Comparison the Effectiveness between Defective Cough and Yoga Breathing Exercises in Reducing Breathlessness on Tuberculosis Patients at Matahari Room, Dr. M. Yunus Hospital, Bengkulu

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Abstract

Introduction: The decrease of vital lung capacity on pulmonary tuberculosis (PTB) patients can reduce oxygen supply to the lungs. Lung capacity is very crucial within breathing process; decreased its capacity can cause the distruption functions in the body's cells, which leads to the breathlessness on tuberculosis patients. This research presents the study to examine the Effective Coughing (EC) and Yoga breathing Exercises (YBE) as a technique to reduce the breathlessness for patients who suffer from tuberculosis at Regional Public Hospital, DR.M.Yunus, Bengkulu.

Methods: This study was quantitative research with a quasy experiments design. The population was all patients (men and women) with pulmonary tuberculosis (PTB) at RSUD DR.M.Yunus, Bengkulu. The samples were 74 patients, which selected toward patients who have complaints of breathlessness; 34 patients used for intervention group, and 34 patients for control group. This, according to the research' aim, compared the treatment effect by using effective coughing intervention and Yoga Breathing Exercise as well.

Findings: The results showed a significant change after given effective cough (EC) (value=2.30), but there was a small change after given with Yoga Breathing Exercises (YBE) (value=2.84).

Conclusions: In short, our research finding there was a significant effect of using EC and YBE for reducing the breathlessness. The impications of this research can be implemented as respiratory management intervention on patients who suffer with pulmonary tuberculosis (PTB).

Keywords: *Effective Cough, YBE, Breathlessness, PTB, patients.*

Introduction

Tuberculosis is a contagious bacterial infection caused by bacteria Mycobacterium tuberculosis where its bacteria can attack on apex of lung. Some researches devoted its malignancy has infected nearly a third of the world's population, and one of the main causes of death, its incidence has been increasing since early 1980s. As cited from Word Health Organization (WHO) reports in 2009, the incidence of PTB is 9.4 million with a prevalence of 14 million, and a mortality rate reaches 1.3 million. Moreover, WHO also reported several cases of tuberculosis prevalences; Indonesia is at third ranks after India and China, which nearly 700 thousand cases with death rates is still 27/100 thousand population[1].

Regarding to the above cases, there are many incidences of PTB, which have been occurred in several cities of Indonesia, for instance Bengkulu province. In Bengkulu, particularly between 2018 to 2020, the number of tuberculosis's suffers has been an increase rapidly. This, a frightening disease, which requires

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immediate treatments. All sufferers experienced breathlessness are due to the accumulation of secretions in the airway[2]. In 2020, data obtained from Public Health Centers in Bengkulu desiphered the number of Pulmonary Tuberculosis cases, which classified based on sexes, districts, and cities; South Bengkulu was 2,110 people, Rejang Lebong 2,561, North Bengkulu 1,917, Kaur 2,062, Seluma 1,769, Mukomuko 2,625, Lebong 1,443, Kepahiang 1,142, Cental Bengkulu Tengah 981, and Bengkulu city 4,398[3].

Based on all above upon, this research aims to investigate a technique to reduce the breathlessnees on PBT patients underlying the motives to compare the effectiveness of effective cough and Yoga breathing exercises for reducing the breathlessness on tuberculosis patients at Regional Public Hospital, Dr. M. Yunus, Bengkulu.

Methods

This research was a type of quantitative research with a quasy-experimental design; it used a form of non-equivalent control group design (non-randomized control group pretest-posttest). The research population was men and women who suffered from tuberculosis or have complaint of breathlessness at Regional Public Hospital, Dr. M. Yunus, Bengkulu. The chosen samples were 74 patients; 34 for intervention group and 34 patients were used for control group.

Our main research target aims to compare the effect of treatments between the subject group who given with intervention I (effective cough), and subject group with intervention II by giving treatment with Yoga breathing exercises.

Findings

Based on our analysis results on univariate to determine the frequency of distribution between effective cough, Yoga breathing exercises, and reduction of breathlessness on tuberculosis patients, as follows

Table. 1. Comparison: Frequency of Distribution, with (n-74)

No	Action	Amount (n)	Percentage (%)
1.	Cough Effective (CE)	37	50.0%
2.	Yoga Breathing Exercise (YBE)	37	50.0%
Total		74	100.0

As shown from the Table.1 above described the comparison of distribution percentages; half of respondents 37 (50.0%) on tuberculosis patients at Regional Public Hospital, Dr. M. Yunus, performed an effective cough. Similarly, the result of Yoga breathing exercises, its distribution showed 37 (50.0%).

From the results of bivariate analysis, which conducted to determine the difference the decreased of breathlessness between effective cough and Yoga breathing exercises on tuberculosis patients at RSUD DR. M. Yunus Bengkulu, as follows

Effective Cough Frequency Distribution

This vividly describes the differences of breathlessness before and after giving treatments of effective cough and Yoga breathing exercises at Matahari room, Regional Public Hospital, DR.M. Yunus, which given within May-August 2020, with (n = 37.

Table 2. Comparison of Breathlessness, with (n-37)

Group	Mean (mg/dl)	St. Deviation	t	Sig (2-tailed)
Effective Cough				
Before	4.05	0.78	8.99	.00
After	2.30	0.93		
Yoga Breathing				
Before	4,14	0,71	9,72	.00
After	2,84	0,76		

The results of analysis as described from the table above, the average value of breathlessness of group before giving the effective cough intervention was 4.05. Meanwhile, after giving effective cough exercise, its value was 2.30. This vividly showed that there was a decrease or significant difference (Sig, 0.00) of breathlessness after giving effective cough intervention.

Furthermore, this is similar to the phases of invervention with Yoga breathing exercise, eventhough there was a small change the number of figure. Our analysis showed the average of breathlessness before giving Yoga practice was 4.14. Thus, there was a decreased after giving Yoga breathing exercise, as shown with 2.84. This result indicated that there was a significant different (Sig, 0.00) of breathlessness on PTB patients after giving the treatment by using Yoga breathing exercse (YBE).

Characteristics of Respondents

Based on the data obtained of univariate analysis that the results were much influenced by age factor as shown from the average age of respondents; the oldest patients with 50 years old, and youngest patients, 20 years old. These indicated that there was a significant age range for Tuberculosis patients. In India, 80% or mostly tuberculosis cases occurred on patients who were more than 45 years old[4], which happened due to the decrease of lung function and along with increasing of age with risky disease that triggered tuberculosis on patients. This is unsimilar to the finding[5], which stated that the age of more than 45 years is a risk of suffering from tuberculosis. In short, this research sums up with a relative age; on the age of 20 years there could be tuberculosis**.**

The gender who participated in this research were women who had a greater proportion, namely those who have given effective coughing 62.1% of 23 respondents, while Yoga Breathing Exercise was 67.6% of 25 respondents. Furthermore, men group who were effective with cough 37.9% of 14 respondents, and Yoga Breathing Exercises 32.4% of 12 respondents. The proportion of tuberculosis incidence is relatively higher amongst females than males. This result is different with Lubkin's findings (2009)[6], because mostly tuberculsosis attacks on men than women; his findings were caused by some reasons, for instance a lot of people smoke, and work outside of home, which were regardless of their health[7].

Effective Cough and Decreased of Breathlessness

The results showed that there were differences results between effective coughing (EC) and Yoga breathing exercises (YBE) on decreasing breathlessness on tuberculosis patients at Regional Public Hospital, DR. M. Yunus, Bengkulu. Cough is caused by acute respiratory tract infection (ARTI) improves within 3 weeks toward 90% of patients. Infection of pertussis is suspected by previous immunized adults with persistence or severe cough for 2 - 3 weeks. If there is no treatment with ACE inhibitors, acute respiratory tract infections and abnormal chest radiology, up to 90% of cases of persistent cough are caused by postnasal drip, ARI or gastroesophageal reflux disease (GERD). History of nasal or sinus congestion, wheezing or a burning sensation in the heart (heartburn) should be quickly evaluated and treated[8].

This condition often causes a persistent cough in a cough state with no other visible symptoms. Bronchogenic carcinoma is suspected when coughing with unexplained weight loss, fever with night sweats, especially amongst people with a history of smoking and exposure.

Persistent cough accompanied by mucus secretions that are often suspected by chronic bronchitis amongst smokers or bronchiectasis on patients with a history of recurrent pneumonia or complications, chest radiology, those can help. Dyspneu at rest or activity is generally absent on patients with persistent cough. Thus, Dyspneu requires assessments of further evidences of chronic lung disease or congestive heart failure[9]. The purpose of

Effective Cough is a cough technique that emphasizes the maximum inspiration starting from expiration, with the aim of stimulating the opening of collelateral system, increasing the distribution of ventilation, lung volume, and facilitating cleaning of respiratory tract[10].

Effective coughing (EC) and deep breathing exercises (DBE) are effective coughing techniques that emphasize maximal inspiration starting from expiration. These are aimed at stimulating the opening of collateral system, increasing ventilation distribution, and lung volume and facilitating airway clearance and lung expansion, and mobilizing secretions, and also preventing side effects. All these, from retention of secretions, such as pneumonia, ateletaksis and fever. This research is supported by some researches like Donesky-Cuenco D1, Nguyen HQ, Paul S, Carrieri-Kohlman V. Yoga therapy can reduces stress-related dyspnea and improve functional performance on people with chronic obstructive pulmonary disease. This finding is accordance with Purwanti's finding (2006)[11], her research analysis defines that cough is effective in reducing congestion in COPD patients. Moreover, effective cough is quite effective for reducing breathlessnees than Yoga breathing exercises on tuberculosis patients.

Based on the results of discussion above, our findings devote that effective coughing is more effective than Yoga breathing exercise for reducing breathlessness on tuberculosis patients.

Conclusion

Based on the theoretical description and research findings above. This outlines some important points of conclusion: (1) The characteristics of respondents in this research were mostly female, with the age range between 20-30 years. (2) There was the difference the decreasing breathlessness on tuberculosis patients before and after given effective cough and Yoga breathing exercises. (3) There was a difference on reducing the breathlessness with effective coughing and Yoga breathing exercises. (4) This study devotes the effective cough technique is more effective to reduce the breathlessness than Yoga breathing exercises on tuberculosis patients.

Suggestion

Regarding to the results of our findings in this research, it recommends in particularly at Regional Public Hospital, DR. M. Yunus of Bengkulu to implement the effective cough therapy and Yoga breathing exercises toward pulmonary tuberculosis patients who got breathlessness. For nurses or healthcares, both techniques can contribute to the development of comprehensive nursing care for tuberculosis patients; both outpatient and inpatient health services that focus on reducing symptoms and preventing recurrences. Therefore, this gives some important points in term of EC and YBE' practice, as follows

a. It is expected that the provision of effective cough therapy and Yoga breathing exercises toward tuberculosis patients can be carried out as early as possible after having free from the acute phase. Moreover, this can be carried out within daily activities.

b. Within its implementation should involve family participation to provide supports and care for patients, especially tuberculosis patients.

c. It is expected to be a counseling and facilitator for tuberculosis patients in increasing daily activities.

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Conflict of Interest: The authors have declared that there is no conflict of interest in term of results of publication as well.

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