The Cause of Death among Patients with Burn Injuries in Burn Unit of Cipto Mangunkusumo Hospital

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Background

Burn injuries are highly associated with morbidity and mortality worldwide. Although the advancement of therapy and application of early treatment among severe burn patients had decreased the mortality rate, there are still many death cases.[1] Therefore, this study aims to investigate the cause of death among patients with burn injuries in order to evaluate our burn unit as the basis in improving standards through a greater depth of understanding the trends of mortality in our burn unit service.

Method

The setting of the study is on Burn Unit of Cipto Mangunkusumo Hospital. The study was conducted with a retrospective study by collecting the data of burn patients died between January 2016 and December 2017, including age, gender, cause of burn, total body surface area of burn, inhalation trauma, length of stay, cause of death, organism cultured form wound site, and antibiotic pattern among burn patients. Subsequently, several medical literatures about mortality and cause of death were reviewed to compare the data collected with the studies conducted in other burn units.

Result

Three hundred and twelve patients were admitted, with 86 burn patients were died during hospitalization. The data were analysed and presented in graphs.

The literatures from PubMed, Scopus, EBSCO, and ProQuest databases were selected with a searching strategy, presented in flow chart, with the final six articles were being reviewed.

Discussion

The extent of burns and presence of inhalation trauma played in role as the risk factor of burn injury mortality. Multi organ failure (MOF) has been identified as the leading cause of death in burn patients, comprises 88,3% in our setting. This is similar to Netherlands and UK with rate over than 50%.[2,3] MOF mostly triggered due to sepsis condition, which all had been confirmed through positive wound culture.

Similar result are shown in Bloemsma et al. and Krishnan et al., with 50% patients with MOF were fell to sepsis, confirmed through positive culture.[2,3] Septicemia recorded to be the leading cause of death in studies conducted by Qader et al. and Kumar et al.[4,5]

The predominant pathogens cultured in our unit were similar to Bloemsma et al. and Krishnan et al., with the result of Gram-negative organism, particularly *Pseudomonas aeruginosa.* It is highly pathogenic in immunocompromised patients, which considered as healthcare-assocaited infection, in line with the majority of nosocomial pathogens in RSCM based on the report.[6] According to antibiotic pattern in RSCM, the major pathogens, which can be classified into multi-drug resistant (MDR) bacteria, are highly sensitive to meropenem, in combination with another antibiotic. Ceftriaxone, as the most common empirical antibiotic used, are highly resistance towards the pathogen, which may contribute to the high mortality rate.[6] The high rate of mortality may be caused by ineffective antibiotic therapy, with the suggestion of carbapenem as the empirical antibiotic.

Conclusion

The major cause of death our unit was multiple organ failure, triggered primarily by sepsis, which accorded with the literatures reviewed, with *Pseudomonas aeruginosa* as the predominant pathogen, which is sensitive to meropenem. This demographic is meaningful to establish standards in prevention and therapy.

References

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