Nutrition Consultation and Egg White Extras at the Knowledge and Albumin Level Pulmonary Tuberculosis (Tb) Patients in the Irna Room, RSUD Dr. R. Soedarsono, Pasuruan City

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Abstract: *Tuberculosis (TB) is a lung infection characterized by pulmonary infiltrates and caseous granuloma formation, fibrosis and cavity. Extra egg white administration can increase serum albumin levels by an average of 1.13 g / dL. Nutrition counseling is very important given to increase knowledge and change attitudes or behaviors of pulmonary TB patients. The purpose of this study was to determine the effect of giving nutritional counseling and extra egg white to the knowledge and levels of albumin in pulmonary tuberculosis (TB) patients in the IRNA room of the RSUD dr. R. Soedarsono, Pasuruan city. This research is a quasi-experimental study (quasi experimental) with the research design used is the Desaign Group Pretest-Posttest Control. From the Wilcoxon statistical test the Asymp. Sig value is obtained. (2-tailed) of 0.001 <0.05, so Ho is accepted as meaning there are differences in the level of knowledge before and after obtaining nutritional counseling and the value of Asymp.Sig is also obtained. (2-tailed) of 0.001 <0.05, then Ho is accepted by means of differences in albumin levels in the treatment group. Conclusion: There is an effect of nutritional counseling on the knowledge of control and treatment respondents before and after being given nutritional counseling. There was a difference (increase) in pre and post albumin levels given extra white egg in the treatment group with an average increase of 0.21 g / dl.*

Keywords: nutritional counseling, extra egg white, knowledge, albumin

INTRODUCTION

Tuberculosis (TB) is a pulmonary infection characterized by pulmonary infiltrates and the formation of caseous granulomas, fibrosis, and cavities. In 2013 the prevalence of TB cases was almost 9 million TB cases and 1.5 million TB deaths and 360,000 deaths with positive human immunodeficiency virus (HIV) (Simbolon, 2016). In 2013 there were an estimated 3.3 million cases of TB and 51,000 deaths in women. And there were 550,000 cases of TB and 80,000 deaths in children. Indonesia is the fifth country with the highest number of pulmonary TB patients in the world. The prevalence of the Indonesian population diagnosed with pulmonary TB in 2013 was 0.4%. Based on population characteristics, the prevalence of pulmonary TB tends to increase with increasing age, low education and not working (Prastowo, 2016).

The nutritional status of the patient can be measured by calculating the Body Mass Index (BMI) and checking albumin levels. Albumin can be used as a classic indicator of malnutrition. An albumin level of less than 3.0 g/dl indicates a worse prognosis in the presence of malnutrition. Low albumin levels are found in malnutrition due to malabsorption, namely incomplete absorption of food from the digestive tract (small intestine)

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into the bloodstream which causes malnutrition, as occurs in pulmonary tuberculosis (Wokas, et al. 2015). One of the factors that influence the incidence of pulmonary TB is nutritional status. Poor nutritional status will increase the risk of TB disease, otherwise pulmonary TB disease can affect the nutritional status of patients (Dias, et al. 2015). Increased levels of albumin is very important for patients with pulmonary TB, in addition to improving the nutritional status of albumin in the body, it will also replace damaged body cells eaten by the TB virus and will become antibodies in the body of people with pulmonary TB, as an anti-inflammatory and as an antioxidant. A preliminary study conducted on TB patients with hypoalbumin at Prof. Hospital. Dr. Margono Soekarji Purwokerto showed that the addition of egg whites can increase serum albumin levels by an average of 1.13 g/dL (Prastowo, 2016).

The important thing besides increasing albumin levels to improve the nutritional status of pulmonary TB patients is nutritional counseling. Nutrition education is very important to be given to increase knowledge and change attitudes or behavior of pulmonary TB patients. Nutrition counseling is given to help understand the knowledge of balanced nutrition in pulmonary TB patients and provide motivation to recover and improve compliance in carrying out treatment or other medical therapies. Nutrition counseling is easy and effective in stabilizing the nutritional status of pulmonary TB patients (Cornelia, et al. 2013). There is a significant difference between knowledge about medication adherence in pulmonary TB patients before and after receiving nutrition counseling, there is a significant difference in attitudes about medication adherence in pulmonary TB patients before and after receiving counseling (Loriana, et al. 2012).

RSUD dr. R. Soedarsono, Pasuruan City is a type C government hospital and the only government hospital in Pasuruan City. RSUD dr. R. Soedarsono, Pasuruan City has a bed capacity (TT) of 259 beds with a Bed Occupancy Rate (BOR) of 64.35%. Pulmonary Tuberculosis (TB) is included in the 10 biggest diseases or can be said to be the disease with the tenth highest number of patients at RSUD dr. R. Soedarsono, Pasuruan City with a number of 300-500 patients per year with a total of 4.1 percent of patients being treated until the patient's condition improves from before.

Based on the description above, the researchers are interested in conducting further research regarding the provision of nutritional counseling and the addition of egg whites on knowledge and albumin levels in pulmonary tuberculosis (TB) patients in the IRNA room of RSUD dr. R. Soedarsono, Pasuruan City.

METHODS

This research is a quasi-experimental research (quasi-experimental). While the research design used is the Pretest-Posttest Control Group Design. The sample in this study were all pulmonary tuberculosis (TB) patients who were hospitalized in the IRNA room of RSUD dr. R. Soedarsono Pasuruan City. Data were analyzed using Wilcoxon statistical test.

RESULTS AND DISCUSSION

1. Characteristics of respondents

Table 1. Distribution of Respondents by Gender

Gender	Control Group		Treatment Group		Total	
	n	%	n	%	n	%
Man	8	53,3	14	93,3	22	73,3
Woman	7	46,7	1	6,7	8	26,7
Total	**15**	**100**	**15**	**100**	**30**	**100**

Processed data, 2018

Table 2. Distribution of Respondents by Age

Gender	Control Group		Treatment Group		Total	
	n	%	n	%	n	%
20-30 years old	1	6,7	0	0	1	3,3
31-40 years old	1	6,7	1	6,7	2	6,7
41-50 years old	2	13,3	3	20	5	16,7
51-60 years old	7	46,7	7	46,7	14	46,7
>60 years old	4	26,7	4	26,7	8	26,7
Total	**15**	**100**	**15**	**100**	**30**	**100**

Processed data, 2018

Table 3. Distribution of Respondents by Education Level

Level of Education	Control Group		Treatment Group		Total	
	n	%	n	%	n	%
Elementary School/ Equivalent	4	26,7	6	40	10	33,3
Junior High School / Equivalent	5	33,3	1	6,7	6	20
Senior High School / Equivalent	6	40	8	53,3	14	46,7
Total	**15**	**100**	**15**	**100**	30	100

Processed data, 2018

2. Respondent's Level of Knowledge

Table 4. Distribution of knowledge level of respondents before and after receiving nutrition counseling

Level of Education	Control				Treatment			
	Pre test		*Post test*		*Pre test*		*Post test*	
	n	%	n	%	n	%	n	%
Less	7	46,7	0	0	8	53,3	0	0
Enough	8	53,3	10	66,7	7	46,7	9	60
Good	0	0	5	33,3	0	0	6	40
Total	**15**	**100**	**15**	**100**	**15**	**100**	**15**	**100**

Processed data, 2018

3. Respondent's Albumin Level

Table 5. Distribution of Laboratory Results of Respondents' Albumin Levels Before and After Treatment

Albumin level	Control Group (*pre-post*)		Treatment Group (*pre-post*)	
	n	%	n	%
Decrease	8	53	0	0
Permanent	1	6,7	0	0
Increase	6	40	15	100
Total	**15**	**100**	**15**	**100**

Processed data, 2018

4. The results of the Wilcoxon statistical test analysis using SPSS in the control group and the treatment group obtained the Asymp.Sig value. (2-tailed) of 0.001 <0.05 then Ho is accepted, meaning that there are differences in the level of knowledge before and after receiving nutrition counseling.
5. The results of the Wilcoxon statistical test analysis using SPSS in the control group obtained the Asymp.Sig value. (2-tailed) of 0.490 > 0.05, then Ho is rejected, meaning that there is no difference in albumin levels in the control group.
6. The results of the Wilcoxon statistical test analysis using SPSS in the treatment group obtained the Asymp.Sig value. (2-tailed) of 0.001 < 0.05, Ho is accepted, which means that there are differences in albumin levels in the treatment group before and after getting additional egg whites for 3 consecutive days.

1. Characteristics of respondents

Based on Table 1. it is known that the control group of respondents with male sex is 53.3% and female is 46.7%. While in the treatment group, respondents were 93.3% male and 6.7% female. This is related to the number of male pulmonary TB patients treated at RSUD dr. R. Soedarsono Pasuruan City is more dominant in the female gender. In general, the average gender of the respondents in this study was 73.3% of respondents with pulmonary TB were male, while only 26.7% were female. Respondents with the most male sex were obtained from the treatment group while the most female sex was obtained from the control group. This study is in accordance with the research of Prastowo, et al (2016) which stated that most of the pulmonary TB patients sampled were male. The data of this study is also directly proportional to the data of patients in RSUD dr. R. Soedarsono Pasuruan City related to the gender of pulmonary TB patients being treated. The data collection or entry section explained that every month pulmonary TB patients undergoing treatment at RSUD dr. R. Soedarsono Pasuruan City with more males than females. According to Manurung, et al (2009) stated that the sex of male pulmonary TB patients was almost twice that of female pulmonary TB patients, namely 42.34%. Pulmonary TB is more common in men than women because most men have a smoking

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habit, which increases the risk of developing pulmonary TB.

Based on Table 2. It is known that the control group of respondents with the age group of 20-30 years and 31-40 years is 6.7%, the 41-5 year age group is 13.3%, the 51-60 age group is 13.3 %. 46.7% and the age group of 0.60 years by 26.7%. While the treatment group of respondents with the age group of 20-30 years was 0%, the age group 31-40 years was 6.7%, the age group 41-50 years was 20%, the 51-60 year age group was 46.7% and age 0.60 years by 26.7%. In general, the average age group with the most pulmonary TB disease ranges from 51-60 years. In the control group, the most pulmonary TB patients were in the 51-60 years age group by 46.7% and the lowest pulmonary TB patients in the 20-30 years and 31-40 years age groups respectively 6.7%. While in the treatment group, the most pulmonary TB patients were in the 51-60 years age group by 46.7% and the lowest pulmonary TB patients in the 31-40 years age group at 6.7%. This study is in accordance with the research of Loriana, et al (2012) which states that the age of the respondents who are used as research samples are partly in the 41-60 year age group. Another study that is in accordance with this research is the research of Prastowo, et al (2016) which also states that the age of the respondents who became the largest research sample was in the 50-60 year age group. The data of this study is also directly proportional to the results of the recapitulation of the Medical Record Installation of RSUD dr. R. Soedarsono, Pasuruan City, related to the age of patients with a medical diagnosis of pulmonary TB, where the male and female sexes were mostly 50-60 years old. According to Manurung, et al (2009) stated that in Indonesia 75% of pulmonary TB patients are in the productive age group, namely 15-50 years. Where in the productive age humans do more activities or activities. At the productive age the activity is very high and the environmental conditions will be more supportive. An unhealthy environment and the type of work that is too heavy or even associated with the risk of pulmonary TB are the main causes of the development of pulmonary TB.

Based on Table 3. the education level of respondents in the control group, respondents with an elementary education level/equivalent is 26.7%, with a junior high school education level/equivalent of 33.3% and a high school education level of 40%. Meanwhile, in the treatment group, the results obtained were 40% for the respondents' education level of SD/Equivalent, 6.7% for the education level of SMP/Equivalent and 53.3% for the education level of SMA/Equivalent. This shows the distribution of respondents with pulmonary TB at various levels of education. In general, the education level of respondents who suffer from pulmonary TB is known to be 33.3% elementary school/equivalent, 20% junior high school/equivalent and 46.7% high school/equivalent. The highest education level in the control group was at the high school level/equivalent and the lowest education level was elementary school/equivalent. In contrast to the control group, in the treatment group the lowest education level was at the junior high school/equivalent level and the largest was the same as the control group, namely at the high school/equivalent level. This study is not in accordance with the research conducted by Dias, et al (2015) which stated that the highest education level of the respondents sampled was SD/equivalent. Meanwhile, in this study, the largest respondent's education level was SMA/equivalent. According to Manurung, et al (2009) states that a person's level of education will affect a person's knowledge, including about a house that meets health requirements and knowledge about pulmonary TB disease so that with sufficient knowledge, a person will try to have a clean and healthy place to live. healthy lifestyle. In addition, a person's level of education will affect the type of work. The better the level of formal education in the community will indirectly reduce the morbidity and mortality rate because with a good level of education it is able to absorb information and increase public awareness to live healthier and

participate actively in maintaining their health.

2. Respondent's level of knowledge

Based on Table 4. the level of knowledge of respondents in the control group before receiving nutrition counseling in the less category was 46.7%, the sufficient category was 53.3% and the good category was 0%. For the level of knowledge after receiving nutrition counseling on the second day of observation, the level of knowledge of the respondents in the less category was 0%, with the moderate category increasing by 66.7% and in the good category by 33.3%. While the level of knowledge of respondents in the treatment group before receiving nutrition counseling was in the less category of 53.3%, with a sufficient category of 46.7% and in the good category of 0%. For the level of knowledge of respondents in the control group after receiving nutrition counseling on the second day of observation, the level of knowledge in the less category was 0%, with the sufficient category increasing by 60% and in the good category by 40%. This is related to the need for nutritional counseling in patients with a medical diagnosis of pulmonary TB to increase appetite even in a state of nausea to maintain nutritional status and improve dietary compliance as well as treatment and prevention of pulmonary TB. In general, the average level of knowledge of respondents before receiving nutrition counseling was 46.7% in the poor category and 53.3% in the sufficient category, for the good category 0%. While the level of knowledge of respondents after receiving nutrition counseling on average increased by 0% in the less category where before nutrition counseling there were still some respondents with the category of poor knowledge level. For the medium category it increased by 66.7% and for the good category it increased by 33.3% from before getting nutrition counseling. The increase in the percentage of respondents' knowledge level is supported by several factors, including support from family, support from fellow respondents and the patient's ability to remember the counseling that has been given by the researcher This happened because the respondent's room was in the form of a semi-ward (1 large room containing 4-6 patients). When researchers conducted nutrition counseling, many respondents were accompanied by their families, be they their wives, husbands, children, even nephews and grandchildren. Some of these factors are also the effect of increasing the percentage of respondents' knowledge levels. This study is in accordance with Kurnia's research, 2014 where in this study there were significant differences in knowledge about medication adherence in pulmonary TB patients after and before receiving nutrition counseling. Another study that is in accordance with this research is the research of Loriana, et al (2012) which concludes that there are differences in the level of knowledge of respondents before and after receiving nutrition counseling. According to Supariasa, 2012 states that nutrition counseling is a broad-dimensional process to change people's behavior so that good eating habits can be applied in everyday life. Saleem (2012) in Kurnia, 2014 also stated that nutritional counseling is easy and very effective in stabilizing the nutritional status of pulmonary TB patients. Based on direct interviews with respondents, both control and treatment groups, it was found that after receiving nutrition counseling and motivation to increase food intake, diet management and TB treatment, respondents became more motivated to increase food intake and additional egg whites. given as an alternative to increase albumin levels. In addition, respondents also stated that after being given nutrition counseling, respondents became more aware of how to prevent TB and treat TB patients until the patient recovered. According to Kurnia, 2014 states that although some respondents have received nutrition counseling, sometimes they still do not understand what we mean, for that we as personnel who will provide nutrition counseling must use clear material and use sentences or language that is easily understood by respondents.

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3. Respondent's albumin level

Based on Table 5, it is known that in the control group, pre and post albumin levels varied. Albumin levels decreased by 53%, which remained at 6.7% and increased by 40%. Meanwhile, in the treatment group that was given additional egg white for 3 days, albumin levels decreased and remained 0% and albumin levels increased by 100%. That is, respondents with the treatment group experienced an increase in albumin levels after being given additional egg white for 3 consecutive days as much as 250 g/day. This is related to the need for additional egg whites and the motivation to consume them for patients with pulmonary TB as an alternative to improving nutritional status. In general, the average albumin levels of respondents before and after the control group and the treatment group were different. In the control group the average increase in albumin levels was 0.28 g/dl and the average decrease in albumin levels was 0.29 g/dl. While the pre- and post-treatment groups for 3 days of monitoring all experienced an increase with an average increase of 0.21 g/dl. According to Muchtadi, 2009 that the most protein-containing food sources come from animal foods, such as eggs, milk, meat, poultry, fish and shellfish. This study is in accordance with research conducted by Prastowo, et al (2014) which states that there are differences in albumin levels in the two groups (control and treatment groups). In the control group, all study subjects experienced an increase in albumin levels with an average increase of 0.70 g/dl. It is known that albumin in eggs (ovoalbumin) is found in the white part of the egg more than the yolk. White chicken eggs in every 100 g contain an average of 10.5 g protein, 95% of which is albumin or 9.83 g (Muchtadi, 2009). According to Prastowo, 2014 stated that egg white is effective for increasing albumin levels in pulmonary TB patients with hypoalbumin. Increased albumin can reduce patient complaints such as shortness of breath and cough. Based on interviews with the treatment group, it was found that after getting additional egg whites for 3 consecutive days, namely 250 g/day, respondents' complaints such as coughing and shortness of breath decreased. Supported by the patient's physical condition getting better, on the first day the patient was treated with complaints of shortness of breath using a spontaneous O2 device on the third day the patient no longer used it.

CONCLUSIONS

Based on Wilcoxon statistical analysis of nutrition counseling on the level of knowledge of respondents there is a significant relationship with the value of Asymp.Sig. of 0.001 <0.05, which means that there is an effect of nutritional counseling on the level of knowledge of respondents, and based on Wilcoxon statistical analysis of additional egg white on respondents' albumin levels there is a significant relationship with the Asymp.Sig value. of 0.001 <0.05, which means that there is an effect of giving additional egg whites to the respondents' albumin levels.

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