

CHAPTER 1

INTRODUCTION

1.1 Background

According to the World Health Organization (WHO), Alcohol psychoactive substances with reliance delivering properties that have been broadly utilized in numerous societies for a considerable length of time. Consumption of alcohol can also cause many diseases, relevant factors to explain the dangers of alcohol can be seen from the level and effectiveness of alcohol policies (WHO, 2019). Alcoholic beverages, namely drinks containing ethanol (C_2H_5OH), are processed by fermentation and distillation or distillation with the carbohydrate content (BPOM 2016). But lately, many cases have mixed drinks with ingredients that are not suitable for consumption, such as mixed alcohol Indonesia. They are mixed with methanol, Methanol or methyl alcohol (CH_3OH) extracting and toxic solvent in the human body (BPOM, 2016). Cukrik or commonly called mixed of ethanol and methanol is a traditional alcoholic beverage usually for the percentage content of alcohol is not too high but the dangerous thing from cukrik is mixing ingredients that are not suitable for example methanol, cukrik sellers also sell at low prices therefore many cases of poisoning happened by cukrik (Mulyadi, 2014).

World Health Organization recorded in 2016 more than 3 million people died due to harmful use of alcohol, recorded from WHO deaths caused by alcohol, 28% caused by traffic accidents, self-injury, 21% due to metabolic disease, 19% due to heart disease (WHO, 2018). Even in Indonesia, on 11 April 2018, cukrik killed 41 people in the regency of Bandung, West Java, the police suspected from the victim's symptoms that mixed drinks contained methanol or

usually also called methylated spirits (spiritus) (Mochammad, 2018). There were 383 cases recorded in methanol poisoning, 360 (94%) were men, and 23 (6%) were women. The patient's age ranged from 17 to 89 years even though the patient was aware of, but the general condition of the patient was decreased in metabolic acidosis, methyl alcohol in the blood concentration 0 -826 mg per 100 ml was seen (Erdar, 2017). Not only that, in 2013, these events also occurred in Surabaya, but there were also 14 people who died due to mixed alcohol poisoning (cukrik), and there were still four people being treated at DR SOETOMO Hospital (Detik, 2013).

Kidneys are essential organs not only for excretion but also for absorption and enzymatic reactions (Subir, 2008). Many diseases that occur due to alcohol, such as hepatic cirrhosis, liver cancer, pancreatitis, and cardiovascular complications. Until now, the evidence linking alcohol-related illnesses with chronic kidney disease is controversial, but some preclinical studies suggest that alcohol consumption has found an effect on the kidney and implied that there is an independent pathologic entity, which refers alcoholic kidney injury (Varga, 2017). In methanol, the kidney is not the primary target for methanol poisoning. Still, kidney failure has been described in a few case reports, and it was related to terminal complications of methanol intoxication (Verhelst et al., 2004).

Cukrik is very dangerous for the body, especially for the kidneys. If habit of consuming cukrik is not stopped, there will be more kidney failure patients in Indonesia. According to the Indonesian Renal Registry (IRR) (2018) in 2011, as many as 22,304 Indonesians had kidney disease, and 6,951 had to undergo hemodialysis regularly. (IRR,2018)

Based on what has been described previously, we have been able to see how dangerous and many cases of alcohol intoxication are not only in Indonesia but also in other country, until now there has been only a few research on the effects of cukrik on histopathology in the kidneys, therefore this research will be done to evaluate the effects of cukrik on kidney damage with histological examination.

1.2 Research question

- 1.2.1 Is there any damage of kidney tubular epithelial cells caused by cukrik poisoning?
- 1.2.2 Is there any damage of kidney glomerular caused by cukrik poisoning?
- 1.2.3 Is there any damage of kidney interstitial caused by cukrik poisoning?

1.3 Research objectives

1.3.1 General objective

To proves and To analyze the effect of increasing dose of cukrik for damage of histopathology of kidney in male wistar rat

1.3.2 Specific objective

1. To prove the damage of kidney tubular epithelial cells caused by cukrik poisoning.
2. To prove the damage of kidney glomerular caused by cukrik poisoning.
3. To prove the damage of kidney interstitial caused by cukrik poisoning.

4. To analyze the effect of increasing the dose can lead to increased damage to the kidney caused by cukrik poisoning.

1.4 Research benefits

1.2.1 Theoretical benefit

To provide new knowledge on the effects of methanol on damage to the kidneys histopathological examination.

1.2.2 Practical benefit

To find out the dangers of cukrik; this research can be used as information on health services in the education program for cukrik so that preventive action can be taken; and can be use as a basis for further research on the effect of cukrik on the kidneys.