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"New Direction in Management of Cardiovascular Disease and Comprehensive Approach to Obesity "

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Preface

This 3rd International Conference on Translational Medicine and Health Sciences (ICTMHS) Faculty of Medicine, Universitas Diponegoro (ICTMHS 2019) held in Semarang, Indonesia on October 12-13, 2019. ICTMHS has specific theme : New Direction in Management of cardiovascular disease and comprehensive approach to obesity. This conference series provided an international forum to present, discuss, disseminate, and exchange innovative ideas and recent development in the field of translational medicine and health sciences. This conference also provided participants opportunities to develop their professional networks, learn from other colleagues and meet leading personalities in medicine and health sciences. The participants of this conference were included: health practitioners (nutritionist, doctor, nurse, psychiatrist, pharmacist, etc), lecturers from health education institutions, researchers from multidisciplinary studies (biology, physics, chemistry, engineering, etc), and health science students.

International Conference on Translational Medicine and Health Sciences (ICTMHS) 2019 proceeding span over 3 topics: Nutrition, Medicine, and Nursing which are balanced in content, manageable in term of number of contributions, and create an adequate discussion space for trending topics. Effort taken by peer reviewers contributed to improve the quality of papers by provided constructive critical comments, improvements and corrections to the authors are gratefully appreciated. We are very grateful to the ICTMHS advisory committee, technical committee, student and administrative assistants from institute management who selflessly contributed to the success of this conference. Also, we are thankfull to all of the authors who submitted papers so the conference became success. It was the quality of their presentations and their passion to communicate with others participants that really made this conference series a grant success.

Last but not the least, we are thankful for the enormous support from Faculty of Medicine, Universitas Diponegoro for supporting in every step of our journey towards success. Their support was not only the strength but also an inspiration for organizers.

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Nutritional Status and Dental Caries among Islamic Primary School Children

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ABSTRACT

Background: The caries condition that occurs in children can cause a condition of malnutrition. Teeth that are not well formed, dated, or painful due to caries can cause inadequate food consumption. Children who lose some of their teeth cannot eat well and often cannot eat except soft food, then followed by indigestion and imperfect health conditions, which have implications for children's nutritional status. This study aimed to analyse the relationship between nutritional status and caries status of the Islamic Primary School children.
Materials and Method: School children aged 10-12 were selected from a Islamic Primary School in East Java as the study sample with a total 112 responden. Anthropometric measurements were taken using digital scales for weight and microtoice for height. The nutritional status was calculated using the standard of Z-Score (BMI/Age). Dental caries were diagnosed in primary dentition according to World Health Organization criteria and in permanent dentition according to the DMF-T index. Overall, the measured BMI, height, and weight of each subject were recorded at the same time of the clinical examination. Statistical test used Mann-Whitney U test. **Results:** The results of the nutritional status analysis showed that 66.1% participants were normal, 16.1% were obese, 13.4% were overweight, and 4.4% were thin. The prevalence of dental caries was 100% in nutritional status that is relatively thin, 89.2% in normal, 80.0% in overweight and 72.2% in obese students.
Conclusion: There were significant differences in nutritional status between the caries and non-caries groups (p=0,034).

Keywords: dental caries; normal weight; overweight; obese.

INTRODUCTION

The national prevalence of oral and dental problems is still very high in Indonesia. Which is 25.9 percent, as many as 14 provinces have a prevalence of dental and oral issues above the national figure. Overall the ability to obtain services from dental medicine personnel is 8.1 percent (EMD). To brush your teeth properly is after breakfast and before going to bed at night for Indonesian only 2.3 percent is found. The DMF-T index describes the severity of tooth decay. The national prevalence of the DMF-T Index is 4.6. A total of 15 provinces have a prevalence above national incidence.[1]

Caries is a hard tissue disease caused by the activity of microorganisms, especially *Streptococcus mutans* (*S. mutans*) and is one of the problems that often occur in the oral cavity. The activity of these microorganisms is influenced by the state of the oral cavity such as diet, saliva and tooth condition.[2] The caries condition that occurs in children can cause a condition of malnutrition. Teeth that are not well-formed, dated, or painful due to caries can cause inadequate food consumption. Children who lose some of their teeth cannot eat well, and often cannot eat except soft food. It is followed by indigestion and imperfect health conditions, which have implications for decreasing children's nutritional status.[3]

One indicator that shows that there has been a balance of nutrients in the body is the achievement of normal weight, which is the bodyweight that is appropriate for the height of the body. Therefore, normal BB monitoring is something that must be part of the 'Lifestyle' with 'Balanced Nutrition'. So that it can prevent BB irregularities from normal BBs, and if there are irregularities, steps can be taken to avoid and deal with them.[4] There was relathionship between nutritional status and the level of dental caries in kindergarten students.[5] The caries index on average in the group of students with

malnutrition status was 8.1, which was included in the very high category compared to good nutritional status.[6] This study aims to analyse the relationship between nutritional status and caries of a child's primary school teeth.

MATERIALS AND METHODS

Population and Subjects

This study was an observational study with a cross-sectional design. This research was conducted in one of the Ibtidaiyah Madrasas (MI) of East Java. This research was conducted on May 2019. Population The subject of this study were MI students with inclusion criteria were elementary school children aged 10-12 years so that the total respondents were 112 children.

Caries Examination and Anthropometric Measurement

The variables studied were variable nutritional status (BMI/U) and dental caries status (DMF-T index). Variable nutritional status was determined by measuring the weight with a digital scale with an accuracy of 0.1 kg and height measurements using microtoice with the accuracy of 0.1 cm. BMI obtained is calculated using the formula BB / TB (m^2) in units of kg / m^2. Determination of nutritional status (BMI/U) using WHO 2005 anthropometric standards to determine the nutritional status of MI Students. The classification of nutritional status (BMI/U) based on standard deviation (SD) as follows: Thin (<-2 SD), Normal (-2 SD up to 1 elementary school), Overweight (>1 SD to 2 SD), and Obese (>2 SD). While the variable dental caries status is a condition of tooth tissue damage determined by a clinical examination by a dentist. Caries status was assessed by the Decayed-Missing-Filled Teeth (DMF-T) index.

Statistical Analysis

Data processing and analysis using Microsoft Excel® 2007 and SPSS 16. Statistical tests use two types of analysis, namely univariate and bivariate analysis. Univariate analysis was used for characteristic variables of the research subjects. The bivariate analysis used the Mann Whitney test for variable relationships between nutritional status variables and dental caries.

This study received approval from the health research ethics commission in Dr. Moewardi Hospital, Faculty of Medicine, Sebelas Maret University with number 393 / III / HREC / 2019.

RESULTS

The research respondents were dominated by the female sex, which was as much as 58%. MI students who experienced dental caries were 96 (85.7%) respondents, as seen in Table 1. The majority of respondents had normal nutritional status (66.1%), but there were 16.1% of respondents classified as obese, 13.4% overweight and 4.4% thin.

Table 1. Respondent Characteristics

	Variable	n	Percentage
1.	**Gender**		
	Male	47	42%
	Female	65	58%
2.	**Caries Status**		
	Non caries	16	14.3%
	Caries	96	85.7%
3.	**Nutritional Status**		
	Thin	5	4.4%
	Normal	74	66.1%
	Overweight	15	16.1%
	Obese	18	13.4%

Table 2. Distribution of Nutritional Status and Dental Caries

Nutritional Status	Caries Status				Jumlah		*p* value
	Non Caries		Caries				
	n	%	n	%	N	%	
Thin	0	0	5	100	5	100	
Normal	8	10.8	66	89.2	74	100	0.034*
Overweight	3	20.0	12	80.0	15	100	
Obese	5	27.8	13	72.2	18	100	

**Statistically significant*

Table 2 shows that there were significant differences in nutritional status between caries and non-caries groups (p = 0.034). This result indicates that there is a significant relationship between nutritional status and caries status of MI children. The results of the distribution in Table 2 also show that 100% of children with underweight nutritional status experience caries. Whereas those who experienced caries in normal nutritional status were 89.2%, 80.0% in nutritional status were overweight, and 72.2% in the nutritional status of obese.

DISCUSSION

The results of this study indicate p-value <0.05, which means that there are significant differences in the nutritional status of MI students who experience caries and non-caries. This result shows that the nutritional status of children can be affected by dental caries. Which dental caries in children can disrupt the digestive process and eating difficulties that disrupt the growth and development of children.

This result is similar to Damanik and Noverini research (2009), Wahyudi et al. (2017) and Mishu et al. (2013), that stated there was a significant difference between the nutritional status of children affected by dental caries and children who were not dental caries in elementary school.[7,8,9] The result of dental caries is the disruption of the masticatory function (mastication). Children with disturbed masticatory functions will avoid or choose certain foods, so that food intake will decrease and will affect children's nutritional status. Age children Primary schools that experience dental caries will experience tooth pain so that they will choose foods in soft form. This condition is due to a disruption in the function of the teeth. Even some children have a decreased appetite. This condition will result in the selection of the types and forms of food to be consumed so as not to cause pain when eating.[10,3]

Most of the respondents in this study were classified as normal nutrition status, and all children with underweight nutritional status experienced dental caries (100%). This result is supported by the Achmad et al. (2016), Adeniyi et al. (2016) and Köksal et al. (2011).[11,12,13] Which also stated that underweight school children have higher risk of dental caries compared to overweight and obese nutritional status, even twice as risky.[14] Longitudinal studies conducted in Cambodia, Indonesia and Lao PDR in 1499 students stated that child nutritional status was less associated with the incidence of dental caries and dental conditions that tended to be poorly maintained.[15] But these results are different from Benr et al. 2013 and Nascimento 2015, which stated that nutritional status was more at greater risk of experiencing dental caries and periodontitis than lack of nutritional status. This difference occurs because of the causes of multifactorial dental caries. These factors are the host or host factors (saliva and teeth), agent factors (microorganisms), substrates or diets that contain sugar, as well as time factors.[16]

The results of this study also indicate that caries can occur in malnutrition or more. This result is supported by Karki et al. (2019), which states that the incidence of caries occurs in children with low BMI or more. This event is closely related to the consumption of sweet foods and the absence of routine dental care such as toothbrushes.[17]

Nutrition has an important role during the growth and development of the body of the child in general and especially in the oral cavity. Adequate nutritional intake is needed during the early days of growth. So that when a nutritional imbalance arises can lead to prolonged and persistent effects on biological functions and hard tissue structures and soft mouth and salivary glands.[18]

Many factors cause an increase in dental caries in protein and energy malnutrition. This condition can reduce salivary flow, affect the composition of saliva, change the immune system and increase solubility in the acid e-mail. The immune system protects teeth in the oral cavity, where the components produced by saliva are the most important role in the immune system in the oral cavity. In saliva, it does not only contain antibodies in the form of secretory immunoglobulin A (sIgA) which play a role in protecting teeth. There are also components that are not specific, which have a role in protecting teeth from caries. If a person's nutritional intake is reduced, it will disrupt the teeth's defence system, and caries will occur.[19, 20 , 21]

CONCLUSION

There is a significant relationship between nutritional status and caries status in MI students. The management needs to conduct socialization of maintaining oral health especially teeth to avoid underweight school children.

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Effect of HILT and LLLT in Improving Quality of Life in the Carpal Tunnel Syndrome

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ABSTRACT

Introduction: Carpal tunnel syndrome (CTS) is the most common form of chronic focal compression neuropathy in the peripheral nerves. Complaints of tingling, numbness and pain can cause disability that lead to decrease in quality of life (QoL). One type of conservative therapy that can be given is laser therapy. Type of laser therapy are high intensity laser therapy (HILT) and low level laser therapy (LLLT). The aim of this study is to compare the effect of two type of laser therapy on the QoL in CTS. **Method**: Nineteen patients were divided into two groups randomly, HILT and LLLT group. Both groups were given treatment five days a week for two weeks with each therapeutic dose. SF-36 questionnaire was used to evaluate the QoL before and after intervention in both groups. **Results**: There is significant difference before and after intervention in HILT group in domain energy fatique ($p<0.001$), emotional well-being ($p=0.012$), pain ($p=0.023$) and general health ($p=0.008$). There is also significant difference before and after intervention in LLLT group in energy fatique ($p=0.021$), emotional well-being ($p=0.021$) and general health ($p=0.026$). There is no significant difference between two groups. **Conclusion**: Both HILT and LLLT improve QoL in the Carpal Tunnel Syndrome patient.

Keywords: carpal tunnel syndrome; laser therapy; quality of life.

INTRODUCTION

Carpal tunnel syndrome (CTS) is an entrapment neuropathy of the median nerve at the wrist, with symptoms of tingling, numbness, pain and burning in the aspects of the thumb palmar, index finger, middle finger and radial side of the ring finger due to local compression of the nerves the median in the carpal tunnel. CTS is the most common compression neuropathy in the upper extremity (Zhao & Burke, 2015).

The prevalence of CTS in UK primary care in 2013 was 36.08 per 10 000 person with crude incidence 27.68 per 10.000 person (Burton et al., 2013). The prevalence in US working populations is generally higher than in the general population. Prevalent CTS among manufacturing and meat-packing workers has ranged from 5–21% while prevalence proportions in general populations range from 1–5% (Dale et al., 2013).

The prevalence of CTS in the general population in Indonesia is still unknown. However, there are several studies examining the prevalence of CTS in the working population in Indonesia. Tana et al, showed the prevalence of CTS by 20.3% in 814 garment workers in Jakarta (Tana et al., 2004). Kurniawan et al, reported the incidence of CTS by 47.2% in 72 jasmine flower picker in Karangcengis, Purbalingga (Kurniawan et al., 2008).

CTS diagnosis criteria are based on guidelines from The European HANDGUIDE Study. The diagnosis of CTS is primaly based on the clinical symptoms (Huisstede et al., 2014):

- History: there is a numbness and tingling sensation on the sides of the finger palmar thumb, index finger, middle finger and radial side of the ring finger. These symptoms appears mainly at night and can wake patients from sleep.
- Physical examination: positive results on Tinel and Phalen's examination

Chronic focal compression neuropathy in the median nerves may lead to sensory problems at an early stage and muscle weakness and atrophy will appear at a later stage (Ceruso et al., 2007). The characteristic symptoms of CTS are: pain, numbness, and a prickling sensation in the hand usually at night or after the physical effort might affect patient

quality of life. Pain, numbness and muscle weakening leads to motorial precision handicap so there were some difficulties in grasping some objects (Wolska et al., 2019). The condition leads to significant impairment of sensory and motor functions of the hand, which have a direct impact on professional life and the activities of daily living (Wolny et al., 2017). This is connected with functioning in somatic, psychological and social spheres. The patient with more severe symptoms are also more likely to present with worst mental health, poorer hand function and lower quality of life, thus placing a significant burden on the individual, health services and society (Jerosch-Herold et al., 2017).

One type of conservative therapy that can be given for CTS is laser therapy. Type of laser therapy are high intensity laser therapy (HIILT) and low level laser therapy (LLLT). LLLT has long been used as a conservative therapy for mild and moderate CTS. However, inadequate power and dose of LLLT and short wave lengths lead to less deep penetration and require a long therapy time. This results in inadequate number of photons needed to cause an biological response so that the results of LLLT therapy are highly variable and less than optimal. HILT is a new modality developed to overcome weaknesses LLLT. HILT has an advantage of deeper penetration and higher energy level than LLLT (Weintraub, !997). A meta analysis by Bekhet et al stated that LLLT only improved the strength of the hand grips but does not indicate an internal improvement pain status, functional status of the hand and electrophysiological evaluation parameters (Bekhet et al., 2017). The study conducted by Casale et al and Tabatabai et al states that HILT is better than TENS (Transcutaneus Electrical Nerve Stimulation) in improving pain and paresthesias complaints and parameters electrophysiology in patients with CTS (Casale et al., 2013; Tabatabai et al., 2016).

The objective of this study is to compare the effect of two type of laser therapy on the quality of life in CTS. We used the Short Form-36 (SF-36) to evaluate health related quality of life before and after laser intervention in both groups.

MATERIALS AND METHODS

Research Design

This study is an experimental study with a randomized controlled trial with pre and post control group design.

Place and Time

The study was conducted at the Medical Rehabilitation Polyclinic Tugurejo Hospital Semarang in September 2018

Population and Sample

The subjects were 19 patients with carpal tunnel syndrome. All participants received fully detailed and comprehensive information about the proposed study and signed informed consent before conducting the study. The inclusion criteria for the analysis are male or female diagnosed with CTS based on clinical symptoms and physical examination, in the age range of 30-50 years. Exclusion criteria for participation were as follows:

1. There is a secondary etiology of CTS such as fractures, diabetes mellitus, hypo / hyperthyroidism, hand infections, gout tophus, rheumatoid arthritis, congenital carpal tunnel deformities, wrist tumors, hand edema, pregnancy, use of drugs (oral contraceptives, anticoagulants).
2. Previous decompression surgery on the carpal tunnel.
3. Get another conservative therapy for CTS complaints, such as corticosteroid injection in the past 1 year, tendons – nerve gliding exercise, splinting, manual therapy, SWD, MWD, magnetic therapy, taking diuretics and NSAIDS in the last 1 month, TENS, ultrasound diathermy,ESWT,take vitamins B6,B12, obtain corticosteroids by oral/ iontophoresis/ phonopheresis
4. There are contraindications for laser therapy
5. There is another neuromusculoskeletal pain on the side of the same limb

Drop out criteria were participant followed the therapy sessions less than 8 times, get another conservative therapy during the course of the study and refused to continue the study.

Intervention

The subjects of this study were medical rehabilitation polyclinic patients in Tugurejo Hospital Semarang, between August to September 2018. From 29 patients who

participated in the screening, only 19 patients met the inclusion criteria and exclusion from this study. Then the patients were divided into two treatment groups randomly, HILT and LLLT group. Group 1 received 2 HILT protocols with the BTL-6000 device which has a wavelength of 1064 nm and power 12 W, once a day, 5 days a week, for 2 weeks: analgesic therapy protocol (8W, frequency 25 Hz, dose 10 J / cm^2 for 2-4 minutes) and biostimulation protocol (4W, continuous, dose 120 J / cm^2 for 2-6 minutes). Group 2 received LLLT (Endolaser 422) with a wavelength 905 nm, power of 25 mW. The area treated is the median nerve in the wrist around 10 cm divided into 3 points. The dose for each point is 6 J/cm^2 for 4 minutes. The total dose is 18 J for 3 points with duration 12 minute therapy. Therapy is done once a day, 5 days a week, for 2 weeks.

Data Measurement

SF-36 questionnaire was used to evaluate the health related quality of life before and after intervention in both groups**.** The SF-36 is a health-related quality of life questionnaire consisting of 8 health domains divided into physical component score (physical functioning, role limitations because of physical health problems, pain, general health perceptions) and mental health component score (vitality, social functioning, role limitations because of emotional problems, mental health). Item responses each domain are transformed into scale scores ranging from 0 (poor health) to 100 (optimal health) (Atroshi et al., 1999; Thomsen et al., 2014).

Data Analysis Method

The statistical analysis were performed with Statistical Package for the Social Sciences (SPSS) version 15. The analysis of pre and post SF-36 in each group was done using Wilcoxon signed rank test or paired T-test. The analysis between two groups for the result of pre and post SF-36 was done using Mann-Whitney test or independent T-test. A significance level of $P < 0.05$ was considered statistically significant.

RESULTS

The demographic data of 19 participants were presented in table 1. There were no significant differences in the characteristics between the groups at baseline ($p > 0.05$) for age (p=0.290), sex (p=0,474), occupation (p=0,153), BMI (p=0,463), blood sugar level (p=0,866), skin type (p=0,665), and repetitive movement (p=1). All participants have followed the study and no participants has met the drop out criteria.

There is significant difference before and after intervention in HILT group in domain energy fatique (p<0.001), emotional well-being (p=0.012), pain (p=0.023) and general health (p=0.008). There is also significant difference before and after intervention in LLLT group in energy fatique (p=0.021), emotional well-being (p=0.021) and general health (p=0.026). But there is no significant difference between two groups in all of health domain. (Table 2).

Table 1. Demographic Data

Variable	Group		P
	HILT (n=10)	LLLT (n=9)	
Age	37,70 ± 5,83	40,67 ± 6,00	0,290
Sex			
Male	0 (0)	1 (11,1)	0,474
Female	10 (100)	8 (88,9)	
Occupation			
Housewife	1 (10)	4 (44,4)	0,153
Cleaning service	3 (30)	0 (0)	
Sales	0 (0)	1 (11,1)	
Musician	0 (0)	1 (11,1)	
Administration staff	5 (50)	2 (22,2)	
Doctor	1 (10)	1 (11,1)	
BMI (kg/m^2)	23,49 ± 3,80	24,67 ± 2,94	0,463
Blood sugar level	101,50 ± 11,43	102,44 ± 12,64	0,866
Fritzpatrick scale	3 (3 – 5)	3 (3 – 4)	0,665
Repetitive movement	8 (80%)	8 (88,9%)	1,000

Table 2. Short Form-36 Health Domain Within and Between Group Intervention

Physical Functioning	Group		p
	HILT	LLLT	
Pre	87,00 ± 12,74	71,11 ± 18,33	0,041
Post	89,00 ± 13,90	76,67 ± 18,03	0,095
p	0,157	0,084	
Δ	2,00 ± 4,22	5,56 ± 8,46	0,275

Role limitations due to physical health	Group		p
	HILT	LLLT	
Pre	55,00 ± 38,73	50,00 ± 41,46	0,789
Post	62,50 ± 41,25	58,33 ± 46,77	0,898
p	0,180	0,180	
Δ	7,50 ± 16,87	8,33 ± 17,68	0,909

Role limitations due to emotional problems	Group		p
	HILT	LLLT	
Pre	63,33 ± 48,31	77,78 ± 44,10	0,483
Post	73,33 ± 43,89	92,59 ± 22,23	0,276
p	0,317	0,180	
Δ	10,00 ± 31,62	14,811 ± 33,79	0,520

Energy Fatique	Group		p
	HILT	LLLT	
Pre	64,50 ± 12,79	66,67 ± 11,46	0,703
Post	77,00 ± 8,23	77,22 ± 12,02	0,963
p	< 0,001*	0,021*	
Δ	12,50 ± 7,17	10,56 ± 11,02	0,651

Emotional well-being	Group		p
	HILT	LLLT	
Pre	76,00 ± 14,48	80,44 ± 11,39	0,471
Post	83,20 ± 9,76	89,33 ± 10,58	0,206
p	0,012*	0,021*	
Δ	7,20 ± 7,25	8,89 ± 9,33	0,663

Social Functioning	Group		p
	HILT	LLLT	
Pre	76,25 ± 18,11	77,78 ± 19,54	0,862
Post	83,75 ± 13,24	88,89 ± 14,58	0,387
p	0,081	0,063	
Δ	7,50 ± 12,08	11,11 ± 15,87	0,713

Pain	Group		p
	HILT	LLLT	
Pre	72,00 ± 14,80	66,67 ± 10,38	0,381
Post	79,75 ± 12,83	77,22 ± 12,59	0,671
p	0,023*	0,056	
Δ	7,75 ± 8,93	10,56 ± 14,19	0,831

General Health	Group		p
	HILT	LLLT	
Pre	72,00 ± 16,19	67,72 ± 17,34	0,543
Post	80,00 ± 10,27	78,33 ± 12,75	0,756
p	0,008*	0,026*	
Δ	8,00 ± 7,53	11,11 ± 12,19	0,701

Description : * Significant

DISCUSSION

In our study, improvement was recorded in all SF-36 scales. With significant differences in domain of energy fatique, emotional well-being, and general health in both group. This can be caused by laser therapy can accelerate and increase the process of nerve regeneration (axonal growth and myelination), improve intraneural vascular structure and membrane permeability, thereby reducing edema and preventing the formation of scar tissue. Lasers can also reduce the inflammatory process that occurs in CTS by increasing the production of suppressor T cells and anti-inflammatory cytokines as well as reducing neuropathic pain in patients through nerve stimulation of Aβ (Gate Control Theory), reduction in nerve conduction velocity of Aδ and C pain and endorphin release (Melzack, 1996). All of these are related to the improvement of the hand functions in carrying out daily activities.

The improvement in pain scale was only found in the group that received the HILT treatment. This might have happened because HILT was developed to overcome LLLT weaknesses. HILT has the advantage of deeper penetration and can deliver larger doses of photons. This result was similar with the study by Casale et al using HILT with a wavelength of 830 - 1064 and a power of 25W. The dose used is 250 J / cm^2 and given for 100 seconds. The probe was 1 cm^2 and moved 10 cm along the median nerve in the wrist, for 15 sessions of HILT therapy for 3 weeks and showed that HILT can reduce pain and improve hand function in patients with CTS (Casale et al., 2013). Tabatabai et al, showed that high-power laser diode (808 nm, 6.5 J/cm) on two points of 2 cm^2 over the transverse ligament for two weeks as 5 sessions per week can significantly reduce pain and improve hand function in 45 patients with mild to moderate CTS (Tabatabai et al., 2016). However, differences in wavelength, peak power, frequency of therapy and depth of penetration also affect differences in therapeutic outcomes between the use of HILT and LLLT. The results of this study were different with meta-analysis study conducted by Zhi-Jun Li et al that show low-level laser improves hand grip, VAS, and SNAP after 3 months of follow-up for mild to moderate CTS. Therefore, more high-quality studies of laser intervention protocol and follow-up time are needed to decrease heterogeneity and to confirm the effects of LLLT on CTS (Li, 2016)

Between two group analysis of SF-36 (Table 2) showed no significantly difference in all of health domain. HILT and LLLT have the same way of working to improve neural networks, namely by increasing cellular metabolism, proliferation Schwann cells, fibroblast activity and collagen synthesis, angiogenesis, vasodilation and microvascular repair and inhibit the production of inflammatory cytokines and prostaglandins. However, both have the intensity and ability of penetration different (Prouza et al, 2013). The remielinization process which involves the proliferation of Schwann cells is depends on the amount of photon dose it receives. HILT has the intensity and ability of penetration greater than LLLT so HILT it should be able to increase Schwann cell proliferation and repair electrophysiological values better than LLLT. But in this study showed that HILT and LLLT both are having similar effect on improving quality of life in CTS patient.

In addition, regarding repetitive movements, although there were no statistically significant differences in both group, but in the HILT group there are 3 subjects that have a job as a janitor and 5 subjects who work as administration staff. Both types of work have the intensity of repetitive movements on a wrist bigger than other jobs in the LLLT group so it can clinically influence the results on HILT group. This is also one of the limitations in this

study besides the small number of study samples and this study does not assess the long-term effects of HILT and LLLT in CTS patient.

CONCLUSION

In conclusion, we found that HILT and LLLT both are having similar effect on improving quality of life in CTS patient. Further research with larger sample and longer follow up time are needed to evaluate effect of HILT and LLLT on quality of life in CTS patient.

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Factors Affecting Ethical Behaviors and Implementation of Ethical Principles in Clinical Nursing Practice to Promote the Strategic Collaboration in Management

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ABSTRACT

Nursing intervention is to provide quality healthcare that maintaining and improving professional intervention. Ethical principles is considered as an essential dimension to implement of all healthcare professions including nursing services. Moreover, it has a central role in nurses' and nursing students to have professional standard moral behavior toward patients, which strongly influences on patients' rights and patients' advocacy. The method of this research described quantitative and qualitative research design that conduct in central java Semarang Indonesia. The purposed of this research to describes the ethical behaviors and analysis factors affecting implementation Ethical Principles in Clinical Practice. The Results of this study showed the characteristic of values, behaviors, and the mental behaviors of nursing students because of clinical situation. The respondents of this research showed ethical behaviors in clinical practices regarding ethical principles showed that the nursing students provide nursing care with ethical behaviors including advocacy, lack of autonomy, respect patient' rights and justice for services. Factors affecting implementation ethical behaviors described (1) ethics learning, (2) culture, (3) good professional nursing students. Also, the respondents participate to patient's health improvement and quality care. In conclusion, Professional ethics constitutes legitimate norms or standards that govern professional behavior of both client and families. Indeed, professional ethics addresses obligations of a profession and responsibilities practice towards psychiatric patients who are served.

Keywords: *ethics, ethical behaviors, ethical principles*

INTRODUCTION

Ethical principles is the main concepts to understand and develop practice among health providers including nursing. An understanding of the different factors that influence ethical behavior in Clinical practice is important to the development of ethical behaviors. Ethical principles and behaviors are ever present in daily life where multiple health providers, interests and values are in conflict and laws are unclear in practice caring.

Moreover, Professional ethics is an essential dimension for all healthcare professions that govern professional behavior of both client and non-client Ethical behavior has a central role in nurses' and nursing students to have professional standard moral behavior toward patients, which strongly influences on patients' care. Nursing students have to participate to patient's health improvement and quality care. Indeed, professional ethics addresses obligations of a profession towards patients who are served in clinical practice.

MATERIALS AND METHODS

The research of this study is research and development study design. The research and development in this study consists of descriptive study, using qualitative data. The data collected by questionnaire and participative approach with the subjects when nursing students disseminated cases. The subjects is thirty nursing students the four semester who experienced to take care patients. The questionnaire consist of students perceive about understanding Ethical Behaviors (EB) and Ethical Principles in Clinical Practice (EPCP)

The reliability of this instrument was 0.86 and the contract validity of this instrument was tested and eligible valid for this study. The qualitative data used the open structured

instrument includes the identify implication ethical behaviors.

RESULT

Ethical behavior is influenced some factors such as values, learning process, values and culture process. The results of this study encompassed the ethics learning to provide ethics course to achieve the subjects competences about ethical behavior factors. The result of this study showed all subjects participate ethical principles for providing care and implement values.

Ethical Principles	The character ethical behaviors
Autonomy	Caring patients Responsibilities
Respect patient' autonomy	Not really realize Automatically Culture influences
Beneficences	Do the best for practice Respect patient and patient's families
Jusstice	Do same to the patient Focus to the cooperative patient
Veracity	Not consent for veracity Not telling information

The content of ethics stimulates awareness of the subjects to realize ethical principles, ethical knowledge, values and ethical implications in clinical practice. This results showed that the important for students know how their awareness implement to patients, moreover, the subjects interacted positive relationship with professional team and provided professional care.

The subjects described that the ethics course stimulated students learned cases to more specific case-based analysis of everyday ethical problems. It would be important for students to realize how their own values can apply in reality care with professional responsibilities. The results of this study showed that the participating approach promoted the subjects improved the ethical behaviors. The learning interaction consists of some important topics include

Topics	**Theme: Understanding and Discussing**
The Concept of Ethics in Nursing	Understand fundamental concepts in ethics The Component of Ethical Principles
Ethics Factors	Examine how different ways of thinking about ethics influence for ethical behaviours
Values	The Characteristics Values
	The core values that inform work with others
The ethical principles	Define the Ethical Principles
	Implement of Ethics principles
Ethical issues	Debate the ethical implications of societal and cultural norms
	Discuss the special ethical problems
Ethical Decisions	what we take into account when addressing ethical problems
	Identify and discover how to address the ethical problems that arise in different sites of care

Factors affecting implementation ethical behaviors described (1) ethics learning, (2) values and culture, (3) good professional practice is delivered by nursing students. Ethics learning consist the some topics related to ethics concepts, Ethical Dilemmas, Ethics and Values, Ethics Behaviors, code of Ethics and ethical principles. Values and culture are the specific concept that have many interpretation among nursing students and they believe that both words have associated each other.

DISCUSSIONS

Education management effecting professional knowledge in nursing education have been identified in this study. The quality of education provides some standard including learning process, schools facilities, lecturers, material, collaboration. The elements education contains main category of the findings was focused on the result of educations to the individual character and responsibility. It was emphasized on developing a sense of responsibility in nursing practice as a significant factor that influences professional behavior. Also, nursing education indicated that creating professional commitment should be regarded as a necessary learning for nursing education. Inter Professional Education should be accountable for students to teach in class, laboratory, and nursing practice. Such ethics learning in nursing education lead to better observance of professional ethics by nursing students. Indeed, ethics course in education provided that individual character and responsibility play an important role in sensitivity to the professional conduct and moral development.

The other category is communication challenges and strategic coordination among health care students. The subjects highlighted effective relationship among nursing students as the element of nursing management. The factor ethics influenced nursing behaviors, such as the good responsibilities, good behavior regarding caring. The researchers also believe that effective nursing is highly related to developing proper relationships among members of the health care system. In the absence of such attitudes, good teamwork.

Based on literature, for ethical behaviors of this study, terms that immediately come to mind are belief systems and norms. In this study, nursing students feel strong discussion to understand when is joined ethics course, and discussion ethical problems. Therefore, this study showed the lecturer should clear teach and promote some evidenced based regarding individual values, cultural influences, ethical conflicts and the factors values and culture for providing care. The ethics course showed the nursing implementation how cultural attitudes and values in nursing that may lead nursing process regarding values and ethics. to conflict as a result of increasing globalization, and to formulate nursing strategies to decrease ethical conflicts related to cultural values. Furthermore, the good professional practice is the one indicator also that was showed is delivered by nursing students. Professional practice consists of some performances about direct nursing process to achieve a good management.

This study also indicates that nursing students' assessment is one of the important measures in building discussion between nursing students and lecturers. In recent years, it has been emphasized on professionalism behaviors in caring for patients to achieve good services in nursing intervention. Therefore, health care provider requires students who are able to develop relationships with the multidisciplinary professionals as well as patients, lecturers and clinical instructor in clinical practice. According to ethics learning, nursing students and team work professionals to provide what patients need and focus on promote health, priority nursing intervention, prevent the risk complication. In other words, Lecturers should facilitate to expand knowledge, competences, skills in order to enhance patients' quality care.

The characteristic of values, behaviors, and the mental behaviors of nursing students because of clinical situation. The respondents of this research showed ethical behaviors in clinical practices regarding ethical principles showed that the nursing students provide nursing care with ethical behaviors including advocacy, lack of autonomy, respect patient' rights and justice for services. Factors affecting implementation ethical behaviors described (1) ethics learning, (2) implementation of ethical principles, (3) good professional nursing students. Also, Nursing students participate to patient's health improvement and quality care

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clinical practice. According to ethics learning, nursing students and team work professionals to provide what patients need and focus on promote health, priority nursing intervention, prevent the risk complication. In other words, Lecturers should facilitate to expand knowledge, competences, skills in order to enhance patients' quality care. The characteristic of values, behaviors, and the mental behaviors of nursing students because of clinical situation. The respondents of this research showed ethical behaviors in clinical practices regarding ethical principles showed that the nursing students provide nursing care with ethical behaviors including advocacy, lack of autonomy, respect patient' rights and justice for services. Factors affecting implementation ethical behaviors described (1) ethics learning, (2) culture, (3) good professional nursing students. Also, Nursing students participate to patient's health improvement and quality care

The ethical principles regarding nursing students behavior s include autonomy, beneficience, justice, and non maleficience. The subjects faced ethical situations on a daily basis at the societal, organizational and clinical level. How they choose to respond does not happen without decisions being made. These decisions are based on the application of ethical principles. These principles need not only be applied in dealing with patients but also in the care of their families and related groups.

Professional autonomy means having the authority to make decisions and the freedom to act in accordance with one's professional knowledge base. An understanding of autonomy is needed to clarify and develop the nursing profession in rapidly changing health care environments and internationally there is a concern about how the core elements of nursing are taken care of when focusing on expansion and extension of clinical nursing practice. Beneficience principle in nursing actions namely patients must always be the main and main concern. The nurse must recognize the need for the patient to include their individual thought into care practices. Any conflict of interest, whether belonging to external organizations, or the nurse's habits or ideals that conflict with the act of being a nurse, should be shared and addressed to not impact patient care. Collaboration with internal and external teams to foster best patient care is a necessity. Understanding professional boundaries and how they relate to patient care outcomes is important.

Justice means being impartial and fair. Nurses making impartial medical decisions demonstrate this, whether it relates to limited resources or new treatments regardless of economic status, ethnicity, sexual orientation, etc. That means giving each person or group what he/she or they are due. It can be "measured" in terms of fairness, equality, need or any other criterion that is material to the justice decision. In nursing, justice often focuses on equitable access to care and on equitable scarce resource allocation. Equitable access to nursing care implies that nurses are available to render care and that the recipients of care (i.e., patient, family, or community) know that care is available to them..

Nonmaleficence or do no harm, is directly tied to the nurse's duty to protect the patient's safety. Born out of the Hippocratic Oath, this principle dictates that we do not cause injury to our patients. Nonmaleficence has been upheld in both the ethical and legal practices of health care. Using utilitarian logic, the benefit of procedures is balanced against the harm. If there is greater benefit, the act is viewed as an ethical one. In fact, you have a duty to provide appropriate care to avoid further harm to the patient under what some legal texts call a due care standard. This basically means that you have taken all necessary action to use the most appropriate treatment for the condition and have provided that treatment with the least amount of pain and suffering possible.

Veracity is being completely truthful with patients, nurses must not withhold the whole truth from clients even when it may lead to patient distress. Telling the patient the truth ensures that the correct informa-tion is given and correct choice for the patient is made. Explaining the truth to the patient is a very complicated process and the nurses experience is very important, a nurses who has developed communication skills and knows approaches for informing can give desired messages that give the amount of information that the patient wants and when the patient is ready. Truth telling fosters trust in the medical profession and rests on the respect owed to patients as persons. It

also prevents harm, as patients who are uninformed about their situation may fail to get medical help when they should.

Fidelity is rooted in respect for persons and truth telling. Faithfulness to promises is important in relationships because it indicates the level of esteem held for one another and establishes trust. When a person makes a promise, he or she creates expectations of another. The person expects to rely on the promise and have a valid claim that it will be kept. When a nurse assures a patient that he or she will receive appropriate symptom management while undergoing chemotherapy, the message does not have meaning unless the nurse follows through on that promise when it is actually needed during treatment. Fidelity is also important in interactions with peers on the healthcare team.

The principle of confidentiality is an exceptional circumstances where health professionals may ethically and legally qualify the principle of confidentiality centre on concerns about protecting the wellbeing of the patient themselves and protecting others from harm. Protecting someone's privacy involves protecting them from unwanted access or control by others. In this way it is linked with personal autonomy and it is also viewed as a key element of personal identity. Privacy can be thought of in terms of five dimensions: physical privacy, informational privacy, decisional privacy, personal property and expressive privacy.

Accountability means to be answerable to oneself and others for one's own actions. In order to be accountable, nurses act under a code of ethical conduct that is grounded in the philosophical ethical principles of fidelity and respect for the dignity, worth, and self-determination of persons. Thus, individual nurses are accountable for judgments made and actions taken in the course of provision of nursing services. Clearly, national, state, or provincial regulatory agencies assign responsibility and accountability for professional nursing practice through regulations that include broad, yet legally binding statements for the scope and standards of responsibility and action for individual professional nursing practice. Some ethical behaviors have also discussed the concept of accountability from an organizational perspective among nursing students and nurses.

CONCLUSION

Factors affecting implementation ethical behaviors and implementation of ethical principles included ethics learning, values, good behaviors. Indeed, the ethics course should supposed implementation ethical principles in clinical nursing management.

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Correlation Between Sarcopenia and Bone Mass Density (BMD) in Menopause Women (Study with Dual-Energy x-Ray Absorptiometry (DXA))

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ABSTRACT

Menopause women are at higher risk for sarcopenia and osteoporosis. The reason is not only associated with significant morbidity of those two but also related to their social costs and health care costs. Both of these risks are uniquely related to their similarity in pathophysiology and diagnostic methods. The goal of this study is to identify the relation between Bone Mineral Density (BMD), anthropometric characteristics, muscle-strength, muscle-mass and physical performance in menopause women. This study was an observational study with a cross sectional design performed on 37 menopause women who were assessed by X-ray Dual-energy absorptiometry (DXA) on the femoral neck and whole body to determine BMD and relative skeletal mass index (RSMI). Muscle strength was assessed by handgrip strength tes (HGS) and physical performance was carried out with the gait speed test. 12 samples were classified as sarcopenia (32.4%) and 25 samples were grouped as non sarcopenia (67.6%). Osteoporosis was identified in 48.6% of the sample (n=18), osteopenia in 43.2% of the sample (n=16), and normal BMD in the 8.1% sample (n=3). The results demonstrated that there was a positive correlation between BMD with sarcopenia ($P < 0.05$)

Keywords: Bone Mineral Density ; Sarcopenia ; DXA ; Menopause

INTRODUCTION

Menopause is a condition when menstruation stops. This condition is characterized by changes in menstruation that reflect oocyte depletion and decreased ovarian hormone production, which is usually occurred in middle age, about 40 or early 50 years old. This is the end of the fertility phase. Menopausal women are at higher risk for sarcopenia and osteoporosis, both of which are uniquely associated with their similarities in pathophysiology and diagnostic method. Sarcopenia is the decreasing of muscle mass and function related to age and has significant influence of risk factors such as falling, fractures, degradation of life quality, chronic diseases including osteoporosis and even death. Osteoporosis is low bone mass and micro-arsitectural disorders of bone tissue that cause fragility and fracture, which is a very important health problem in the menopausal female population. Dual-energy X-ray absorptiometry (DXA) scan is an examination used to measure bone mineral density and estimation of muscle mass (Appendicular skeletal muscle mass)

MATERIALS AND METHODS

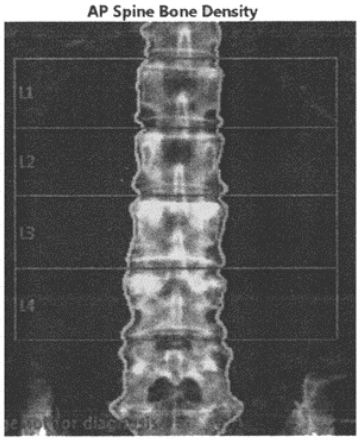
This study was an observational analytic study with a cross-sectional approach conducted to evaluate menopausal women in several elderly Posyandu (Pos Pelayanan Terpadu = Health Service Center) in Semarang. A total number of 37 elderly women aged 60 years and above were involved consecutively, then interview was conducted to assess the inclusion and exclusion criteria, as well as height measurements, examination of muscle strength (hand grip test) and physical performance (gait speed test). After that, an examination was carried out to measure muscle mass and bone mass density with Dual-energy X-ray absorptiometry (DXA) and with DXA lunar produced by GE health care in 2002 in SMC Diagnostic Radiology Section of Telogorejo Hospital Semarang.

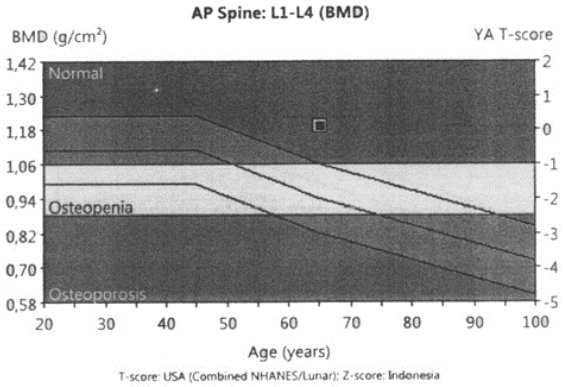
The research requirements and procedures are well explained to the

respondents and agreed to participate by signing the inform consent. This research was approved by the ethics committee of the medical faculty Dipenogoro University Semarang.

The independent variables of this study is sarcopenia. The diagnosis of sarcopenia is defined according to the AWGS algorithm, low muscle mass is defined as RSMI <5.4 kg / m2, which is calculated as follows: appendicular skeletal muscle mass / height (kg / m2). Low muscle strength is defined as grip strength <16 kg, and low physical performance is defined as gait speed <0.8 m / s. Handgrip strength is calculated by dynamometer using JAMAR mechanical hand dynamometer. A serial check consisting of three-time measurement of the handgrip and the average value of the two highest readings was calculated

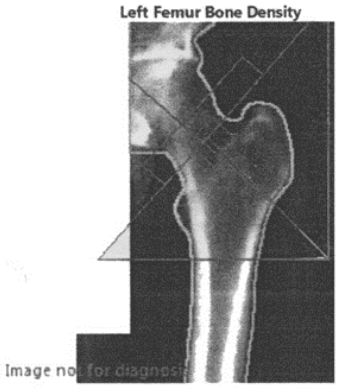
The dependent variable in this study is bone mass density. Bone mass or mineral density per unit area expressed in mg / cm^2. The examination method used DXA, with centration in the vertebral bone, proximal femur, and antebrachii (selected 2 ROIs that qualify for BMD analysis). The measurement used an ordinal scale. BMD values were categorized according to the WHO category as normal (T-Score between -1 or greater), osteopenia (T-Score -1 and -2,5), osteoporosis (T-Score -2.5 or less, without fracture), and advanced osteoporosis (T-score of -2.5 or less and fragility fracture).

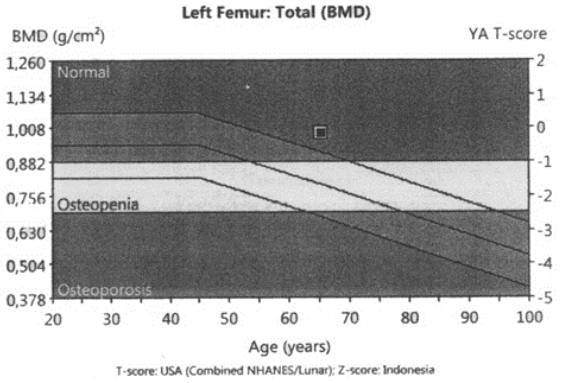


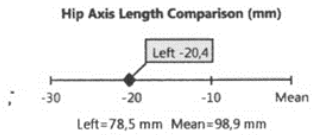


COMMENTS:

Densitometry: T-score: USA (Combined NHANES/Lunar); Z-score: Indonesia					
Region	BMD (g/cm²)	YA (%)	YA T-score	AM (%)	AM Z-score
L1	0,968	86	-1,4	114	1,0
L2	1,096	91	-0,9	124	1,8
L3	1,379	115	1,5	142	3,4
L4	1,279	107	0,7	130	2,5
L1-L4	1,194	101	0,1	127	2,1







Densitometry: T-score: USA (Combined NHANES/Lunar); Z-score: Indonesia					
Region	BMD (g/cm²)	YA (%)	YA T-score	AM (%)	AM Z-score
Neck	0,923	89	-0,8	124	1,5
Total	0,988	98	-0,2	124	1,6

COMMENTS:

RESULT

From this study, there were 12 subjects with sarcopenia and of these 10 people (83.3%) suffered from osteoporosis, 2 people (16.7%) suffered from osteopenia and no study subjects with normal BMD (0%). While the study subjects included non-sarcopenia (25 people), research subjects who had normal BMD were 3 people (12.0%), and osteopenia as many as 14 people (56.0%), and osteoporosis as many as 8 people (32.0%).

In measuring the correlation between sarcopenia and bone mass density, Chi square statistical test was done and the results obtained p <0.05 so that the conclusion was a significant correlation between sarcopenia and bone mass density

Tabel 1 Tabel 2x 2 correlation between sarcopenia and bone mineral density

		Sarcopenia	Non Sarcopenia	Total
		f/%	f/%	f/%
BMD	Normal	0.0 (0%)	3 (12.0%)	3 (8.1%)
	Osteopenia	2 (16.7%)	14 (56.0%)	16 (43.2%)
	Osteoporosis	10 (83.3%)	8 (32.0%)	18 (48.6%)
Total		12 (100%)	25 (100%)	37 (100%)

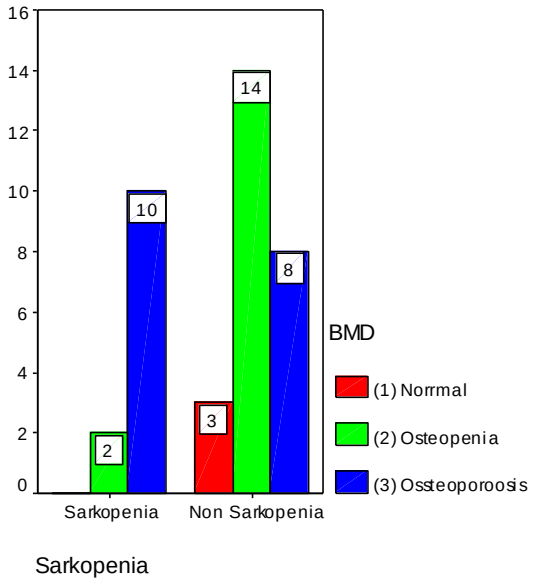


Figure 1. Distribution sample sarcopenia and bone mineral density

DISCUSSION

Sarcopenia is a syndrome characterized by a progressive and comprehensive reduction in skeletal muscle mass and muscle strength. Sarcopenia is a dynamic process, each stage has different degrees of symptoms or clinical conditions. According to the EWGSOP (The European Working Group on Sarcopenia in Older People), there are three stages of sarcopenia namely 'pre sarcopenia' with its main symptoms marked by a low muscle mass without the decrease in muscle strength or limited physical performance. This stage can only be identified by an accurate examination technique on muscles and the results are then compared to normal population standards. In the 'sarcopenia' stage the symptoms are characterized by muscle mass and decreased muscle strength or physical activity. For the stage of 'severe sarcopenia', the symptoms are marked by the decrease in all the main elements of sarcopenia.

Osteoporosis occurs due to disturbance of the balance between the process of bone re-sorption and bone formation, which is caused by the number and cellular activity of osteoclasts (bone re-sorption cells) which are greater in the number and activity of osteoblast cells (bone formation cells) so that this condition results in a decrease of bone mass. In bone formation process, the most important thing is good coordination between osteoclasts, osteoblasts, and endothelial cells. As long as this system is in balance, bone formation and re-sorption will always be balanced.

Sarcopenia and osteoporosis have long been thought to have a relationship. Several studies have shown a positive relationship between muscle mass and bone mass density in menopausal women. Appendicular skeletal muscle-mass (ASM) -related relative skeletal muscle mass index (RSMI) has been used to

define sarcopenia and is considered to have a positive relationship with bone mass density. It has long been hypothesized that changes in bone mass are mediated through interactions with muscle tension through the sensory function of osteocytes (Mechanostat theory). This theory emphasizes the important role of estrogen in controlling muscle-bone units.

CONCLUSION

This study is intended to determine the relationship between sarcopenia and bone mass density in postmenopausal women using a Dual-energy X-ray absorptiometry (DXA) examination. This study is an observational analytic study with a cross-sectional approach, which determines the relationship between the independent variable (risk factor) and the dependent variable (effect) by taking a momentary measurement. Research on the correlation of sarcopenia with bone mass density results are as follows:

1. There is a correlation between sarcopenia and bone mass density
2. Most cases of sarcopenia show osteoporosis
3. The incidence of osteoporosis and sarcopenia increases with age

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Bone Marrow Involvement of Cutaneous T Cell Lymphoma (CTCL)

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ABSTRACT

Introduction : *Cutaneous T cell Lymphoma* (CTCL) is an uncommon subtype (4%) of Non-Hodgkin's lymphoma, characterized by infiltration of neoplasma T cell lymphocyte in the skin. The two most common types (WHO-EORTC classification) are mycosis fungoides (MF) and Sézary syndrome (SS). The clinical signs are similar to the other skin conditions which oftenly cause misdiagnosis. The most common extracutaneous spreadings are to liver, spleen and lungs, whereas approximately 20% to the bone marrow. **Case :** A 61 y.o. man came to the hospital with severe fatigue that made him can only lying on bed since 2 months before, with fever, body weight decreased, dyspnea, sweaty and upper abdominal pain. Skin patches appeared since 4 months before, started at the face then to the body, arms and legs. We found that the patient was pallor, cachexia, had decubitus and hyperpigmented macula at 66.5% of the skin surface. Laboratory findings were normocytic normochronic anemia and trombositopenia with circulated sezary cells. Lymphadenopaty was detected at the abdominal CT-scan assay and the Bone Marrow Punction (BMP) test revealed lymphoma. The skin biopsy (histopathology assay) result was patch stage of mycosis fungoides (T-cell lymphoma), confirmed with immunohistochemistry test. **Discussion :** Bone marrow involvement of CTCL was supported with anamnesis, physical examination, laboratory findings, blood smear, abdominal CT scan, skin biopsy and BMP test. Further assays are necessary to confirm the diagnosis, also to determine the therapy and prognosis. **Conclussion :** A multidiscipline teamwork is very necessary in diagnosing CTCL because the manifestations are not specific. Immunophenotyping and immunohistochemistry tests are important to confirm the diagnosis.

Keywords: Cutaneous T cell Lymphoma (CTCL); mycosis fungoides; Sézary syndrome; BMP; bone marrow involvement

INTRODUCTION

Cutaneous T cell Lymphoma (CTCL) is a rare subtype of extranodular Non-Hodgkin lymphoma, beginning with infiltration of T lymphocyte neoplasm cells in the skin. The two most common types are mycosis fungoides (MF) and Sézary syndrome (SS). The characteristics of the skin lesions are not typical, so misdiagnosis often occurs especially in the early stages, hence multidisciplinary cooperation is needed in the management of patient. Accurate diagnosis and staging are very important to determine the prognosis of CTCL.[1]

The diagnostic algorithm starts with histopathological examination, immunohistochemistry (if necessary, T cell receptor gene examination), then laboratory tests include complete blood count, liver function tests and LDH (Lactate Dehydrogenase), chest X-ray and CT (computed tomography) of the abdomen, ultrasound test (ultrasonography) of the lymph nodes and if possible biopsy of the lymph nodes for histopathological examination, BMB (Bone Marrow Biopsy) and Trepanobiopsy.[2,3]

The most common distribution of extracutaneous CTCL is in the liver, spleen and lungs. A study of 60 cases of CTCL was conducted in 1989 by Salhany KE et al, with the conclusion that the spread of CTCL in the marrow occurred in about 20% of all CTCL cases. Graham SJ et al (1993) also conducted a study of 90 CTCL patients (mycosis fungoides and Sézary syndrome) with the conclusion that patients with atypical lymphoid aggregation or diffuse lymphomatous infiltration in their bone marrow had lower survival rates compared to patients without lymphocyte aggregation. [4,5]

Recently in 2016 Hiromichi Matsushita and Dai Maruyama reported a case of a 72-year-old woman with generalized cutaneous nodules and multiple erythematous lesions, with histopathological examination showing tumor cell infiltration expressing T-cell receptor γ (TCRγ) into the skin without multiple epidermotropism or angiocentricity, signifies a primary diagnosis of cutaneous γ / δ T-cell lymphoma (PCGD-TCL), which then proliferate in the bone marrow with the results imunofenotyping (flowcytometry) CD3 + / CD2 + / CD5 + / CD4- / CD8- / CD7- / CD56- / TCRγ / δ-1 +. [6]

CASE

A 61-year-old man came with severe fatigue.

Main complaints: limp throughout the body.

Anamnesis: Limp all over the body since 2 months before being submitted to the hospital which is felt increasingly more severe until his activity is disrupted and can only lie on bed. Other complaints are fever, weight loss, shortness of breath, dripping wet sweat and abdominal pain around the pit of the stomach. The patient also complained that there were appearance of painless patches at his skin since 4 months before, initially at the face, then extending to the body, arms and legs.

Historical: The patient was a referral from another hospital at a more remote area, with thrombocytopenia, anemia and fever for a long time after being hospitalized for 12 days and had been given a blood transfusion. Two months previous he had been treated at Dr.Kariadi general hospital, being diagnosed as Lymphoma, revealed from bone marrow punction (BMP) test. The patient denied any history of illness, especially malignancy, neither himself nor his family.

Physical examination findings: the patient looks lethargic, with impression of cachexia and his body mass index was 19.5 kg/m2. The blood pressure was 130/80 mmHg, pulse was 112 times per minute, respiratory rate was 28 times per minute, body temperature was 37.7 ° C, SpO2 was 97-99% with O2 the nasal cannula 3 lpm attached. The ECOG (Eastern Cooperative Oncology Group) performance status score is 4 (completely independent, unable to care for oneself, complete rest in bed or chair).

Examination of the head and neck found both conjunctival eyes seem anemic but the sclera was not icteric. The mouth examination show caries dentis with a bad impression of hygiene, but the lips did not show cyanosis, the gingiva is not hypertrophy and no bleeding was found. The left neck gland is palpated at ± 1 cm x 2 cm, not fixed and is not painful. The palpable thyroid gland is not enlarged and the trachea is palpated in the middle without an increase in jugular vena pressure.

Chest examination revealed intercostal retractions and atrophy of the right and left Pectoralis major muscles. Auscultation check sounds crackling in both lungs but no wheezing.

Abdominal examination show distension, hypertimpani, increased intestinal noise and tenderness around the solar plexus. The spleen is palpated 3 cm below the costal arch (Schuffner 1) and the liver is not palpable.

Examination of the extremities show atrophy of the biceps and triceps muscles, edema of both legs, pressured pain with hemorrhagic bullae at the lower back and buttocks, and hyperpigmented macules which are also present throughout the body.

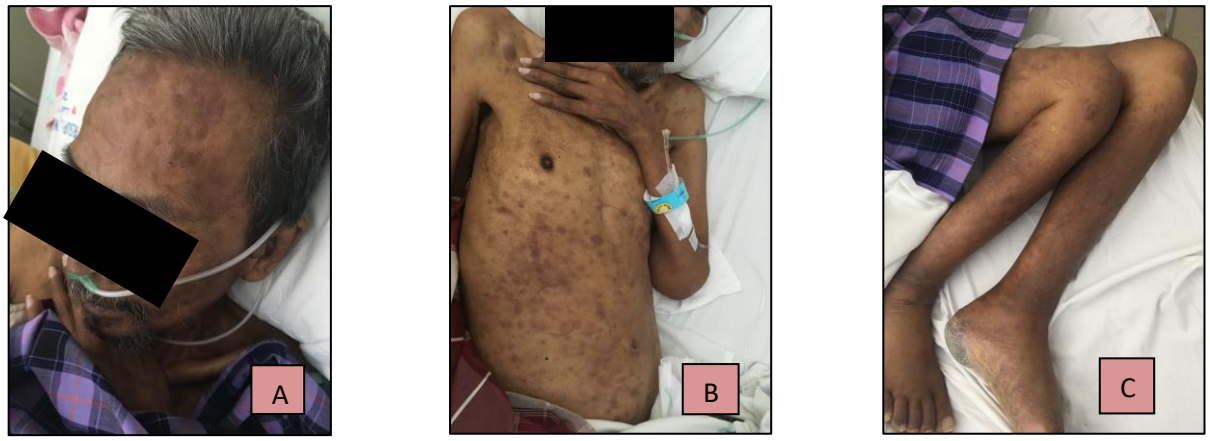


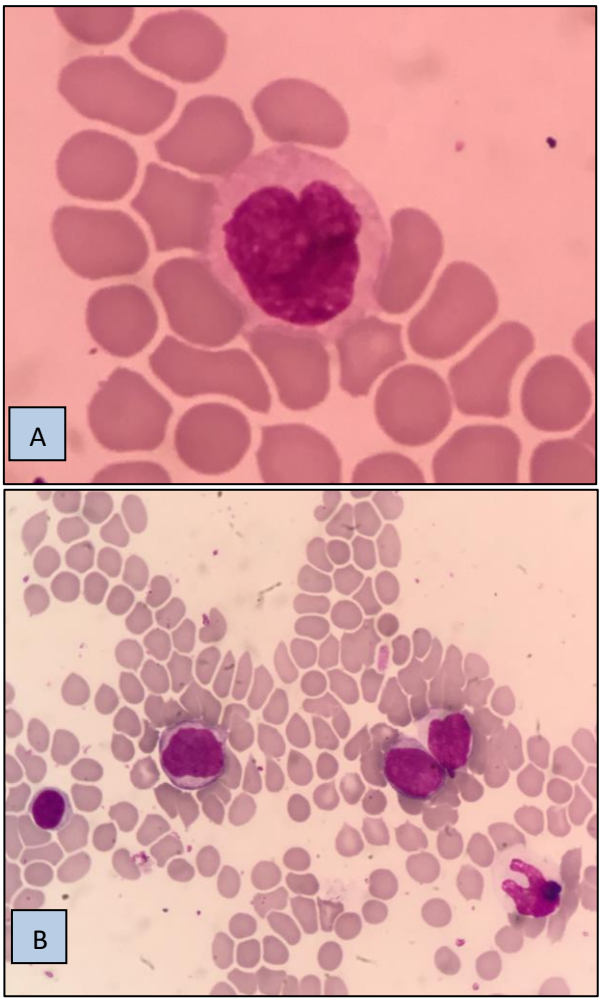
Figure 1. Dermatology status Hyperpigmented macula at the A. face, B. body, and C. legs

Supporting investigation:

Table 1. Laboratory Findings (at the first submission to the hospital)

Parameter	Result	Reffered Value
Hematology		
Hemoglobin	7,5	13 – 16 g/dL
Hematocryte	22	40 – 54 %
Eritrocyte	2,62	4,4 – 5,9 x 10^6/uL
MCV	84	80 – 100 fL
MCH	28,6	27 – 32 pg
MCHC	34,1	29 – 36 g/dL
Leukocyte	10,1	3,8 – 10,6 x 10^3/uL
Platelet	6	150– 400 x 10^3/uL
RDW	16	11,6 – 14,8 %
MPV	11,9	4 – 11 fL
Retikulocyte	0,4	0,5 – 1,5 %
Clinical chemistry	109	80 - 160 mg/dL
Random blood glucose	68	15-34 U/L
AST	56	15-60 U/L
ALT	2,5	3,4 – 5,0 g/dL
Albumin	54	15 – 39 mg/dL
Ureum	1,0	0,60 – 1,30 mg/dL
Creatinin	140	136 – 145 mmol/L
Natrium	3,5	3,5 – 5,1 mmol/L
Kalium	106	98 – 107 mmol/L
Chlorida	14,1	Control 10,6 seconds
PT	46.0	Control 33 seconds
aPTT		

Evaluation of leukocyte differential count (12th day of treatment):
Eosinophil-1/ Basophil-0/ Stab-0/ Segmented neutrophil-74/ Limphocyte-7/ Monocyte-14/ Atypical Mononuclear Cell-3/ Blast-1/ Sezary cell +



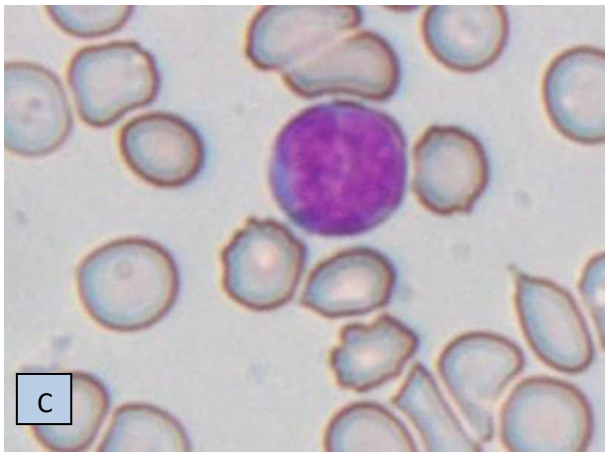
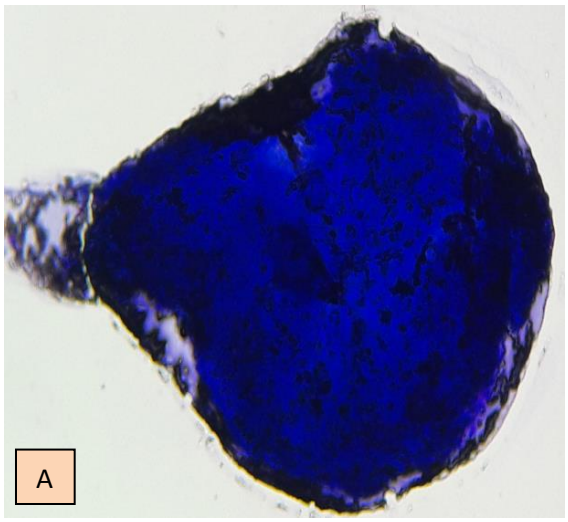
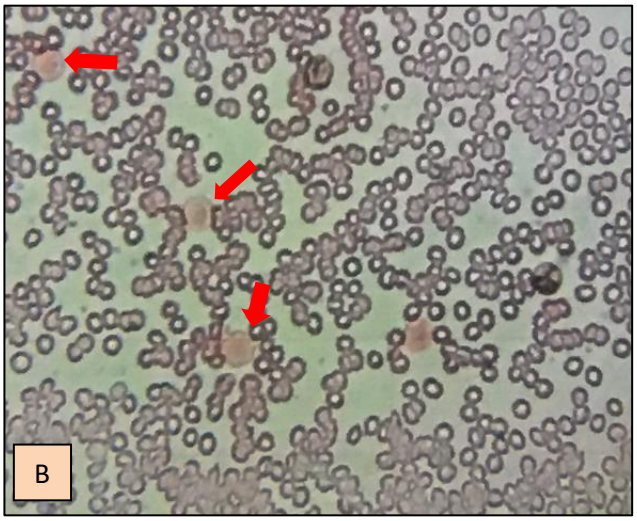


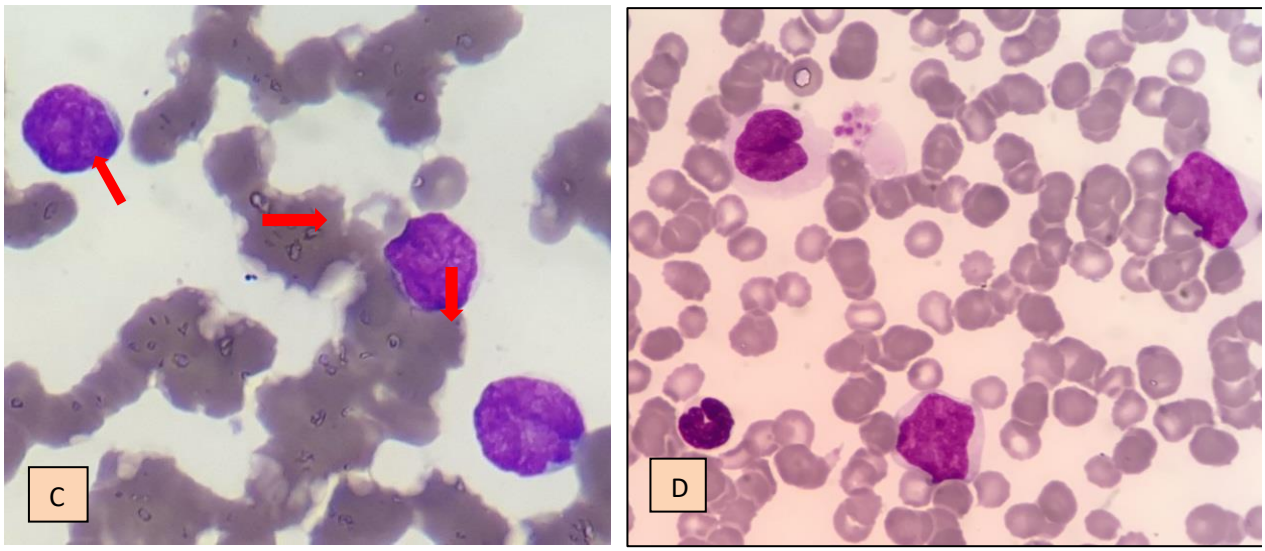
Figure 2 A,B,C. Sezary cells (cerebriform cell) at the peripheral blood smear

Radiological examination carried out X-ray chest examination with the results of bronchopneumonia with pulmonary infiltrates, suspected hospital acquired pneumonia (HAP). The abdominal CT scan revealed intraabdominal lymphadenopathy.

BMP examination result from 2 months before (when he was first treated at the hospital): Hypercellular bone marrow fragments/particles. Megakaryocytes could not be found with platelet counts appearing to decrease. The erythropoiesis and granulopoiesis activity is decrease with normal maturation. The myeloid-erythroid ratio is 2.2 : 1. The SBB (Sudan Black B) staining shows negative predominant. Increased activity of 80% lymphocytic series and lymphoma cells are seen. The impression confirmed the diagnosis of lymphoma.







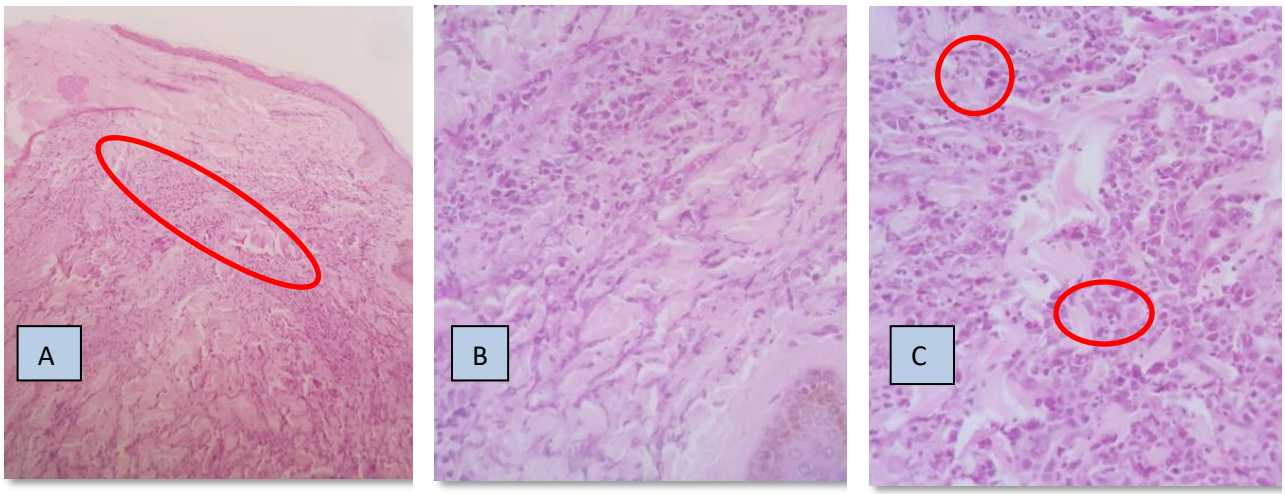
A. Hypercellular fragments/particles ; **B.** The SBB (Sudan Black B) staining shows negative predominant (arrowed) ; **C.** Limphoma cells (arrowed) ; **D.** Limphoma cells distribution.

Figure 3. Bone Marrow findings

The AFB (Acid-Fast Bacilli) sputum smear examination results were 3 times negative, but gram-positive diplococcus and gram-negative bacteria were found as well as positive hyfa and yeast cells.

Skin biopsy examination (histopathology):

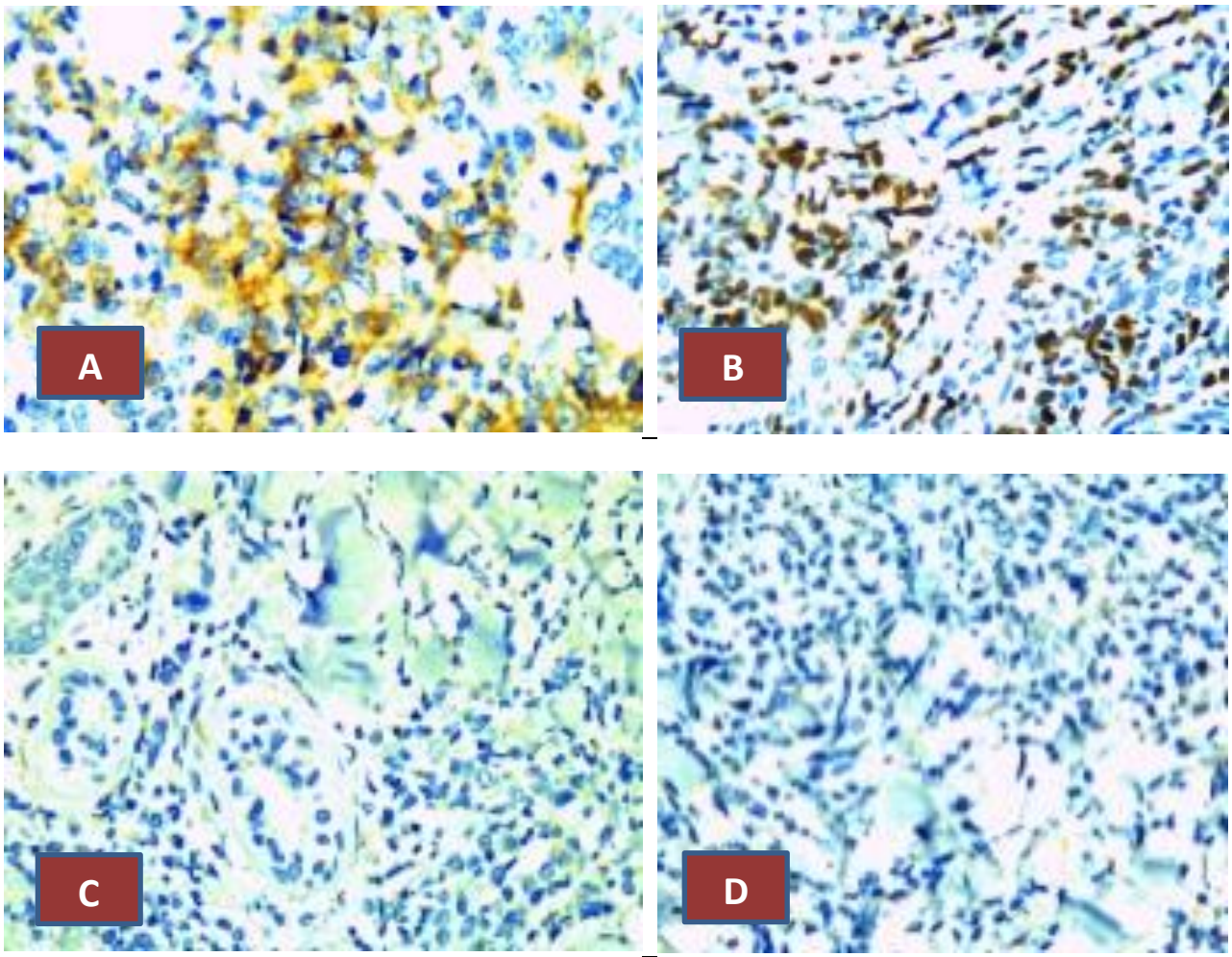
the figure below can be found in T cell lymphoma (Mycosis fungoides), patch stage, with the suggestion of examining 3-5 antibody immunohistochemistry for confirmation of diagnosis.



A. Band-like infiltrat (100 times magnitudes) ; **B.** Band-like infiltrat with neoplastic cells (400 times magnitudes) ; **C.** Groups of oval-round-nucleated cells, slighty pleomorphic, hyperchromatic, rough chromatin, prominent nucleoli with some mitotic cells (400 times magnitudes)

Figure 4. The histopathology figures of the patients' skin biopsy

We did confirm the diagnosis by doing immunohistochemistry assay from the skin biopsy speciment and the result show CD3+ (marker for T-cell) and Ki67+ (marker for tumour cell proliferation index), yet CD 20- and CD 56-, which show that it is not B-cell or NK (natural kiler) cell. These foundings strengthen the diagnosis of CTCL.



A. CD3+ (marker for T-cell) ; **B.** Ki67+ (marker for tumour cell proliferation index) ; **C.** CD20- ; **D.** CD56-

Figure 5: Immunohistochemistry assay

Clinical diagnosis:

A 61-year-old male was being diagnosed with bone marrow involvement from Cutaneous T Cell Lymphoma (CTCL).

Management:

The patient received intensive treatment from the clinician every day during the treatment, but the complicated condition caused the patient's condition to worsen and eventually died on the 15th day of treatment at the hospital.

DISCUSSION

Cutaneous T cell Lymphoma (CTCL) is a rare subtype of extranodular T-lymphocyte non-Hodgkin lymphoma, including in lymphoproliferative disorders, which are two-thirds of cases of primary cutaneous lymphoma, starting with infiltration of monoclonal non-Hodgkin T lymphocytes in the skin, different from lymphoproliferative disorders of skin cancer, constituting two-thirds of cases of primary cutaneous lymphoma, preceded by infiltration of monoclonal non-Hodgkin T lymphocytes in the skin, in contrast to lymphoproliferative disorders of skin cancer derived from non-lymphoid cells. The prevalence of the disease is more frequent in males than females (1.6: 1 to 2: 1) and is generally about 55-60 years of age. The CTCL classification was made by WHO-EORTC (2005) based on a combination of clinical symptoms and histopathological markers, but the two most common types were mycosis fungoides (MF) and Sézary syndrome (SS) (leukemic variants), which are three-quarters of all cases of CTCL . The characteristics of skin lesions are not typical, in the form of patches or plaques that are thick, reddish and itchy, similar to chronic eczema, atopic dermatitis or psoriasis, accompanied by enlarged lymph nodes.[1,2,4]

Mycosis fungoides (MF) at the early stages (erythematous phase) only looks like inflammation, so histopathological examination is necessary to be repeated every few months. The phenotyping characteristic for lymphocytes at the frequent cases of mycosis fungoides (MF) is CD3 + CD4 + CD5 + CD8−, whereas the rarer ones are CD4 − CD8 + or CD4 − CD8−. The progression of the disease can cause loss of T cell antigen characteristics so that CD30 + expression appears in phenotyping. The form of MF can also transitioned into CD30 + anaplastic large cell lymphoma or other more severe lymphomas. [7,8,9,10]

Sézary syndrome (SS) has a number of symptoms, including erythrodermic, general lymphadenopathy and the discovery of Sézary cells at the peripheral blood (the absolute number must be more than 1000 cells / mm2), lymph nodes and skin. The SS form has a histopathological picture that is similar to MF but more aggressive. Cell plurality can occur at an advanced stage with pleomorphic (Reed-Sternberg-like) characteristics that can make it difficult to diagnose to differentiate from other lymphomas, including Hodgkin's lymphoma.[7,8,9]

The most common distribution of extracutaneous CTCL is in the liver, spleen and lungs. A study of 60 cases of CTCL was carried out in 1989 by Salhany KE et al., which found CTCL spread in the bone marrow (marrow depiction shows the presence of nodules or infiltration of cerebriform dysplastic cells that are not so clear, without any significant increase in cellularity) in 13 patients (21, 21 7%). The conclusion obtained is that the spread of CTCL in the marrow occurs in about 20% of all cases, can be found at the initial diagnosis, and is associated with widespread distribution and shortened survival if an infiltrative component is found.[4,10,11]

The patient in this case complained of increasingly severe fatigue and the clinical condition that looked pale was a symptom of anemia, accompanied by patches of hyperpigmented macules that were not typical throughout the body. Early-stage CTCL patients are difficult to diagnose because clinical symptoms are not typical, so they are often diagnosed at an advanced stage after experiencing various complications.[10,11] Distribution of lymphoma cells in the bone marrow may cause suppression of other series in hematopoiesis, resulting in patients experiencing anemia and thrombocytopenia. Bronchopneumonia in these patients may be due to the condition of the patient's cachexia and immunodeficiency due to malignancy, making it susceptible to infection, especially nosocomial infections that cause patients suspected of being affected by hospital acquired pneumonia (HAP). The presence of intra-abdominal lymphadenopathy increasingly indicates the presence of visceral involvement leading to stage 4 of MF and SS.[7] Immunophenotyping and immunohistochemical examinations are needed to confirm the diagnosis, determine the appropriate therapy, and prognosis.[7,11]

CONCLUSSION

Based on history, physical examination, laboratory findings, histopathology evaluation, immunohistochemistry assay, bone marrow punction test, and radiology assays, all support the diagnosis of bone marrow involvement from Cutaneous T Cell Lymphoma (CTCL).

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Effect of Temperature Storage toward Glucose Levels of Rice

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ABSTRACT

Rice is a food source of carbohydrates that can be digested into glucose. Consuming rice will increase blood glucose levels. Storage temperature can affect glucose levels in rice. This study aimed to know the differences in glucose levels of rice stored in magic com and stored at room temperature. This study used a completely randomized design (CRD) with 2 treatment groups (rice stored at magic com and rice stored at room temperature). Storage time is 0 hours, 6 hours and 12 hours. Each examination was carried out 3 repetitions. Glucose levels were measured using the Luff Schoorl method.Glucose levels were measured by using the Luff Schoorl method. The Kruskal Wallis test was used to analyze differences in the glucose levels of rice stored in the magic com and stored at room temperature. The glucose level of rice stored in magic com for 6 hours was 3.31%, and for 12 hours was 2.16%. Whereas the glucose level of rice stored at room temperature for 6 hours was 2.60%, and for 12 hours was 2.16%. Bivariate analysis showed that there were differences in rice glucose levels stored on the magic com and stored at room temperature for 6 hours, but there was no difference in storage for 12 hours. A decrease in rice glucose levels during storage both stored at magic com and at room temperature.

Keywords: rice, glucose levels, storage temperature

INTRODUCTION

Health status is greatly influenced by lifestyle, especially diet, because the wrong diet will trigger various metabolic disorders, such as hyperglycemia. The recommended diet for people with hyperglycemia is a low carbohydrate diet to control blood glucose levels not higher than the normal limit. Glucose is a carbohydrate from the monosaccharide group. Glucose is obtained from the hydrolysis of starch around 1250 glucose molecules which play a role in producing energy in the body.

Rice is a source of consumption that is consumed by many Indonesian people. Based on data from the Central Statistics Agency in 2018 rice consumption reached 114.6 kg per capita per year [1]. This value is higher than in 2014, namely the level of rice consumption in Indonesia 84,628 kilograms per person per year [2]. The high level of rice consumption in Indonesia.

Every 100 grams of rice obtained from 50 grams of rice contains 39.8 grams of rice[3]. Diyah's research results (2016) showed that the calcium content in white rice per 100 grams is 25.4% [4]. While Puspidowati's research (2011) shows how the reducing sugar content in rice is already lower (31.76%) than in rice before cooked (95.48%) because in the cooking process some of it is lost and the content of reducing sugar is damaged[5].

Rice is a semi-finished product that must be cooked to become rice and can be eaten. There are several methods of processing rice into rice, namely traditional methods and modern methods[6]. In the current modern era, the selection of methods for processing people's rice chooses to use practical methods using magic com or rice cookers. Indonesian people cook rice one time for consumption in one day, eat rice for the next meal to be protected from damaging factors that increase physical, chemical and biological. Storage of rice can be done indoors with heating. As far as storage is concerned, food will change the quality of physical, chemical and biological. Factors that influence changes in rice during storage, namely the length of storage and storage temperature[7].

Storage of rice in a heater is done in order to preserve rice by giving heat. Heat is used to raise food temperatures and play a role in stimulating a chemical reaction, such as microbial killers and enzyme inactivation. Therefore, heating as a method of preserving food. However, the provision of heat for a long time can cause a decrease in the quality of

foodstuffs such as glucose content[8]. Based on the results of research by Hadawiyah (2018), it shows that the longer the heating in the rice cooker the reducing sugar levels in rice have increased[9]. This is because the starch content can increase the reducing sugar content. This statement is in accordance with Fadilah (2018), a long warm-up treatment will cause the breakdown of starch into simple sugars namely glucose, so as to increase the reducing sugar content in rice. In addition to the gelatinization of starch due to the heat hydrolysis process occurs. The hydrolysis process will break down starch molecules into simpler parts such as dextrin, isomaltose, maltose and glucose[10].

Based on this background, an analysis is needed to determine whether there are differences in glucose levels in rice stored at Magic Com and stored at room temperature.

MATERIALS AND METHODS

The research design is experimental research (experimental) in laboratories with a completely randomized design (CRD). The object of the study was white rice which was divided into 2 treatment groups (rice stored at magic com and rice stored at room temperature) and 3 repetitions. The study was conducted in July 2019 at the Setya Wacana Christian University Food Laboratory for rice processing and the Setya Wacana Christian University Chemical Laboratory for testing the glucose content of rice.

The tools used in this study include food scales, washbasins, measuring cups, magic com Miyako with a capacity of 2 kg with a voltage of 220 v, pots, pans, rice stirrers, Wakul, food thermometers, and room temperature thermometers. The test material in this study is white rice using IR 64 variety. IR 64 rice or often called Setra Ramos is the most widely circulated rice on the market because the price is affordable and widely consumed by the public. The amount of rice tested for glucose levels per sample was 100 grams.

Processing rice into rice using magic com with the procedure that is 1000 grams of rice washed 3 times and drained, then put into panic magic com then added 1640 water. Activate the magic com by pressing the "cooking" button and wait until the light changes to the "warm" sign and wait for 15 minutes, then the cooked rice is stirred evenly. The rice is then divided into two parts, one part is kept in a magic com and one part is stored in a container and placed in the room. Examination of rice glucose levels was carried out at the storage time of 0 hours (newly cooked), 6 hours and 12 hours. Examination of rice glucose levels by the Luff Schoorl method.

Bivariate analysis of data obtained from observations will be presented in tabular form. The test used for data processing and reporting uses a data analysis program with several tests performed, namely the Kruskal-Wallis test with. This test uses SPSS 16 if there is a real difference ($p < 0.05$) whereas if ($p > 0.05$) then it means that there is no real difference.

RESULTS

The research sample is rice processed from IR64 type white rice using a magic com rice cooker. A thousand grams of rice is washed twice and added 1640 ml of water and then put into a magic com, ignited until cooked and wait for 15 minutes and then stir thoroughly. Comparison of the amount of rice and the amount of water in this study is in line with research by Subarna (2005) "Development of the Optimal Cooking Method for Sintanur, IR 64 and Ciwerang Rice Variety" which in this study there is a standardized comparison of rice and water for IR64 rice varieties with modern methods use a ratio of water ratio of 1640 ml for every 1 kg of rice[6]. The cooked rice is sampled 3 times 100 grams to be checked for glucose levels, then the rice is taken half the parts are stored in a basket in a closed state and placed at room temperature. Some rice is still stored in the magic com in a warm condition. After 6 hours of storage 3 times, 100 grams of rice were taken at Magic Com and 3 times 100 grams of rice in baskets, then glucose levels were examined. The same thing is done after 12 hours of storage.

The temperature 0-hour storage is 95.6 ° C, then storage for 6 hours the temperature of rice at magic com becomes 81.3 ° C and at 12 hours storage drops again to 75.1 ° C. According to Mahardika (2011), it states that the storage temperature in a rice cooker is 70-85 ° C and the longer the heating time in a rice

cooker the temperature will increase to 85 ° C. But in this study, the storage temperature in rice decreased but in a warm condition. The decrease in temperature in this study was due to the time the magic com temperature measurement process was opened repeatedly so that the rice in the magic com was oxidized to room temperature so that the resulting temperature would decrease. In addition, it causes steam to come out and reduce pressure by lowering the temperature inside the cooker.

The results of the Kruskal-Wallis test statistic analysis showed that in the storage period of 6 hours there were differences in glucose levels in rice stored at magic com and at room temperature ($p < 0.005$), but at 12 hour storage temperature there was no difference in glucose levels ($p > 0,05$) in the treatment of rice storage. Glucose levels of rice have decreased during storage, both rice stored at magic com and rice stored at room temperature. At the 12-hour storage period, the two rice treatment groups contained the same glucose levels, ie 2.16%.

Table 1. Differences in rice glucose levels stored at magic com and those stored at room temperature

Long Storage of Rice (hour)	Rice Storage Temperature (°C)		Mean Glucose Levels (%)	p
0	*Magic com*	95,6	4,65	1,000
	Room temperature	95,6	4,65	
6	*Magic com*	81,3	3,31	0,046
	Room temperature	25	2.60	
12	*Magic com*	75,1	2,16	1,000
	Room temperature	20,8	2,16	

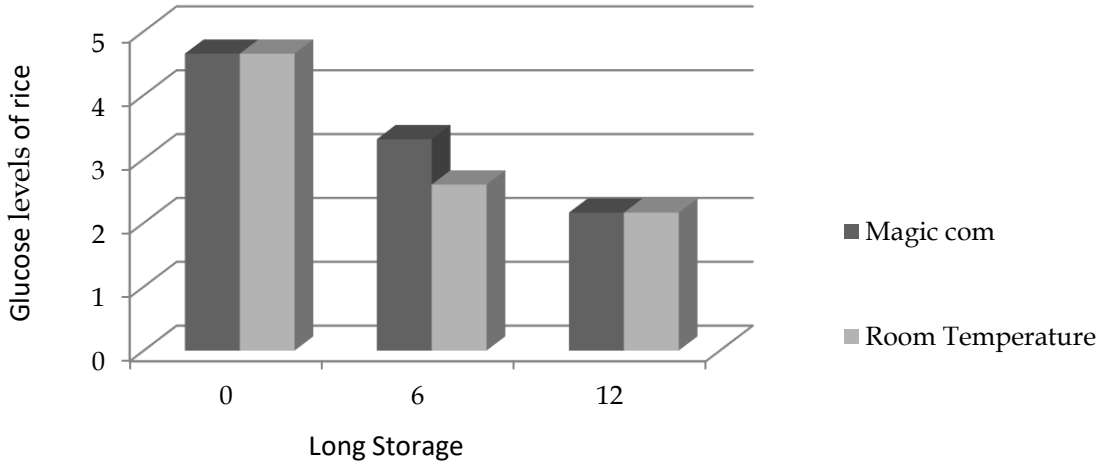

Figure 1. Graph of rice glucose levels stored in magic com and stored at room temperature

DISCUSSION

The sample group of rice stored at magic com and rice stored at room temperature both decreased glucose levels. At the 12-hour storage period, the two rice treatment groups had the same glucose content of 2.16%. Based on research conducted by Islamiyah (2013), rice glucose levels have decreased with the duration of storage time in the heater. This happens because during the storage of rice, the glucose oxidation process occurs[12]. During the oxidation process, glucose is converted into carbon dioxide and water. In addition, the temperature of the heater is quite high at 71.5 ° C causing damage to the compounds found in rice[13].

Decreased glucose levels as a result of changes in temperature which then affect the structure of starch in rice so that the resistant starch contained in rice increases in levels[14]. Rice that has decreased temperature for a long time will undergo a retrogradation process so that the rice has higher levels of resistant starch

compared to newly cooked rice. The level of resistant starch in rice stored 24 hours (retrograde) is 13.9 ± 0.98, while the level of resistant starch in newly cooked rice is 9.1 ± 1.02 14. Starch resistant starch is undigested pigeon well in the small intestine but fermented in the large intestine by microflora. Pati resistant is present in various forms and levels of stability. Metrographated starch, especially amylose, is the most stable type of resistant starch. This is because straight amylose chains are easily graded and when the amylose chains are re-joined (retrograde) they form a polymer that is compact and difficult to hydrolyze by digestive enzymes[15].

Resistant starch in food is influenced by several factors such as processing and the presence of other compounds. In the processing process, the gelatinization process can increase the solubility and digestibility of starch so that it can reduce the resistant starch content of the material. However, the process of heating and re-cooling can lead to the formation of insoluble starched methadrone[16]. Eating foods with high levels of resistant starch can control the increase in blood glucose levels due to slow glucose release (5-7 hours). This can reduce the body's insulin response and normalize blood glucose levels again[17]. A 2009 study showed that consuming resistant starch can effectively improve insulin resistance in patients with type 2 diabetes [18]. A 2009 study showed that eating foods containing resistant starch can reduce postprandial blood glucose levels and increase insulin production[19].

CONCLUSION

There is no difference in the glucose levels of rice stored at magic com and rice stored at room temperature, but there is a decrease in rice glucose levels during storage both stored at magic com and at room temperature. For patients with hyperglycemia who control blood glucose levels, it is better to consume rice that has been stored several hours after it is cooked because the glucose level has decreased.

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The Correlation between the Characteristics and the Knowledge on Anemia of the Pregnant Women in Semarang, Indonesia

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ABSTRACT

Anemia during pregnancy is a problem for pregnant women that can cause maternal death. Knowledge of pregnant women about anemia is needed for prevention strategy of anemia. The study aims to analyze the correlation between characteristics and knowledge on anemia of pregnant women. A cross sectional study was conducted on pregnant women in Semarang with 264 respondents. Cluster sampling was conducted toward pregnant women who visit the health center service, able to read and cooperative. The instrument consists of knowledge about anemia during pregnancy. The characteristic variables are related to the knowledge with spearman analysis. The result shows that most pregnant women are well-informed. The characteristic which are related to the anemia knowledge is the frequency of Fe consumption ($p = 0.020$), meanwhile the age, education, gravid, history of anemia, income are not significantly correlated with. Having knowledge on the anemia during the pregnancy will improve the mothers' attitude in consuming Fe tablets so it is important to conducting educational methods innovatively for pregnant women on anemia for example by using software application.

Keywords: anemia on pregnant women; Fe consumption; knowledge

INTRODUCTION

The problem of anemia on women has a broad spectrum of health during pregnancy to the puerperal. Anemia during pregnancy can result in stunted fetal growth, but it is also a risk factor for bleeding. Anemia in pregnant women affects 37.1% of them, the government targets on the 2019 the prevalence decreased to be 28% (Health Office, 2015).

The condition of maternal death can occur during pregnancy, childbirth or during puerperal. Pregnant women who have anemia are strongly related to the incidence of bleeding and risk 8.073 times for postpartum hemorrhage (Lestari, 2014). Bleeding is still the greatest cause of maternal death.

Pregnant women are at risk for anemia at anytime. Early identification and early treatment prevents further consequences. Mother's knowledge toward anemia affects on the mothers' attitude on the prevention and treatment. One of the ways to preventing anemia is the level of Fe consumption.

Mothers' knowledge toward anemia as well as the factors that contribute to it can be act as the input to the education selection strategy for pregnant women. Effort to provide education to pregnant women is one of the strategies to reduce the incidence of anemia (Adawiyani, 2013). Education with booklets makes a significant difference to the knowledge on how to consume the blood and hemoglobin tablet. The educational method by inviting the pregnant women to attend prenatal class is considered as no longer optimal as the daily preoccupation of the pregnant women.

MATERIALS AND METHODS

This study design is cross sectional study with consecutive sampling of the population of pregnant women in the city area of Semarang in 2018. The samples were obtained as much as 246 pregnant women with the criteria namely living in Semarang and able to read and write. The instrument used was an instrument of characteristic and knowledge of anemia which consists of 30 statements with 'right' and 'wrong' as the answers' choices.

Based on Ethical clearance No. 599 / EC / FK-RSDK / VIII / 2018 this study has met the standards as in the 1975 Helsinki Declaration.

RESULTS

Based on the research which was conducted toward 246 pregnant women in Semarang, it is found there are information on the characteristics of them, namely age, educational level, gravid, gestational age, mother's history of anemia, Fe consumption, and income. the information is presented on the table bellow.

Table 1. Pregnant Women Characteristics in Semarang (n=246)

Variables	Mean (min-max)	F (%)
Age	28,6 (17-43)	
Educational Level		
Elementary		13 (5,3)
Junior high		62 (25,2)
Senior high		126 (51,2)
College/university		45 (18,3)
Gravid		
1		80 (32,5)
2		90 (36,6)
3		60 (24,4)
More than 3		16 (6,5)
Gestational Age	22,61 (4-40)	
History of Anemia		
Yes		73 (29,7)
No		173 (70,3)
Fe Consumption		
Rarely		86 (35,0)
Often		71 (28,9)
Regularly		89 (36,2)
Income (million rupiah)	2,27 (0,7 – 3)	

The information reveals that the average of the pregnant women is 28 years old. Those who are categorized in senior high school on the level of education places the highest with 126 women (18.3%). Furthermore the gravid 2 is also place in the first place with 90 women (36.6%). It is also found that the average of the gestational age of those pregnant women is 22 weeks. Moreover, it is also found that 70% of them are not having any history of anemia. In term of Fe consumption, it is found that most of them is consuming iron tablet regularly (36.2%).

Table 2. Pregnant Women's Knowledge toward Anemia

Variable	Frequency	Percentage
Knowledge		
Lack	45	18,3
Enough	189	76,8
Well	12	4,9

From the investigation, it can be revealed on the pregnant women's knowledge toward anemia. From the 246 correspondents, the majority of them is having sufficient knowledge on the anemia for pregnant women, it is proved that fact that there are 189 women (76.8%) are having sufficient knowledge.

Table 3. The Correlation between Pregnant Women's Characteristics and Knowledge on Anemia

Variable	R	p value
Age	-0,079	0,218
Educational Level	0,044	0,491
Gravid	-0,009	0,894
Gestational Age	-0,016	0,806
History of Anemia	-0,008	0,906
The Frequency of Fe Consumption	0,148	0,020
Income	-0,098	0,127

From the table above, it can be seen that the frequency of consuming Fe or iron tablet is strongly related to the knowledge of anemia on the pregnant women. It is proved by the number of reliability (0.148) and the p value (0.020) of this characteristic places the highest among the other characteristics. This can be inferred that the higher consuming the Fe tablet by the pregnant women leads to the more understanding of the knowledge on anemia toward the pregnant women possessed by the pregnant women.

DISCUSSIONS

The results show that most pregnant women in Semarang have sufficient knowledge on anemia yet only a small number is having good knowledge. Knowledge is correlated to the incident of anemia, it is happened when knowledge on the anemia is sufficient for pregnant women who are at risk of anemia (Purbadewi, 2013; Riny, 2014).

Knowledge is sourced from information media which is provided by health workers, online media through the website. The exposure to information sources provides the input toward pregnant mothers on the anemia. The result shows that the level of education has no significant relation to mother's knowledge on the anemia. This can be inferred that formal education does not show the knowledge level on the anemia. Knowledge about anemia is obtained through other health education.

Certain characteristic which is related to the knowledge of the anemia on the pregnant women is the frequency of Fe consumption. Consuming Fe regularly every day shows that someone has an understanding of why pregnant women should consume it. This understanding is shown after someone knows the information about anemia for pregnant women. Various sources of information about anemia are available and can be easily accessed either online or physically.

This study is in line with other studies which state that the pregnant women who are lack of knowledge on the anemia will lead to the compliant to consume iron tablets meanwhile the mothers who are well-informed are all obedient in consuming the iron tablet (Winardi, 2018). Mothers who have high consumption of Fe showed more compliant. Knowledge which is possessed by pregnant women becomes a provision for them to behave accordingly.

Knowledge is influenced by education, age, income, exposure to information and social culture. This is different from the results of this study that knowledge is not influenced by age, education, gravid, gestational age, history of anemia and income.

Risk factors for anemia in pregnancy occur at 30-32 weeks of pregnancy. The result shows that the average gestational age of the mother during the research is 22 weeks. Second trimester is a time to increase the use of blood particles for oxygenation and nutrition to the fetus. Therefore, pregnant women at the period of starting the second trimester are at risk of anemia. There is an opportunity to increase the understanding toward anemia for pregnant women so that in the period of 30-week, the consumption of Fe tablets will increase.

Previous history of anemia is also a risk factor for anemia during pregnancy. The result shows that the history of anemia is not related to the mothers' knowledge on it. the history of anemia is an experience for pregnant women in facing pregnancy complications. Smart pregnant women certainly do not expect to experience the anemia for the second times.

CONCLUSIONS

Pregnant mothers' knowledge toward anemia is sufficient enough. Efforts are needed to improve the understanding of pregnant women toward anemia such as prenatal class optimization.

There is a significant relation between the frequencies of consumption of Fe tablets with the knowledge of pregnant women on the anemia. It is needed to increase self-awareness of pregnant women on the importance of consuming Fe tablets.

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Posthemorrhagic Postpartum Hysterectomy Et Causa Uterine Atony

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ABSTRACT

Introduction : Postpartum hemorrhage (PPH) is an important cause of maternal mortality (MM) around the world. Seventy percent of the PPH corresponds to uterine atony. **Background :** Postpartum hemorrhages are obstetrical complications, which can rapidly become life threatening. They are defined as follows: a blood loss of either more than 500 ml after vaginal delivery or more than 750 ml after a Cesarean section. This type of hemorrhage is described as severe when the blood loss consists of more than 1500 mL, more than 500 mL/min, or when hemoglobin concentration drops by at least 4 g/dL. They can either be primary, when a blood loss of more than 500 mL occurs over the first 24 hours postdelivery, or secondary, when excessive bleeding occurs between the first 24 hours and 12 weeks post-delivery. **Case** : A 28-year-old G1P1 postpartum with uncomplicated caesarian sectio, is readmitted to operating theatre four hours after delivery due to increased vaginal bleeding. She reports that the bleeding began on the first hour after delivery and has increased in severity each subsequent hour. The obstetrics team has ruled out uterine atony as the cause of bleeding. **Conclusion** : Patients with severe hemorrhage and hypovolemic shock, the most important therapy is intravascular volume resuscitation, to reduce the possibility of target organ damage and death. The current proposals of transfusion therapy in massive hemorrhage point is early transfusion of blood products and use of fresh frozen plasma, in addition to packed red blood cells, to prevent maternal deaths.

Keywords: Uterine atony; pregnancy; hemorrhage management.

INTRODUCTION

Postpartum hemorrhage (PPH) is an important cause of maternal mortality. After establishing PPH (>or=500 mL blood loss) and severe PPH (SSPH) (>or=1000 mL blood loss) as main outcomes the prevalence of PPH and SPPH is approximately 6% and 1.86% of all deliveries. Maternal mortality due to postpartum hemorrhage (PPH) continues to be one of the most important causes of maternal death worldwide. PPH is a significantly underestimated obstetric problem, primarily because a lack of definition and diagnosis. (1,2)

Postpartum hemorrhage is traditionally defined as blood loss greater than 500 mL during a vaginal delivery or greater than 1,000 mL with a cesarean delivery, occurs in up to 18 percent of births. Blood loss exceeding 1,000 mL is considered physiologically significant and can result in hemodynamic instability. Even with appropriate management. However, significant blood loss can be well tolerated by most young healthy females, and an uncomplicated delivery often results in blood loss of more than 500 mL without any compromise of the mother's condition. Early postpartum hemorrhage occurs within 24 hours of delivery and late postpartum hemorrhage occurs 24 hours to 12 weeks after delivery. Most cases of postpartum hemorrhage are early postpartum hemorrhage. With many women delivering outside of hospitals and early postpartum hospital discharge being a growing trend, postpartum hemorrhage that presents to the emergency department may be either early or late. These patients are usually critically sick and warrant early surgical and medical intervention. (3-5)

Here we are reporting one case of postpartum hemorrhage in our hospital and was managed successfully.

CASE REPORT

A 28-year-old G1P1 postpartum with uncomplicated caesarian sectio, is readmitted to operating theatre four hours after delivery due to increased vaginal bleeding. She reports that the bleeding began on the first hour after delivery and has increased in severity each subsequent hour. During her antenatal check up, she was diagnosed to have macrosomia . On

arrival, she was conscious but irritable, blood pressure unrecordable, pulse rate 150/min, respiratory rate 50/min and gasping, so the patient was immediately intubated. Hb was 6.4 gm%, platelets 50,000/µL and INR 2.15. The obstetrics team has ruled out uterine atony as the cause of bleeding. Blood and blood products were arranged and total hysterectomy was done. Patient was transfused 4 PRC, 4 FFP, 4 cryopresipitate and 4 platelet products in the O.T. Table 1 shows the haematological reports of the patient during first eight days of ICU stay.

Table 1. Haematological reports of patient during Hospital stay

Parameter	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8
Hb g/dl	8.4	10	7.4	5.8	8.0	8.0	10.1	10.9
TLC 10^3/µL	12.2	5.5	5.5	9	17.2	19.0	17.8	19.6
Plt 10^3/µL	60	70	28	125	39	81	68	88
Hct (%)	26.1	31.5	23.3	17	25.1	25.1	32.2	34.8
INR	2.2	2.4	1.4	1.2	1.1			

On first postoperative day, patient was having bleeding per vagina, hematuria, Ryle's tube bleed, bleeding from suture line and from nostrils. Patient was diagnosed to be in disseminated intravascular coagulation and 2 FFPs, 2 single donor platelets and 2 whole blood transfusion was given. Blood pressure still dropped and patient was taken on inotropic support of dopamine and norepinephrine. After this the patient's blood pressure improved to 120/70mmHg, pulse rate was 128/min, SpO2 99%, central venous pressure 10 cm of normal saline and urine output was adequate. For next four days patient was kept on complete ventilatory support after adequate sedation and paralysis. On third post operative day, patient had bilateral lung shadows on X-ray and a differential diagnosis of transfusion related acute lung injury (TRALI), ARDS, lung infection or fluid overload was kept. Ventilatory support was extended for a total of eight days after which the patient was weaned off from invasive ventilation. Patient was still weak and tachypnoic so a noninvasive ventilatory support was extended for three more days. Presently she has been shifted to ward in a stable condition.

DISCUSSION

Risk factors for postpartum hemorrhage include a prolonged third stage of labor, multiple delivery, episiotomy, fetal macrosomia, and history of postpartum hemorrhage. However, postpartum hemorrhage also occurs in women with no risk factors, so physicians must be prepared to manage this condition at every delivery. Strategies for minimizing the effects of postpartum hemorrhage include identifying and correcting anemia before delivery, being aware of the mother's beliefs about blood transfusions, and eliminating routine episiotomy. Reexamination of the patient's vital signs and vaginal flow before leaving the delivery area may help detect slow, steady bleeding.(1,2)

The best preventive strategy is active management of the third stage of labor. Hospital guidelines encouraging this practice have resulted in significant reductions in the incidence of massive hemorrhage. Active management, which involves administering a uterotonic drug with or soon after the delivery of the anterior shoulder, controlled cord traction, and, usually, early cord clamping and cutting, decreases the risk of postpartum hemorrhage and shortens the third stage of labor with no significant increase in the risk of retained placenta. Compared with expectant management, in which the placenta is allowed to separate spontaneously aided only by gravity or nipple stimulation, active management decreases the incidence of postpartum hemorrhage by 68 %. (1-3)

The diagnosis of postpartum hemorrhage begins with recognition of excessive bleeding and methodic examination to determine its cause. The "Four Ts" mnemonic (Tone, Trauma, Tissue, and Thrombin) can be used to detect specific causes (Table 2).

Table 2. The "Four Ts" Mnemonic Device for Causes of Postpartum Hemorrhage

FOUR TS	CAUSE	APPROXIMATE INCIDENCE (%)
Tone	Atonic uterus	70
Trauma	Lacerations, hematomas, inversion, rupture	20
Tissue	Retained tissue, invasive placenta	10
Thrombin	Coagulopathies	1

PPH is a leading cause of death and morbidity relating to pregnancy. Causes of postpartum hemorrhage are uterine atony, trauma, retained placenta, and coagulopathy. Uterine atony is the leading cause of PPH. Women with PPH in a pregnancy are at increased risk of PPH in a subsequent pregnancy. (3-5) Risk factors leading to increased risk of PPH are:

- Emergency Caesarean section(CS) (9 times risk)
- Elective CS (4 times risk) - especially if >3 repeat procedures
- Retained placenta (5 times risk)
- Medio-lateral episiotomy (5 times risk)
- Operative vaginal delivery (2 times risk)
- Labour of >12 hours (2 times risk)
- >4 kg baby (2 times risk)
- Maternal pyrexia in labour (2 times risk)

If pharmacological measures fail to control the haemorrhage, one should resort to early surgery:

- Bilateral ligation of the uterine arteries or bilateral ligation of the internal iliac (hypogastric) arteries.
- An alternative to ligation is embolisation with gelatin sponge. Amenorrhoea has been reported following this, secondary to necrosis of the uterine wall and obliteration of the cavity.
- Uterine bracing suture to the anterior and posterior uterine walls has been shown to be effective and safe with reports of successful pregnancy following its use.

Hysterectomy should be considered early, especially in cases of placenta accreta or uterine rupture. (3-5)

CONCLUSION

Post partum haemorrhage continues to be a leading cause of maternal morbidity and mortality in developed countries. Causes of postpartum hemorrhage are uterine atony, trauma, retained placenta, and coagulopathy. Uterine atony is the leading cause of PPH. Awareness of this fact, anticipation and prevention of uterine atony, as well as avoiding unnecessary cesareans, episiotomies, and other genital tract trauma have the potential to significantly reduce PPH.

Women with PPH in a pregnancy are at increased risk of PPH in a subsequent pregnancy. This case highlights the need for medical staff to be aware and alert to unusual risk factors. However, these factors may be unavoidable and early surgical intervention as per local protocol is recommended to minimise maternal morbidity.

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