determine that large variations exist in resuscitation protocols but the Parkland formula using LR is still the dominant method. Most feel that their resuscitation protocol works well. (32greenhalgh). the diagnosis of a minor superficial second-degree partial-thickness burn can be made on the basis of the clinical examination so the choice of dressing can be made.¹⁵

CONCLUSION

The majority of emergency physicians in West Nusa Tenggara had high knowledge level of burn care. The lowest knowledge level is on initial burn assessment and resuscitation, monitoring of burn resuscitation and burn wound management topics.

This research can be the initial step to build the burn unit and better referral system on burn in West Nusa Tenggara.

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