PRONE POSITIONING TO IMPROVE SATURATION OXYGENATION IN COVID-19 PATIENTS

Zahrah Maulidia Septimar[1],H. A. Y. G. Wibisono[2] ,Ahdi Jazuli[3]
[2]Lecturer of Nursing, STIKes Yatsi, Tangerang, Banten, Indonesia
[1]Student of Nursing STIKes Yatsi, Tangerang, Banten, Indonesia
at Aria Santika No.40 A Bugel Karawaci Tangerang Banten. Indonesia 15113
Email : zahrahmaulidia85@gmail.com

Abstract, Background: Corona virus infection is an infection caused by the SARS-CoV2 virus which is currently spreading in almost all countries in the world. The spread and transmission of corona virus infection is so widespread and also fast. Acute Respiratory Distress Syndrome (ARDS) is one of the complications that can be experienced by patients infected with the COVID-19 virus. Therefore, several actions and therapies are needed for COVID-19 patients in order to avoid the state of respiratory failure, one of which is pronation. The purpose of this study was to determine the effect of the pronation position on changes in oxygen saturation in COVID-19 patients in the ICU COVID-19 Isolation.
Method: The research method using a quasi-experiment using a one group pre-test and post-test design with 30 sample. The results of this study indicate that there are differences in the increase in oxygen saturation levels of COVID-19 patients after the action of giving the pronation position. of P Value 0.001 with an increase in oxygen saturation of 96%.
Conclusion: there is an effect between giving the pronation position to changes in oxygen saturation in COVID-19 patients, that COVID 19 patients who are given Pronation position exercises experience an increase in oxygen saturation by 96%.

Keywords: Covid-19, Pronation Position; Oxygen Saturation; COVID-19

Background

Corona Virus Disease In 2020, a new type of corona virus (SARS-CoV-2) spreads, disease called Coronavirus disease 2019 (COVID-19). The spread and transmission of the corona virus infection was so wide and fast, that the virus was declared a pandemic by the World Health Organization (WHO) on March 11, 2020. The first COVID-19 case in Indonesia was announced on March 2, 2020[1], since then the increase the number of cases continues to increase. The increase in COVID-19 cases is due to direct human-to-human transmission through droplets such as when coughing or sneezing and direct contact with people exposed to the COVID-1 virus[2].

Common symptoms that identify a person as infected are fever with a temperature of 38°C, cough and difficulty breathing. The continuation of these symptoms will cause a person's breath to feel heavy and feel short of breath, fatigue, myalgia, gastrointestinal symptoms such as diarrhoea and other respiratory symptoms[3]. Patients infected in the critical category can experience respiratory failure because the COVID-19 virus attacks the spaces in the lungs. Patients who fall into the category of critically ill patients can experience respiratory failure so that the treatment requires supportive therapy and regular patient monitoring[4].

The fact that the initial application of the prone position in the prone position, within 10 minutes of the prone position, saw a significant

increase in saturation values up to 96-98% (combined with 2 LPM oxygenation). After 6 days of hospitalization, peripheral oxygen saturation was 95% in room air without oxygen support and the patient was discharged[5]

The pronation position, ie when the patient is repositioned from the supine to the supine position. The application of the prone position with a recent trial focused on patients with more severe respiratory distress, and applying prone ventilation for a longer time[7]. The pronation position has benefits in increasing pulmonary ventilation by increasing pulmonary perfusion and end-expiratory lung volumes as well as an even distribution of tidal volume in all parts of the lung. Pronation position is also useful to reduce the amount of fluid that may collect in the patient's lungs, so that the fluid is reduced the patient will return to breathe easily. In the case of patients infected who are in critical condition, they can respond well to pronation ventilation (in the prone position) with a rapid increase in oxygenation and lung mechanics[8].

The Serang City Regional General Hospital is one of the hospitals that is a reference in handling COVID patients in Serang City and its surroundings. Visits of patients with COVID-19 cases at the Serang City Hospital began to increase in June 2021. Therefore, the Serang City Hospital created a special room for COVID-19 patients to avoid transmission to non-COVID patients in the hospital. Based on the results of pre-study observations, there are several patients who experience respiratory failure and occur in the COVID-19 ICU. So in this study, we will discuss efforts to increase respiratory effort in COVID-19 patients so as not to experience respiratory failure[9].

Methods

This research has been through an ethical test. This research method uses a quasi-experimental method[10]. In this study, the author will conduct an experiment to see the difference in oxygen saturation before and after the pronation position in Covid-19 patients.

the population of this study is covid 19 patients, who did not use mechanical ventilators and were treated in the ICU special Covid 19 RSUD Serang City during July to August 2021. The number of patients in July was 20 patients, August 13 patients. So the total population is 33 patients. The method of analysis in this study is univariate analysis is carried out to describe the characteristics of respondents based on age, gender. Univariate analysis will also be carried out to see the description of the Spo2 level, respiratory rate, and Fio2 before the pronation position and after the pronation position for 30 minutes, 1 hour, and 2 hours.

Results

The results showed that the frequency distribution based on gender was found in 18 (54.5%) male and 15 (45.5%) female and the average respondent is in the category of early elderly aged 46-55 years with a percentage of 30.3% and respondents in the category of late teens aged 17-25 years only 2 people with a percentage of 6.1%.

Table 1: Baseline Characteristics of 30 patients with covid 19 who received in the prone position

Characteristic	Frequency	Percentage (%)
Sex,		
Male	18	54,5
Female	15	45,5
Age		
17-25	2	6,1
26-35	5	15,2
36-45	8	24,2
46-55	10	30,3
56-65	8	24,2

Table 2: Baseline of Oxygen Saturation Levels before, when performed and after Pronation Position

Intervention	Median	Standar Deviation	Min Value	Max Value
Before	92	1,709	88	95
Action	92,21	92	1,709	88
After	96,24	96	1,414	94

Based on table, it can be concluded that the average value of oxygen saturation levels of COVID-19 patients who were treated in the COVID-19 ICU before, when performed and after giving the pronation position was increased.

Table 3: Hypothesis Test

Variable	Mean	SD	SE Mean	t	df	p value
Pretest-Posttest	-4,03	1,776	,309	-13,034	32	,000

Based on table 6, the average value of oxygen saturation levels of COVID-19 patients treated in the ICU before and after the pronation position was -4, 0303, with a standard deviation of 1,776. By using the degrees of freedom (df0 of 32, the t-value in the table is -13, 034. From the results of calculations carried out with the SPSS 25 program, the p value of 0.000 (<0.05), it can be concluded that H0 is rejected, which means that there is an effect between giving a pronation position with an increase in oxygen saturation levels in COVID-19 patients who are treated in the COVID-19 ICU.

Based on the research, so it can be concluded that there is an effect of the act of giving a pronation position to COVID-19 patients on changes in oxygen saturation levels treated in the ICU COVID-19 RSUD Kota Serang. This is in line with the study of Vishesh Paul, which showed that the proning position in patients without a ventilator could improve oxygenation and prevent intubation in patients with a history of hypoxemic acute respiratory failure[11]. Another study belonging to Wormser, Guerin et al, showed the results that the pronation position for COVID-19 patients could increase SpO2/FiO2 significantly, there was an increase before, during, and after giving the pronation position which originally had a P value (p<0 .0001)[12].

According to Guérin et al the pronation technique has been shown to be effective in treating ARDS: mortality at 28 days represents a percentage of 16% of ARDS patients who received the prone position compared to 33% in the control group[13]. According to Kallet, Giving a prone position to covid patients is feasible. The respiratory rate was lower and oxygenation higher during and after pronation than at baseline[14]. This is in line with the opinion of Wiggermann et al that "proning," or moving the patient from a lying position to lying face down[15], is an appropriate measure used to increase the chances of survival in COVID patients[16]

CONCLUSION

The pronation position for COVID-19 patients could increase SpO2/FiO2 significantly, there was an increase before, during, and after giving the pronation position.

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