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Characteristics of liver cirrhosis patients: A literature review

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Abstract

Introduction: Based on data from the World Health Organization (WHO), there is an increase in the number of deaths due to liver cirrhosis from year to year, with the death rate reaching 905,418 in 2000 and soaring to 1,161,914 in 2015. According to a 2016 government public hospital report in Indonesia, The prevalence of liver cirrhosis is estimated at 3.5% of total internal medicine patients, or an average of around 47.4% of all patients treated for cirrhosis. This research using the literature review method aims to describe the characteristics of liver cirrhosis sufferers (gender, etiology of liver cirrhosis, age, child-turcotte-pugh) in Indonesia.

Methods: The type of study in this research is a literature review using secondary data in the form of literature that meets the inclusion and exclusion criteria. The inclusion criteria for this research are literature that has been published in the last 10 years, can be accessed in its entirety, literature set in Indonesia, and meets the search keywords. The exclusion criteria in this study were literature with the type of study in the form of a review.

Results: A literature search conducted on Google Scholar and Pubmed found eight pieces of literature that met the inclusion and exclusion criteria. Eight pieces of literature are descriptive observational studies. The total samples obtained from the eight pieces of literature were 1010 samples. The time span of the literature obtained was 2015-2023. Before data extraction, each piece of literature was assessed for risk of bias using JBI (Joanna Briggs Institute) critical appraisal.

Conclusions: Based on literature review research, cirrhosis sufferers are more likely to suffer from men (685 samples), the elderly age group (>45 years) with hepatitis B etiology (477 samples), and Child-Turcotte-Pugh score category C (397 samples).

Keywords: Characteristics; Cirrhosis; Liver cirrhosis; Hepatic cirrhosis

1. Introduction

Liver cirrhosis is a chronic disease globally, occupying the 14th position as a cause of mortality in the world's adult population. Specifically in Europe, this disease is ranked fourth as a cause of mortality, while in the United States, it is ranked eighth. This results in 1.3 million deaths annually globally. According to data from the World Health Organization (WHO) in 2016, around 51.1% of men and 27.1% of women in a population of 100,000 died from liver cirrhosis. The prevalence of mortality due to liver cirrhosis in South and Southeast Asia is estimated at around 44.9%. Based on data

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from the World Health Organization (WHO), there is an increase in the number of deaths due to liver cirrhosis from year to year, with the death rate reaching 905,418 in 2000 and increasing to 1,161,914 in 2015 [13]. According to a 2016 government public hospital report in Indonesia, the prevalence of liver cirrhosis is estimated at 3.5% of total internal medicine patients, or an average of around 47.4% of all patients treated for cirrhosis [5]. This research using the literature review method aims to describe the characteristics of liver cirrhosis sufferers (gender, etiology of liver cirrhosis, age, child-turcotte-pugh) in Indonesia.

2. Material and methods

The type of study in this research is a literature review using secondary data in the form of literature that meets the inclusion and exclusion criteria. The inclusion criteria for this research are literature that has been published in the last 10 years, can be accessed in its entirety, literature set in Indonesia, and meets the search keywords. The keywords used in Indonesian are "characteristic" or "profile" and "liver cirrhosis", while in English they are "characteristic" or "profile" and "hepatic cirrhosis". The search was carried out on the Google Scholar and Pubmed search engines with keywords operated using the boolean method. The exclusion criteria in this study were literature with the type of study in the form of a review.

3. Results

The literature search conducted on Google Scholar and Pubmed found eight pieces of literature that met the inclusion and exclusion criteria. The eight pieces of literature are descriptive observational studies with a cross sectional approach. The total samples obtained from the eight pieces of literature were 1010 samples. The time span of the literature obtained was 2015-2023. Before data extraction, each literature was assessed based on the risk of bias. The risk of bias assessment tool used is the JBI (Joanna Briggs Institute) critical appraisal with prevalence studies. The following is a table for assessing the risk of bias in data from eight pieces of literature [8], [15], [12], [1], [9], [14], [2], [6]:

Tabel 1 Risk of bias assessment

	Lovena et al (2017)	**Zulhadji et al (2023)**	**Virma et al (2023)**	**Amalia et al (2023)**	**Patasik et al (2015)**	**Wulandari et al (2020)**	**Prakoeswa et al (2017)**	**Kalista et al (2019)**
Was the sample frame appropriate to address the target population?	v	v	v	v	v	v	v	v
Were study participants sampled in an appropriate way?	v	v	v	v	v	v	v	v
Was the sample size adequate?	v	-	-	-	-	-	v	v
Were the study subjects and the setting described in detail?	v	v	v	v	v	v	v	v
Was the data analysis conducted with sufficient coverage of the identified sample?	v	v	v	v	v	v	v	v
Were valid methods used for the identification of the condition?	v	v	v	v	v	v	v	v
Was the condition measured in a standard,	v	v	v	v	v	v	v	v

reliable way for all participants?								
Was there appropriate statistical analysis?	-	-	-	-	-	-	-	-
Was the response rate adequate, and if not, was the low response rate managed appropriately?	v	v	v	v	v	v	v	v
Was the sample frame appropriate to address the target population?	v	v	v	v	v	v	v	v

Based on the risk of bias assessment table, all literature does not meet point number eight of the JBI critical appraisal and only three pieces of literature meet point number three. However, all of the literature is still within the scope of literature with a low risk of bias so the researcher included all of the literature in the research sample. The following is the data extraction table for the eight pieces of literature:

Tabel 2 Literature Data Extraction

Author	**Title**	**Study Design**	**Total Sampel**	**Result**	**Conclusions**
Lovena et al (2017) [8]	Characteristics of Hepatic Cirrhosis Patients at Dr. M. Djamil Padang	Observational descriptive	304	Gender; Male: 200(65,8%) Female: 104(34,2%) Etiology; Hepatitis B: 155(51%) Hepatitis C: 93(30,6%) Non-B Non-C: 56(18,4%) Age: (< 31 years): 13(4,3%) (31-40 years): 35(11,5%) (41-50 years): 78(25,7%) (51-60 years): 107(35,2%) (61-70 years): 42(13,8%) (> 70 years): 29(9,5%) Child-Turcotte-Pugh Score: Child A: 16(5,2%) Child B: 105(34,5%) Child C: 183(60,3%)	Male gender, etiology of liver cirrhosis is hepatitis B, age 51-60 years, and CTP C has the highest incidence compared to the group
Zulhadji et al (2023) [15]	Characteristics of Hepatic Cirrhosis Patients at Dr. H. Chasan Boesoirie Ternate	Observational descriptive	28	Gender: Male: 15(53,6%) Female: 13(46,4%) Etiology: Hepatitis B: 11(39,3%) Hepatitis C: 1(3,6%) Non-B Non-C: 16(57,1%)	Male gender, hepatitis etiology is non-B Non-C, and age 56-65 years has the highest incidence compared to each group

				Age: (36-45 years): 2(7,1%) (46-55 years): 7(25%) (56-55 years): 13(46,4%) (> 65 years): 6(21,5%)	
Virma et al (2023) [12]	Characteristics of Hepatic Cirrhosis Patients at Dr. Achmad Mochtar Bukittinggi for the 2018 - 2020 period	Observational descriptive	38	Gender: Male: 27(71,1%) Female: 11(28,9%) Etiology: Hepatitis B: 28(73,7%) Hepatitis C: 0(0%) Alcoholic: 7(18,4%) NAFLD: 3(7,9%) Age: (< 40 years): 5(13,2%) (≥ 40 years): 33(86,8%) Child-Turcotte-Pugh Score: Child A: 6(15,8%) Child B: 12(31,6%) Child C: 20(52,6%)	Male gender, etiology of liver cirrhosis is hepatitis B, age 40 years, and CTP C has the highest incidence in each group
Amalia et al (2023) [1]	Characteristics of Hepatic Cirrhosis Patients	Observational descriptive	55	Gender: Male: 36(65,5%) Female: 19(34,5%) Etiology: Hepatitis B: 30(54,5%) Hepatitis C: 9(16,4%) Alcoholic: 6(10,9%) NAFLD: 5(9,1%) No data: 5(9,1%) Age: (< 30 years): 2(3,6%) (31-40 years): 4(7,3%) (41-50 years): 14(25,5%) (51-60 years): 25(45,5%) (> 60 years): 10(18,2%) Child-Turcotte-Pugh Score: Child A: 9(16,4%) Child B: 29(52,7%) Child C: 17(30,9%)	Male gender, etiology of liver cirrhosis is hepatitis B, age 51-60 years, and CTP B has the highest incidence in each group
Patasik et al (2015) [9]	Profile of Liver Cirrhosis Patients Hospitalized at RSUP Prof. Dr. R. D. Kandou Manado Period August 2012 – August 2014	Observational descriptive	51	Gender: Male: 32(62,7%) Female: 19(37,3%) Etiology: Hepatitis B: 19(37,3%) Hepatitis C: 7(13,7%)	Male gender, etiology of liver cirrhosis is hepatitis B, and age 50-59 years has the highest incidence in each group

				Alcoholic: 12(23,5%) No data: 13(25,5%) Age: (< 29 years): (3,9%) (30-39 years): (7,8%) (40-49 years): (11,8%) (50-59 years): (31,4%) (60-69 years): (29,4%) (70-79 years): (15,7%)	
Wulandari et al (2020) [14]	A Description of The Characteristics of Hepatic Cirrhosis Patient in Abdul Wahab Sjahranie Regional Public Hospital Samarinda	Observational descriptive	58	Gender: Male: 41(70,7%) Female: 17(29,3%) Age: (< 26 years): 0(0%) (< 26-35 years): 2(3,4%) (36-45 years): 13(22,4%) (46-55 years): 25(43,1%) (56-55 years): 14(24,1%) (> 65 years): 4(6,9%) Child-Turcotte-Pugh Score: Child A: 0(0%) Child B: 21(36,2%) Child C: 37(63,8%)	Male gender, age 46-55 years, and CTP C had the highest incidence in each group
Prakoeswa et al (2017) [2]	Profile of Hepatic Cirrhosis Patients Hospitalized in the Internal Medicine Department of Dr. Soetomo Surabaya Hospital in 2015	Observational descriptive	163	Gender: Male: 105(64,4%) Female: 58(35,6%) Etiology: The majority in Hepatitis B: (44,2%) Age: The majority in (51-60 years): (36,2%) Child-Turcotte-Pugh Score: The majority in Child C: (53,4%)	Male gender, etiology of liver cirrhosis is hepatitis B, age 51-60 years, and CTP C has the highest incidence in each group
Kalista et al (2019) [6]	Clinical Profile of Liver Cirrhosis Patients with Esophageal Varices Undergoing Esophageal Varice Ligation at Dr. Cipto Mangunkusumo	Observational descriptive	313	Gender Male: 229(73,2%) Female: 84(26,8%) Etiology: Hepatitis B: 162(51,8%) Hepatitis C: 87(27,8%) Hepatitis B & C: 1(0,3%) Non-B Non-C: 63(20,1%) Age: (18-30 years): 10(3,2%) (31-40 years): 32(10,2%)	Male gender, etiology of liver cirrhosis is hepatitis B, age > 60 years, and CTP A has the highest incidence in each group

				(41-50 years): 67(21,4%) (51-60 years): 97(31%) (>60 years): 107(34,2%) Child-Turcotte-Pugh Score: Ligation Patients Child A: 61(41,8%) Child B: 49(33,6%) Child C: 36(24,6%) Non-ligation Patients Child A: 99(59,3%) Child B: 51(30,5%) Child C: 17(10,2%)	

4. Discussion

In this literature review research, it was found that the majority of the samples consisted of individuals of male gender. The risk of liver cirrhosis tends to be higher in male individuals than in female individuals. This difference is related to the different lifestyles and social environments between the two. In general, men have a greater chance of being exposed to the hepatitis virus and tend to have higher alcohol consumption habits [8].

Cirrhosis is characterized by fibrosis and nodule formation in the liver as a result of chronic injury, resulting in changes to the liver's normal structure. Various causes, such as viral infections, exposure to toxins, genetic predisposition, or autoimmune processes, can cause damage to the liver. Chronic liver disease often progresses to liver cirrhosis, and hepatitis B virus (HBV) and hepatitis C virus (HCV) are the most common causes of liver cirrhosis in developing countries [10]. This is the same as this literature review research which found that the majority of samples had hepatitis B etiology.

Based on the severity, liver cirrhosis is classified using the Child-Turcotte-Pugh (CTP) score [11]. Child-Turcotte-Pugh (CTP) is used to assess the prognosis of liver cirrhosis sufferers, by classifying liver cirrhosis patients into 3 classes, namely Child A, B and C scores [16]. Child A score has 5-6 points, Child B score has 7- 9 points, and Child C score has 10-15 points. This classification is carried out based on five criteria, namely serum bilirubin, serum albumin, severity of ascites, level of encephalopathy and Prothrombin Time (PT) or often using the International Normalized Ratio (INR) as a substitute for PT [17].

The results of this study showed that the majority of samples were in the liver severity category with Child Score C. This is associated with liver cirrhosis, which is a silent disease and takes years before symptoms appear that indicate its presence. These factors indicate that when patients seek treatment, most of them have already reached moderate to severe levels of cirrhosis. This is caused by the early stages of liver cirrhosis which do not show symptoms, so it is often detected accidentally during routine health checks or for other reasons [4].

The liver undergoes physiological changes with age, in addition the number of hepatocytes, Kupffer cells, and sinusoidal endothelial cells decreases with age. The age factor is one of the risks of death in individuals with liver cirrhosis [3]. In this literature review research, it was found that the majority of liver cirrhosis sufferers were in the elderly age group (>45 years). Cirrhosis of the liver is more often identified in older individuals, this is associated with a decrease in the immune system to the aging process which affects the structure and function of the liver as a whole, as well as the development of scar tissue in the liver known as liver fibrosis with age [7].

5. Conclusion

Based on the literature review research, it can be concluded that cirrhosis sufferers are more likely to suffer from men (685 samples), the elderly age group (>45 years) with hepatitis B etiology (477 samples), and the child-turcotte-pugh score is category C (397 samples).

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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