CHAPTER 1

PRELIMINARY

1.1 Background

Liver cirrhosis is the final stage of liver disease characterized by fibrosis and architectural distortion of the liver with the formation of regenerative nodules (Lo and Kim, 2017). Liver cirrhosis is one of the leading causes of morbidity and mortality globally, although the underlying causes differ between locations and demographic groups. In 2017, liver cirrhosis caused more than 1.32 million deaths (440,000 [416,000-518,000; 33.3%] in women and 883,000 [838,000-967,000; 66.7%] in men) globally (Sepanlou et al., 2020). In Indonesia, the death rate due to liver cirrhosis is still quite high; according to data from the World Health Organization (WHO), in 2018, deaths from liver disease in Indonesia reached 59,774 or 3.51% of the total deaths. The age-adjusted mortality rate is 28.79 per 100,000 population, which makes Indonesia ranked 38th in the world.

Nutritional status is one of the independent prognostic factors related to morbidity, mortality, and treatment for patients with liver cirrhosis. In a study of 298 patients in Pakistan, more than 80% of those with advanced liver disease showed some degree of malnutrition, and about 32% had severe malnutrition (Naqvi et al., 2013). The liver plays a role in regulating protein and energy metabolism in the body, so patients with advanced liver disease often experience malnutrition. Many factors contribute to malnutrition in cirrhosis, including inadequate dietary intake, intestinal nutrient absorption changes, and protein metabolism changes (Cheung et al., 2012). Malnutrition has a direct relationship with disease progression and will worsen the degree of liver damage. It is associated with various complications, including hepatic

decompensation, ascites, encephalopathy, peritonitis, hepatorenal syndrome, and poor quality of life (Saunders et al., 2010).

Liver cirrhosis is clinically divided into compensated liver cirrhosis which means there are no real clinical symptoms, and decompensated liver cirrhosis is characterized by clear clinical signs and symptoms. The early stages of liver cirrhosis often go without symptoms, so liver cirrhosis is more often diagnosed when it is in an advanced stage. Liver cirrhosis is often found when patients have routine health checks or examinations for other diseases (Muir, 2015). Liver cirrhosis can have various clinical manifestations as well as complications. Complications of liver cirrhosis include ascites, hepatic encephalopathy, oesophageal varices, hepatorenal syndrome, and liver cancer (Nusrat, 2014). Various kinds of complications that occur in patients with liver cirrhosis cause the prognosis of liver cirrhosis to vary. One way to measure the severity of liver cirrhosis is to use the Child-Turcotte Pugh (CTP) score. The results of the CTP score divide patients with liver cirrhosis into categories CTP A, CTP B, and CTP C. The CTP score is assessed based on objective and subjective examination of the presence of ascites, hepatic encephalopathy, bilirubin levels, albumin levels, and prothrombin time (Peng et al., 2016).

Nutritional monitoring to assess nutritional status is often not carried out, while the increase in nutritional needs in conditions of illness, trauma, and stress is often ignored. Assessment of the initial nutritional status of hospital admission is an early warning system to identify high-risk patients and require nutritional intervention. In patients with liver cirrhosis, the assessment needs to be carried out so that nutritional support can be given appropriately and quickly to avoid adverse effects and support the success of treatment to prevent further disease complications, reduce treatment costs, length of

hospitalization, also increasing the risk of hospital re-admissions (Perumpail et al., 2017).

One of the obstacles in managing patients with liver cirrhosis is that there is no gold standard examination in assessing the nutritional status of patients until now. However, several methods such as subjective global assessment (SGA), anthropometric measurements, and handgrip strength (HGS) can be used as tools to identify nutritional status in patients (Bharadwaj et al., 2016). This study investigates the association of nutritional status with the severity of disease, complications, and hospitalization frequency in cirrhotic patients. There is not yet a comprehensive study on this subject in Indonesia. It is hoped that this study can add references and information in the management of patients with liver cirrhosis in hospitals.

1.2 Research Question

Is there any association of nutritional status with the severity of disease, complications, and hospitalization frequency in liver cirrhosis patients?

1.3 Research Purposes

1.3.1 General Purposes

Based on the formulation of the problem above, the objectives to be achieved in this study are to find out the association of nutritional status with the severity of disease, complications, and hospitalization frequency in liver cirrhosis patients at the Hepatology Outpatient Department and the Inpatient Installation of Internal Medicine RSUD Dr. Soetomo Surabaya

1.3.2 Specific Purposes

1.3.2.1 To find out the characteristics of liver cirrhosis patients

1.3.2.2 To find out the nutritional status in liver cirrhosis patients

1.3.2.3 To find out the severity of disease in liver cirrhosis patients

1.3.2.4 To find out the complications in liver cirrhosis patients

1.3.2.5 To find out the hospitalization frequency in liver cirrhosis patients

1.3.2.6 To analyze the relationship between nutritional status and severity of disease in liver cirrhosis patients

1.3.2.7 To analyze the relationship between nutritional status and complications in liver cirrhosis patients

1.3.2.8 To analyze the relationship between nutritional status and hospitalization frequency in liver cirrhosis patients

1.4 Research Benefit

1.4.1 Theoretical Benefit

1.4.1.1 Adds references to nutritional status determinants related to complications and severity of disease in liver cirrhosis patients

1.4.1.2 Adds references to other researchers who want to research more about nutritional status and its association with cirrhosis of the liver

1.4.2 Practical Benefit

1.4.2.1 Adds insight into the treatment of liver cirrhosis patients to be appropriately treated as early as possible to prevent worse complications

1.4.2.2 Increase public awareness about cirrhosis of the liver and the importance of maintaining nutrient intake