



Profile of Sepsis Patients Treated in Intensive Care Unit of Sanglah Hospital Denpasar

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Abstract

BACKGROUND: Primary data regarding sepsis patients in Indonesia, especially in Denpasar, are still limited in number in reporting. The lack of information about sepsis made the authors interested in conducting this study.

AIM: The aim of the study was to obtain more in-depth information about the profile of sepsis patients treated in Sanglah Hospital, Denpasar.

MATERIALS AND METHODS: This was a cross-sectional descriptive research. Target population in this study are data on patient registers that are included in the inclusion criteria from June 1, 2019 to June 30, 2021, at intensive care unit Sanglah Hospital, Denpasar. The variables in this study included: Demographic conditions such as age, gender, and address, qSOFA score, comorbidities, ventilator, and patient's outcome (survival or non-survival).

RESULTS: A total samples were 173 patients. The average age of patients in this study was 54 years old with 56.6% male and 32.9% lived in Denpasar. Patients suspected of having early sepsis had a qSOFA 0 score of 35.3%, qSOFA 1 was 33.5%, qSOFA 2 was 23.7%, and qSOFA 3 was 7.5%. Patients with sepsis and suspected sepsis with comorbidities were 96% and 79.8% of patients were on a ventilator. The mortality rate in this study was 67.1%.

CONCLUSION: These primary data hopefully become references for the future research.

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Introduction

The term sepsis is still rarely known by the general public. Sepsis is a collection of symptoms as the body's response to infection accompanied by a life-threatening state of organ dysfunction [1], [2]. The criteria for sepsis continue to be developed in the hope of reducing global morbidity and mortality, especially in developing countries [2], [3]. There is a disease that underlies a person experiencing sepsis, both surgery and organ system disorders [4]. The use of a ventilator can help maintain organ function, but it can also be a cause of sepsis [5]. The global mortality rate for septic patients is decreasing every year. However, the morbidity rate of sepsis continues to increase every year [6], [7]. The cost of care for patients with sepsis is also very expensive and can burden various parties [8], [9], [10], [11]. Even though sepsis continues to develop in understanding and treatment [12], the number of cases and mortality rates in septic patients remains high. Primary data regarding sepsis patients in the world are quite numerous and updated in reporting. However, data on sepsis patients in Indonesia, especially in Denpasar, are still limited in number in reporting. The minimal information about sepsis made the authors interested in conducting this study with the hope that the authors could find out the profile of sepsis patients treated at intensive care unit (ICU) Sanglah Hospital, Denpasar.

Subjects and Methods

The study was conducted with a descriptive research design that used a cross-sectional approach to determine the profile of sepsis patients treated in the ICU, Sanglah Hospital, Denpasar. This study used data on patient registers from June 1, 2019 to June 30, 2021, in the ICU, Sanglah Hospital, Denpasar. Sample population in this study were septic patients who had complete medical record who were treated in the ICU, Sanglah Hospital, Denpasar during the research period. The method of selecting sample in this study was total sampling. The variables in this study include: Demographic conditions such as age, gender, and address, qSOFA score, comorbidities, ventilators, and outcomes.

Results

The number of samples studied was 173 medical record samples, with 54 patients from the West ICU, 71 patients from the East ICU, and 48 patients from the HCU ICU. Characteristics of the sample in this

study had an average age of 54 years (range 15–90) with 98 male patients and 57 patients having their address in Denpasar (Table 1).

Table 1: Subjects' characteristics

Characteristics	n = 173
Sex, n (%)	
Male	98 (56.6)
Female	75 (43.4)
Age (years)	
Mean ± SD	54 ± 17.7
Min–max	15–90
Address, n (%)	
Badung	25 (14.5)
Bangli	5 (2.9)
Buleleng	11 (6.4)
Gianyar	27 (15.6)
Jembrana	6 (3.5)
Karangasem	15 (8.7)
Klungkung	6 (3.5)
Tabanan	8 (4.6)
Denpasar	57 (32.9)
Outside Bali	13 (7.5)

SD: Standard deviation; min–max: Minimum–maximum.

Patients with a diagnosis of sepsis and suspected sepsis from the three ICUs who had initial score of qSOFA 2 were 41 people and qSOFA 3 were 13 people. Patients with comorbidities were more likely to have a diagnosis of sepsis and enter ICUs. Of all the patients who met the inclusion criteria, there were 35 patients who did not use a ventilator while in the ICUs. There were 116 patients who died in ICUs (Figure 1).

Discussion

Sample population

Based on research conducted from June 1, 2019 to June 30, 2021, in ICU Sanglah Hospital, Denpasar, the authors obtained 173 medical records of patients who had received a diagnosis of sepsis and suspected sepsis. In this study, the authors traced the patient's medical records and those who did not have complete medical record were immediately excluded from the study. Through the patient's medical record, the authors obtained the data listed in the variables of this study, namely, demographic conditions such as age, gender, and address, qSOFA score, comorbidities, ventilator use, and outcome.

Demographic conditions in sample

Epidemiological studies in the USA stated that men have a higher risk of developing sepsis and post-operative septic shock [8]. Other studies have shown that female sex hormones show the presence of protective properties that contribute to septic conditions [13].

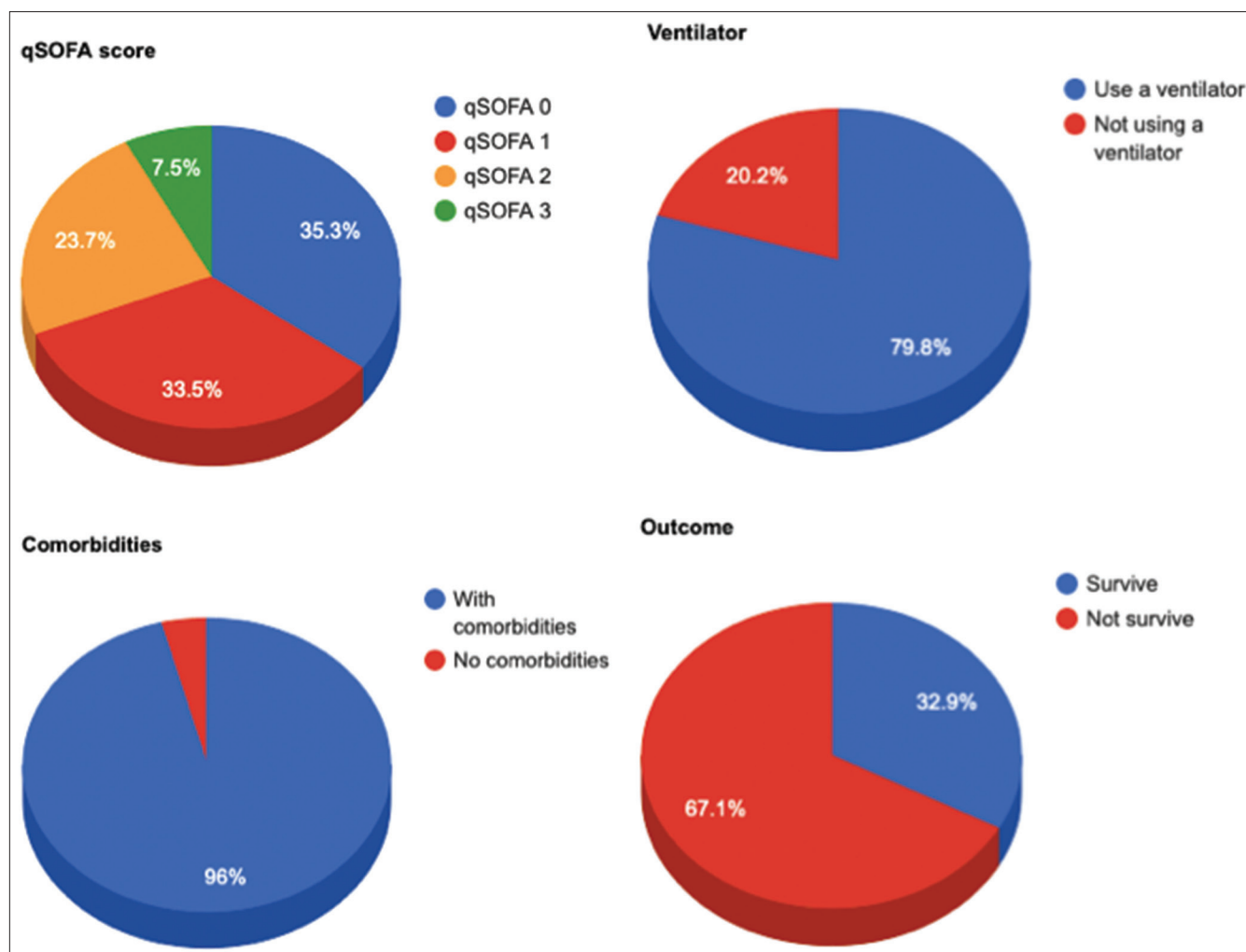


Figure 1: Research results

Another study stated that the incidence of sepsis was not influenced by gender but by age and underlying disease [14]. Male patients tend to have lung infections while female tends to have urinary tract infections. The most common cause of sepsis is infection in the respiratory tract [10], [14]. Research in the United States shows that more than half of septic patients in the ICU are aged 65 years and over [15]. Research in Indonesia, specifically in Manado, showed that patients with age range of 45–59 years had the highest percentage of 34% of the total sepsis patients [10]. When viewed from the demographic distribution of patients with sepsis and suspected sepsis in this study, the average age of patients treated at ICU Sanglah Hospital, Denpasar is around 54 years with range 15–90 years old and 98 patients were male. The results of this study were in line with the previous studies and supporting theories, but the significance cannot be concluded because statistical calculations were not carried out. Patients from Denpasar also have a higher tendency to spread cases of sepsis and suspected sepsis. This could be due to Sanglah Hospital which is located in Denpasar.

The qSOFA score

Research stated that qSOFA score has low sensitivity when used as a screening tool [16]. The reason of qSOFA score fails to achieve high sensitivity was that vital physiological variables as signals that often precede clinical deterioration such as pulse rate and body temperature were not included in the qSOFA score [17]. Late diagnosis was often the cause of delay in treatment so that the used of the qSOFA score was more suitable for used at a later stage, not as a screening tool [18]. In this study, qSOFA score was taken right before admission to the ICU and the results showed that 61 patients had zero qSOFA score, 58 patients had one qSOFA score, 41 of patients had two qSOFA score, and 13 patients had three qSOFA score. This study was in line with the previous studies, namely, patients with a diagnosis of sepsis and suspected sepsis who entered the ICU more who had a qSOFA score of 0 or 1 and the few who had a qSOFA score of 3. However, research needs to be done more about the use of the qSOFA score to make it more appropriate in the diagnosis stage.

Comorbidities

Sepsis patients should be evaluated to determine the patient's condition and prognosis [19]. Research stated that underlying diseases can affect the patient's condition [14]. Research in Indonesia, specifically in Madiun, concluded that there was a significant influence between comorbid disease and the severity of sepsis [20]. In this study, the distribution of comorbidities was carried out in detail based on the B1-B6 division and found only seven patients without comorbidities and 166 patients with comorbidities.

Ventilator

Research suggested that the use of a ventilator for 28 days can provide a worse prognosis as death and ventilator dependence in septic patients whose respirations were initially stable after treatment [21]. The use of mechanical ventilators causes an increased risk of pneumonia, heart failure, and lung injury [5]. In this study, 35 patients did not use a ventilator while in the ICU and 138 patients were on a ventilator. However, the duration of ventilator use was not researched in this study.

Outcome

Data from the WHO show that sepsis mortality is 38–110 people per 100,000 people which are around 0.038%–0.11% globally [1]. There are no studies that contain the development of sepsis mortality in adult patients in Indonesia. In this study, from a total sample of 173 patients, 116 patients were died (not survive) while 57 patients managed to leave the ICU. In this study, it was not researched whether the condition of patients who managed to get out of ICU improved or worsened. The results of this study indicate that the number of patients who died in ICU was higher. The high mortality rate can be caused by comorbidities and ventilator use [5], [20], [21].

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