RESEARCH

THE INCIDENT OF SHOCK IN THE INTENSIVE CARE UNIT OF PROF. DR. I. G. N. G. NGOERAH DENPASAR

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ABSTRAK

Latar Belakang: Syok adalah kondisi yang ditandai dengan gangguan perfusi jaringan, yang disebabkan oleh ketidakseimbangan antara pasokan oksigen dan kebutuhan oksigen pada tingkat seluler.
Metode: Penelitian ini menggunakan desain deskriptif dengan sampel yang dipilih berdasarkan kriteria inklusi dan eksklusi. Penelitian dilakukan di RSUP Prof. I. G. N. G Ngoerah selama 6 bulan dengan teknik total sampling. Pengolahan data dilakukan menggunakan SPSS ver. 27 dengan analisis univariat.
Hasil: Data sekunder dari rekam medis pasien di ruang perawatan intensif di RSUP Prof. Ngoerah dari Februari hingga Juli 2024 menunjukkan bahwa total 712 pasien berisiko telah ditinjau, dengan 90 di antaranya diklasifikasikan sebagai kasus syok yang memenuhi kriteria inklusi.
Pembahasan: Dari 716 pasien, 90 mengalami syok, menghasilkan angka kejadian 12,57 per 100 pasien. Kejadian syok berdasarkan usia adalah sebagai berikut: remaja awal dan akhir (5,95 per 100), dewasa awal dan akhir (9,37 per 100), lanjut usia awal dan akhir (16,29 per 100), dan lansia (15,29 per 100). Kejadian lebih tinggi pada pria (13,59 per 100) dibandingkan wanita (11,18 per 100). Berdasarkan diagnosis, angka kejadian syok pada pasien non-bedah adalah 11,69 per 100 dan pada pasien bedah adalah 13,30 per 100.
Kesimpulan: Penelitian ini menemukan bahwa 12,6% pasien mengalami syok, dengan kejadian tertinggi pada lansia, mayoritas pria, dan pasien bedah. Shock septik adalah jenis yang paling umum.

Kata Kunci : Insiden*, Intensive Care Unit*, Syok

ABSTRACT

Background: Shock is a condition characterized by impaired tissue perfusion, caused by an imbalance between oxygen supply and demand at the cellular level.
Method: This study used a descriptive design with samples selected based on inclusion and exclusion criteria. The study was conducted at RSUP Prof. . I. G. N. G Ngoerah for 6 months using a total sampling technique. Data processing was performed using SPSS ver. 27 with univariate analysis.
Results: Secondary data from medical records of patients in the intensive care unit at RSUP Prof. Ngoerah from February to July 2024 showed that a total of 712 at-risk patients were reviewed, with 90 classified as shock cases meeting the inclusion criteria.
Discussion: Out of 716 patients, 90 experienced shock, resulting in an incidence rate of 12.57 per 100 patients. Shock incidence by age was as follows: early and late adolescents (5.95 per 100), early and late adults (9.37 per 100), early and late elderly (16.29 per 100), and elderly (15.29 per 100). The incidence was higher in males (13.59 per 100) than females (11.18 per 100). Regarding diagnosis, the shock incidence rate was 11.69 per 100 in non-surgical patients and 13.30 per 100 in surgical patients.
Conclusion: The study found that 12.6% of patients experienced shock, with the highest incidence in the elderly, predominantly male, surgical patients. Septic shock was the most common type.

Keywords: Incident, Shock, Intensive Care Unit

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INTRODUCTION

Shock was a collection of symptoms caused by impaired tissue perfusion, due to an imbalance between oxygen supply and oxygen demand at the cellular level.[1] The incidence of shock in the Intensive Care Unit in Indonesia had not been calculated thoroughly and regularly, but globally, in a study conducted by Davis, there were a total of 3,049 patients being treated in the intensive care unit, of which 677 patients (around 22%) met the clinical criteria for experiencing shock.[2] In a study in Germany

conducted by Thomas in 2018, shock was recorded based on its type: hypovolemic shock with a prevalence of 27%, cardiogenic shock 13%, obstructive shock 1%, and distributive shock 59%, which consisted of septic shock with a prevalence of 55%, anaphylactic shock, and neurogenic shock with a prevalence of around 4% per year.[3] Many factors could cause shock, one of which was age. The older or younger a person was, the more it affected the contractility of blood vessels, which would later influence the occurrence of shock. In addition, gender also affected the incidence of shock, as male patients tended to rarely complain of pain psychologically, which sometimes led to a sudden decline in condition and shock. On the other hand, female patients were affected by hormones. Shock could also occur based on the diagnosis, whether the patient was surgical or non-surgical. Surgical patients were typically those who experienced shock before and after undergoing surgery. Non-surgical patients, on the other hand, usually experienced shock not due to surgical procedures, but due to comorbidities they had.[4] Based on the points above, shock was a dangerous syndrome with rising cases and high mortality rates across all age groups. Despite advancements in treatment, cases and mortality remained high. Based on limited data in Denpasar Bali, the author conducted research to determine shock incidents in the intensive care unit of Prof. dr. I.G.N.G. Ngoerah

METHODS

This research was a quantitative observational study that collected the number of shock incidents in the intensive care unit. Descriptive analysis techniques were used to analyze the population experiencing shock, which included all patients admitted and treated in the Intensive Care Unit of Prof. Dr. I.G.N.G. Ngoerah Hospital, Denpasar, Bali, from February to July 2024. Samples were taken from the population, based on inclusion criteria, which were all patients admitted to the Intensive Care Unit with complete medical records. Meanwhile, the exclusion criteria were patients with incomplete medical records. The sample used in this study was 90 shock patients from 716 samples collected from medical records in the Intensive Care Unit. The data was then processed using Statistical Products and Service Solutions (SPSS) version 27 to obtain the incidence of age, gender, etiology, and diagnosis. This research was approved by the ethics committee of the Faculty of Medicine, Udayana University.

RESULT

Based on data collected from a total sample of 716 patients, it was found that 90 patients experienced shock which were collected during the period of February to July 2024 at RSUP Prof. Dr. I.G.N.G. Ngoerah. The results can be seen in Table. 1.

Table 1. Research Shock Patient Profile

Variables	Frequency (n)	Percentage (%)
Age		
12- 25	5	5.5
26- 45	18	20
46- 65	43	47.8
>65	24	26.7
Gender		
Male	56	62.2
Female	34	37.8
Etiology		
Hypovolemic Shock	18	20
Cardiogenic Shock	9	10
Obstructive Shock	1	1,1
Distributive Shock		
Septic Shock	58	64.5
Neurogenic Shock	4	4.4
Diagnosis		
Surgical	52	57.8
Non-Surgical	38	42.2

Table 2. Incidence of Shock Patients Based on Age

Variables	Non-Shock	Shock (n)	Incident
Age			
1-5	15	0	0
6-11	4	0	0
12- 25	79	5	5.95
26- 45	174	18	9.37
46- 65	221	43	16.29
>65	133	24	15.29
Total	626	90	

Based on Table 2 of this study, it showed that the incidence of shock tends to be higher in patients in the early and late elderly categories, as well as in the elderly category

Table 3. Incidence of Shock Patients Based on Gender

Variables	Non-Shock	Shock (n)	Incident
Gender			
Male	356	56	13.59
Female	270	34	11.18
Total	626	90	

Based on Table 3, the incidence rate showed that males had a higher risk of experiencing shock compared to females in the context of this study.

Table 4. Incidence of Shock Patients Based on Etiology.

Variables	Frequency (n)	Incident
Etiology		
Hypovolemic Shock	18	2.51
Cardiogenic Shock	9	1.26
Obstructive Shock	1	0.14
Distributive Shock		
Septic Shock	58	8.10
Neurogenic Shock	4	0.56
Non-Shock	626	
Total	716	

Based on Table 4 of the study, the highest incidence of shock was found in patients with septic shock, and the lowest in patients with obstructive shock.

Table 5. Incidence of Shock Patients Based on Diagnosis

Variables	Non-Shock	Shock (n)	Incident
Diagnosis			
Surgical	339	52	13.30
Non-Surgical	287	38	11.69
Total	626	90	

Based on Table 5, the incidence rate of shock in surgical patients showed a higher number compared to non-surgical shock.

DISCUSSION

The study conducted by Gitz Holler et al. mentioned that the incidence of shock was not influenced by gender, but rather depended on factors such as age and underlying diseases. Additionally, patients diagnosed as non-surgical patients also showed a significant incidence of shock. These findings provided insight that factors like age and overall health condition played a larger role in the occurrence of shock compared to the patient's gender.[5] Another study conducted in Norway by Desserud et al. revealed that geriatric patients who experienced post-operative shock tended to show poorer clinical outcomes compared to younger patients. This indicated that the aging process could affect the body's response to shock and post-operative recovery.[6] An epidemiological study conducted in the United States mentioned that females had a higher survival rate when experiencing shock compared to males. This

finding provided important insight that biological factors, particularly the sex hormone estrogen, played a significant role in offering protection against shock. Estrogen was known to have protective properties that helped the body cope with the physiological stress caused by shock. This hormone contributed by modulating the inflammatory response and improve blood vessel function, hence enhance blood flow and oxygenation of vital organs. Therefore, biological differences between males and females, particularly related to estrogen, could explain the differences in survival rates among patients experiencing shock, with females showing a better recovery capacity in such conditions.[7] A study conducted in Germany by Thomas showed that the most common type of shock encountered was distributive shock, which accounted for 59%. Among the types of distributive shock, septic shock was the main contributor, representing 55% of the total samples collected in the study. These findings illustrated that distributive shock, particularly that caused by severe infections like sepsis, was one of the most frequently encountered conditions in clinical settings, with significant impacts on patient morbidity and mortality. Sepsis, as one of the leading causes of distributive shock, had a wide-ranging effect on the cardiovascular and immune systems, leading to decreased organ perfusion and dysfunction of vital organs. This study highlighted the importance of early detection and management of septic shock to improve clinical outcomes and reduce the severity of the condition.[8] Another study conducted in India also yielded similar findings, showing that septic shock was the most commonly encountered type of shock, accounting for 60.3% of the total samples analyzed. These findings further emphasized that sepsis was a leading cause of shock in various populations. This condition highlighted the importance of early detection and prompt treatment, as septic shock could lead to organ failure if not addressed quickly. The study also stressed the need for a better understanding of the factors influencing the development of septic shock.[9] Shock could occur in both surgical and non-surgical patients. Surgical patients typically experienced shock before or after undergoing surgery, which was caused by factors such as blood loss, anesthesia reactions, or postoperative complications. Meanwhile, non-surgical patients experienced shock due to other medical conditions, such as infections, heart disease, or metabolic disorders related to comorbidities. Several studies showed that surgical patients were more likely to experience shock compared to non-surgical patients, likely due to the complexity of surgical procedures and the higher potential for complications.[4]

CONCLUSIONS AND RECOMMENDATION

Based on the result of Shock Incident in the Intensive Care Unit of Prof. dr. I.G.N.G. Ngoerah, The study showed that the incidence of shock in the Intensive Care Unit (ICU) accounted for only a small proportion of the total patients treated. The incidence was observed across various age groups, with a tendency to occur more frequently in early and late elderly patients. Based on gender, male patients were slightly more dominant than female patients.

Shock in the ICU was caused by various etiologies, including hypovolemic, cardiogenic, obstructive, septic, and neurogenic shock. Among these, septic shock was the most commonly observed type. Additionally, shock patients in the ICU were from both surgical and non-surgical groups, with more cases found among surgical patients.

Based on the research conducted, Future research was recommended to extend the study duration to obtain a larger sample size. It was also suggested to focus on identifying specific factors influencing the incidence of shock in the ICU and to evaluate the effectiveness of interventions, as well as the mortality and morbidity rates of shock patients.

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