

CHAPTER I

INTRODUCTION

1.1 Background

Severe Acute Respiratory Syndrome coronavirus (SARS-CoV 2) was found as pneumonia cases in Wuhan City, China in December 2019. By February 11th 2020, the World Health Organization (WHO) officially named the disease resulting from infection with SARS-CoV-2 as coronavirus disease 2019 (COVID-19) (Shi et al., 2020). Looking at the disease progressivity to rapidly become a worldwide spread, WHO then declared COVID-19 as a pandemic. Been going on for more than a year, the COVID-19 pandemic has been reported to the WHO with over 147million confirmed cases, including over 3 million deaths worldwide as of 27 April 2021. COVID-19 may have various manifestations, ranging from asymptomatic to life-threatening conditions. In consequence, the patient could fully recover within a few days or weeks up to months with leftover tissue harm afterwards.

Some studies have documented the disease's severe clinical manifestations including acute respiratory distress syndrome, respiratory failure, liver injury, acute myocardial injury, acute kidney injury, septic shock, and even multiple organ failure. Individuals whom in the populations at risk and are likely to develop severe clinical outcome are older age, male sex, and those who have comorbidities. Populations 30– 50% had pre-existing comorbidities, such as hypertension (15–25%), diabetes (20– 25%), obesity, and cardiovascular diseases (10–15%), or chronic obstructive pulmonary disease (10–15%) (Ferri et al.,2020). On the whole, increased risk to worse COVID-19 disease outcomes may be

observed in immune-compromised patients (Ferri et al., 2020).

People with the immune-mediated disease are susceptible to this viral infection. Autoimmune rheumatic disease are a distinct group of conditions that affect the joints, bones, muscles, and connective tissues, mainly. Some of them are rheumatoid arthritis, spondyloarthropathy, scleroderma, systemic lupus erythematosus, and Sjögren syndrome. The general explanation of autoimmunity is that there is a dysregulation of immune systems which would interfere with the whole body's defence mechanism which makes this group prone to infection. Based on Akiyama S, et al. study, meta-analysis of seven case–controlled studies demonstrated that the risk of COVID-19 in autoimmune diseases was significantly higher than in control patients (OR: 2.19, 95% CI: 1.05 to 4.58, $p=0.038$). Assessment of 65 studies with 2766 patients with autoimmune diseases diagnosed with COVID-19, the rates of hospitalisation and mortality were 0.35 (95% CI: 0.23 to 0.50) and 0.066 (95% CI: 0.036 to 0.12), respectively, while glucocorticoids, csDMARDs and b/tsDMARDs–csDMARDs combination therapy increased the risk of these outcomes (Akiyama S, *et al.*, 2021).

A study has made a report about how COVID-19 and autoimmune rheumatic disease have similarities in clinical findings and immune response such as cytokine storm and tissue damage. A study of 1641 patients recruited for the survey on COVID-19 and autoimmune systemic disease conducted in Italy has been reported that definite diagnosis of Covid-19 was recorded in 11 (0.7%) and highly suspected COVID-19 in 14 (0.8%) autoimmune systemic disease (ASD) patients. This prevalence was higher than that observed in the Italian population of Covid- 19-infected individuals [$349/100,000 = 0.3\%$; data from the Italian Superior Institute of Health (ISS)] (Ferri et al., 2020). The incidence and the

linkages between COVID- 19 and autoimmune rheumatic disease make this an interesting topic to be discussed.

1.2 Formulation of The Problems

- 1) How is the profile of patients who have pre-existing ARD infected with COVID-19 at Dr. Soetomo Hospital?
- 2) What is the proportion of COVID-19 patients with ARD?
- 3) How is the data regarding the severity classification and clinical outcome of COVID-19 in patients with ARD?
- 4) How is the consumption of DMARDs or immunosuppressants of ARD patients during SARS-CoV-2 infection?
- 5) What is the number of ARD cases in post-covid infection?
- 6) How is the acceptance of COVID-19 vaccination among patients with ARD?

1.3 Research Purposes

Based on the formulation of the problems described above, the purposes of this study are:

1.3.1 General Purpose

Knowing the profile of patients with pre-existing Autoimmune Rheumatic Disease suffering from COVID-19 at Dr. Soetomo Hospital in 2020- 2022.

1.3.2 Special Purpose

- 1) To know the proportion of COVID-19 patients with ARD.
- 2) To know the data regarding the severity classification and clinical outcome of COVID-19 in patients with ARD.
- 3) To know the consumption of DMARDs or immunosuppressants of ARD patients

during SARS-CoV-2 infection.

- 4) To know the number of ARD in post-covid infection.
- 5) To know the acceptance of COVID-19 vaccination among patients with ARD.

1.4 Benefits of Research

1.4.1 Academic Benefit

This study is expected to become basic data for further research since this topic is up to date and there are a lot of ongoing studies.

1.4.2 Practical Benefit

This study is expected to be an overview for practitioners and non-practitioners in the medical field to pay special attention to patients with pre-existing Autoimmune Rheumatic Disease comorbidity who are exposed to COVID-19. Also, people who have pre-existing comorbidity can continue to comply with health protocols and be aware of the transmission of COVID-19.