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Research Article

Self-Intuitive Therapy and Psychomotor Activity with Angel Brachial Index (ABI) To Prevent the Risk of Diabetic Foot Complications at The Mokoau Health Center

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Abstract

Therapy Self Intuitive Dan Activity Psikomotor Dengan Angel Brachial Index (Abi) Self Intuitive Therapy and Psychomotor Activity with Angel Brachial Index (Abi) To Prevent the Risk of Diabetic Foot Complications at Mokoau Health Center Blood flow disorders in the legs can be detected by measuring the ankle brachial index (ABI). This study aims to analyze the development of a self-intuitive model and psychomotor activity to prevent the risk of diabetic foot complications with Angel Brachial Index (Abi) in outpatients at the Mokoau Health Center. This study is manifold. descriptive and experimental as for The population in this study was all Diabetes Mellitus patients who underwent outpatient treatment at the Mokoau Health Center in 2018, namely as many as 2500 rang the sampling technique used in this study was a consequtive sampling technique, The number of samples in this study according to the inclusion and exclusion criteria was 40 respondents Data analysis in this study was using univariate data analysis and bivariate data analysis. By using the Independent T-test differential test, the results of this study were obtained sig 0.00<a value of α=0.05 meaning that there was a significant difference between the ABI value before therapy and after therapy this conclusion was that there was a change in ABI value before and after recommended therapy While maintaining and controlling blood sugar levels under normal conditions, as well as routinely doing Self Intuitive activities and Psychomotor Activities to reduce the risk of diabetes ulcers Mellitus.

Keywords: Self intuitive, Psychomotor activity, Diabetic Foot Complications with Angel Brachial Index (Abi)

Introduction

Diabetes mellitus (DM) is one of the most universally recognized metabolic problems, with a high prevalence supported by most Western countries and rapidly growing in Asia and elsewhere. The total number of patients assessed reached 463 million from 2019 and is projected to surpass 700million by 2045 [1]. The results of the 2018 Basic Health Research (Riskesdas) show that the spread of diabetes mellitus based on glucose test results increased from 6.9% in 2013 to 8.5% in Indonesia. The dominance of this disease is not only widespread in the adult age group but also in the adolescent age group, especially the age of 15 years [2].

Along with the increasing cases of diabetes mellitus worldwide, the increasing complexity is also undeniable [3,4] (Likewise, 28%-51% of diabetics will experience a second lower health decline in no time. Less than five years since the first leg surgery [5] also about 85% begins with a diabetic ulcer which then progresses to severe gangrene or disease [4]. Increasing age, especially in men, which predominates in the limbs are peripheral vascular disease, peripheral neuropathy, and kidney infection, and weight gain, unfavorable diabetes control, and longer diabetes are the determinants of death after ulceration which is the cause of the high mortality rate of diabetics [6-8].

Diabetes mellitus (DM) is one of the most widely recognized metabolic problems universally, with a supported high prevalence in most Western countries and a rapidly growing spread in Asia and various districts. The total assessed patients reached 463 million annually in 2019 and are projected to exceed 700 million by 2045 [1]. Consistently, specifically, about 1%-4% of diabetic patients induce diabetic foot ulcers (DFU); [9] (DJ Margolis, 2005) Also, about 25% of DM patients will experience at least one foot ulcer during the disease [9].

This persistent metabolic disease seems to have an increasing pattern going forward, as the way of life has changed a lot in the modern world. Currently DM is seen as a dangerous disease and has different complexities, such as retinopathy, nephropathy, neuropathy, and failure as well as cardiovascular disease that must be treated in therapy [10-14]. This infection is also referred to as one of the metabolic diseases and one of the four non-communicable diseases that most affect overall health, social and economic status [15] Muscle relaxation treatments reduce the movement of the sympathetic nervous system, which is enhanced by mental or physiological actions. Reduced sympathetic nervous system movement leads to a lower pulse rate (HR), lower respiratory rate (RR), and lower circulatory pressure. In addition, muscle relaxation treatments control the peripheral and central nervous systems, which can reduce stress, nervousness, and hopelessness, which is an action against medical problems [16].

Diabetic foot is a complication of diabetes, peripheral neuropathy, or known as Peripheral Arterial Disease (PAP), Ankle -brachial index (ABI) is one of the vascular assessments used for diabetics who have PAP. Subjective and quantitative part of peripheral atherosclerosis. This makes the ABI assessment a reasonable proportion of the seriousness and seriousness of atherosclerotic injuries of the lower extremities [17]. ABI was surveyed by estimating the proportion between systolic blood pressure in the lower limbs and the right and left brachial arteries [18]. The Glycated Hemoglobin (HbA1c) test is a test that provides a typical sign of blood glucose levels over the past few months, which provides evaluation about one's glucose control. There is no accessible conclusive treatment for diabetic peripheral neuropathy, so prevention, early recognition, and routine glycemic control are of the utmost importance [19]. When blood glucose levels are not controlled, there is a possibility of complications of diabetic foot [20].

Reduced blood circulation in the legs begins with hyperglycemia, causing excess glucose (hyperglycolia) in the nervous tissue. Hyperglycolia will alter the action of different biochemical pathways (Advanced Glycosylation end products (AGEs) and Protein Kinase C). The application of these different biochemical pathways results in the absence of vascular vasodilation, which results in reduced blood flow to nerves [21,22]. Reduced blood flow in the legs will cause the lower leg systolic pulse to be opposite to the arm systolic circulation pressure [23]. The proportion of the lowest and farthest point in the systolic circulation is known as the Ankle Brachial Index (ABI) . An ABI value below 0.90 indicates a decrease in blood flow to the peripheral nerves from the lower leg [24]. Reduced blood flow to the nervous system causes ischemia in the nervous system [25,26]. This causes changes in the natural chemistry of nerve cells and interferes with the digestion of Schwann cells which causes demyelination of nerve filaments so that nerve conduction will be disrupted which causes decreased consciousness of the feet [27].

Judging from the consequences of perception and estimation in 20 patients with type II DM when visiting the Mokoau health center, 60% of patients experienced a decrease in ABI complaining of thick feet, numbness and tingling. Ischemia in the nervous system can result in disrupted nerve impulse transmission so that it will damage nerves [25]. This causes changes in the biochemistry of nerve cells and interferes with the metabolic activities of Schwann cells which results in demyelination of nerve fibers so that nerve conduction will be disrupted which causes a decrease in foot sensitivity [23].

Based on the results of observations and measurements in 20 patients with type II DM during a visit to the Mokoau Health Center, 60% of the patients had a decreased ABI value, complaining of thick feet, numbness, and tingling.

Research Methods

This research is descriptive and experimental. The population in this research is as many as 250people, which is in accordance with secondary information and preliminary studies conducted by researchers. The sampling method used in this research is a consecutive sampling method, the number of samples in this research is 40 respondents and the data analysis in this research is. Univariate analysis Variables in the form of categorical are presented in the form of proportions, on the other hand the variables in the form of numeric (age, length of exposure to Decimeters, KGD during, and ABI values) are presented in the form of values in the form of frequency distribution.

The analytical methods used in this research are: comparison of the effects of the formation of diabetic foot complications between the pre and post-therapy groups. Independent T-test was used with a value of $p<0.05$; while the paired T-test or this different test is used to test the difference between the dependent variable on an interval/ratio scale, namely by equating the effect value of diabetic ulcer formation before and after the intervention with the ABI value,

Results and Discussion

(Table 1) Based on the table above, the characteristics of the respondents are based on age, if the research took place from 40 respondents, most of whom were in the middle age range of 45-59 years, there were 31people (77.5%) and the elderly were 60-74 years old. 9people (22,5%). on the other hand, respondents with male sex are 10 (25%) which means less than female sex, which are 30 (75%) and are sourced at the level of education, as long as the research takes place from 40 respondents, most of whom are at the level of higher education. is 22 people (55%).

Table 1: Characteristics of Respondents.

Variable		Frequency	%
Age			
Middle age	(45 – 59)	31	77.5
Elderly	(60 – 74)	9	22.5
Old age	> 75	0	0
Gender			
Man	l	10	2 5
Woman	P	30	7 5
Education			
Basic education	SD	0	0
Secondary Education	Middle/high school	18	45
Higher education	PT	22	55

Table 2: Frequency Distribution of Respondents Based on 60 Second Screening (Risk of Diabetic Ulcers) In the First Week (Mg 1) and Last Week (Mg 4) At Mokoau Health Center Kendari City Year 2018

No	Activity Screening	Initial Screening of Activities (Mg 1)				End of Activity Screening (Mg 4)			
		F kki	(%)	F kka	(%)	F kki	(%)	F kka	(%)
1	Very low	2	5	2	5	4	10	5	12.5
2	Low	17	42.5	10	25	31	77.5	30	75
3	moderate	16	40	25	62.5	5	12.5	5	12.5
4	Height	5	12.5	3	7.5	0	0	0	0
5	Very high	0	0	0	0	0	0	0	0
Amount	40	100%	40	100%	40	100%	40	100%	

Note*: Source: data processed 2018.

(Table 2) From the table above, it can be seen that from a study of 40 respondents, it showed that respondents by measuring 60 Second Screening (Risk of Diabetic Ulcers) In the Early Week (Mg 1) on the left foot the highest risk was 16 (40%) and on the left foot the highest risk was 16 (40%) the highest right leg was at moderate risk 25 (62.5%) And the last week (Mg 4) was seen in the highest left leg with low risk 31 77.5%) while on the right leg it was also at low risk 30 (75%)

Table 3: Frequency Distribution of Respondents Based on Anxiety Screening in the First Week (Mg 1) at Mokoau Health Center Kendari City in 2018.

No	Anxiety Screening	Frequency (f)	Percentage (%)
1	Don't worry	2	5
2	Mild Anxiety	4	10
3	Moderate Anxiety	4	10
4	Heavy Anxiety	10	25
5	Very anxious	20	50
	Total	40	100%

Note*: Source: data processed 2018.

(Table 3) From the table above, research on 40 respondents showed that the respondents' anxiety level by measuring the anxiety screening in the early weeks (Mg 1) was highest at the level of very severe anxiety 20 (50%).

Research Variable Analysis

(Table 4) From the table above, it can be seen that from a study of 40 respondents based on the ABI value (Angel Brachial Index) to see the risk of foot complications, it shows that there is a change in the ABI value of pree and post-therapy respondents from mg 1 to mg 4 towards normal while the value The highest normal value was 40 respondents after post therapy weeks 2,3, and 4 while the highest abnormal ABI value was 31 respondents at week 3.

Table 4: Angel Brachial Index (Abi) value on the risk of foot complications diabetes before and after exercise Self Intuitive and Psychomotor Activity for 4 weeks at Mokoau Health Center Kendari City.

No	ABI	Mg1		Mg2		Mg3		Mg4	
		pre	post	pre	post	pre	Post	pre	post
1	Normal	11	39	16	40	9	40	13	40
2	Tidak normal	29	1	24	0	31	0	27	0
jumlah	40	40	40	40	40	40	40	40	

Note*: Source: data processed 2018.

Table 5: Frequency distribution of respondents based on the Angel Brachial Index (Abi) value on the risk of diabetic foot complications before exercise Self Intuitive and Psychomotor Activity at the Mokoau Health Center, Kendari City, Kendari City in 2018.

No	ABI pree/post therapy	Pree therapy		Post therapy	
		Pre (f)	(%)	Posts (f)	(%)
1	No Risk	18	45	34	85
2	at risk	22	55	6	15
	Total	40	100%	40	100%

Note*: Source: data processed 2018.

(Table 5) From the table above, from a study of 40 respondents it showed that by measuring the Angel Brachial Index (Abi) value on the risk of developing diabetic ulcers at the beginning of the activity, the highest was 22 (55%) meaning that there was a risk of diabetic ulcers, while after therapy was carried out late. activity looks 34 (85%) not at risk.

Table 6: Differences in Angel Brachial Index (Abi) Values Against the Risk of Diabetic Foot Complications Before and After Exercise Self Intuitive and Psychomotor Activity at Mokoau Health Center Kendari City

Variable	Mean	SD	t	Difference	df	sig
Before After	40000	59052	4284	21114	39	0

Note*: Source: Primary data 2018.

(Table 6) The data is in table 6. The output of the Paired Samples Test is sig 0.00<value = 0.05, meaning that there is a significant difference between the ABI values before and after therapy.

Table 7: Paired Sample Statistics.

		mean	N	Std. Deviation	Std. Error Mean
Pairs 1	VALUE ABI PRE	1.55	40	0.50383	0.08
	VALUE ABI POST	1.15	40	0.36162	0.06

*: Source: data processed 2018.

(Table 7) And in the paired statistical sample the mean pre and post ABI values with a mean value difference of 4000 this indicates that there is a change in the ABI value before and after therapy where before therapy the mean value of 15500 the risk for diabetic ulcers is quite large while the post-therapy mean value is 11500 with more risk low.

Discussion

ABI Value Before and After Self Intuitive Exercise and Psychomotor Activity

The ABI value before intervention was attempted in patients with diabetic ulcer effects is shown in Table 4.6. The results of the research show that at weeks 1 to 4 the average ABI value of the

abnormal type is 0.90, compared to the right extremity the average ABI value is only 0. 89. The results showed that before therapy (exercise) Self Intuitive and Psychomotor Activity for 4 weeks showed that there was a change in the ABI value of pre and post therapy respondents from mg 1 to mg 4 towards normal while the highest normal value was 40 respondents after post therapy. weeks 2,3, and 4 while the abnormal ABI values were 31 respondents at week 3.

Risk of Diabetic Foot Complications based on ABI values before Self Intuitive Exercises and Psychomotor Activity

The results of this study indicate that there are research subjects who experience Peripheral Arterial Disease (PAD) which is indicated by the low ABI value. The Angel Brachial Index (Abi) values the risk of developing diabetic ulcers at the beginning of the activity, the highest 22 (55%) means that there is a risk of diabetic ulcers. Researchers agree with Subekti that decreased foot response begins with hyperglycemia, leading to excess glucose (hyperglisalia) in sensory tissues. Hyperglycolia will alter the action of different biochemical pathways (Advanced Glycosylation end products (AGEs) and Protein Kinase C). The application of these different biochemical pathways results in the absence of vascular vasodilation, which results in reduced blood flow to nerves [21].

Smeltzer SC that decreased blood flow in the legs will cause the lower leg systolic pulse to be opposite to the arm systolic circulation pressure. Meanwhile, Nurs WOC confirmed that the correlation between the lowest and farthest systolic pulse rate is known as the Angel Brachial Index (ABI) [28]. Arm systolic blood pressure (16 Smeltzer SC). Meanwhile, Nurs WOC confirmed that the comparison of lower and upper extremity systolic blood pressure is called the Ankle Brachial Index (ABI) [28].

Wahyuni A that an ABI value of less than 0.90, indicates a decrease in peripheral blood circulation of the lower extremities [24]. And a decrease in blood flow to the nervous system causes ischemia in the nervous system. Ischemia in the nervous system can result in disrupted nerve impulse transmission so that it will damage nerves [25].

Smeltzer SC, that the effect of biochemical changes on nerve cells and interfere with the metabolic exercise of Schwann cells which causes demyelination of nerve strands so that nerve conduction will be disrupted which causes a decrease in foot responsiveness [21]. Based on this description, the authors argue that patients with type 2 diabetes mellitus who have low ABI values may have a more serious risk of ulcers than ordinary patients with ABI values. As per analysts, the ABI value may reflect the seriousness of Cushion so early prevention should be possible against the additional confusion of diabetes mellitus. The presence of Cushion reduces vascular perfusion to a lower limit.

Because this decreased perfusion is usually described by a loss of heart rate and will cause clinical symptoms such as intermittent claudication (pain on walking, and improved stillness), it will work with the development of infection, ulcerate, and inhibit wound healing, and may cause gangrene that promotes leg lift. Therefore, the results of this study are believed to be able to help the early recognition of circulatory problems in the feet of people with Type 2 Diabetes Mellitus.

Risk of Diabetic Foot Complications based on ABI value after Self Intuitive Exercise and Psychomotor Activity

From the table above, the investigation of 40 respondents showed that by estimating the Ankle Brachial Index (Abi) the Risk of Diabetic Ulcers, at the end of the procedure after treatment, 34(85%) were not at risk. The lower limbs are generally equal to or more prominent than the brachial systolic pressure, this indicates that blood flow to the legs is still large, so that if estimated, the ABI value is typical [29], while Smeltzer SC said that someone who has decreased blood flow in feet will find the pulse of the leg is lower than the blood pressure of the arm [21].

Researchers assume that a high ABI value indicates a decent health status. Based on this description, the researcher argues that a high ABI value indicates a decent health status so that preventive efforts are expected to reduce/prevent a decrease in ABI values. risk that causes atherosclerosis (refrain from oily foods, quit smoking, etc.). Second, if there is an injury to the foot, control the injury through appropriate injury care, appropriate dressing strategies for the injury, and debridement of necrotic tissue. Prevent contamination of the injury with Microbiological Control. Diabetic ulcers can be a favorable site for microscopic organisms if not treated as expected. Third. Pressure control is accomplished by reducing the pressure on the foot (offloading) by removing all mechanical loads on the injured leg or on the callused foot.

Analysis of Self Intuitive Model Development and Psychomotor Activity to Prevent the Risk of Diabetic Foot Complications with Angel Brachial Index (Abi) In Outpatients at Mokoau Health Center

In the Self Intuitive and Psychomotor Activity Research Table 4.7, from a study of 40 respondents it showed that by measuring the Angel Brachial Index (Abi) value on the risk of developing diabetic ulcers at the beginning of the activity, the highest was 22 (55%) meaning that there was a risk of diabetic ulcers, while after therapy was carried out. End of activity was seen 34 (85%) were not at risk.

Variable measurement shows that there is a change in the Mean Value before counseling 1.55 and after counseling to 1.15. This shows that there is a difference in the average self-intuitive therapy and psychomotor activity of respondents about the risk of diabetes mellitus foot ulcers after being given counseling. After doing a different test at the output of Paired Samples, sig 0.00 and the value = 0.05 in the difference column, it was concluded that sig <and t.hit > T. with a significant level of 5% on average the therapy given to respondents before counseling and after counseling showed a significant difference.

Sympathetic nervous system, which is enhanced by mental or physiological actions. Reduced sympathetic nervous system action results in a lower pulse (HR), lower respiratory rate (RR), and lower blood pressure. In addition, muscle relaxant therapy successfully

directs the peripheral and central nervous systems, which reduces stress, tension, and depression, and has been shown to be effective in treating several health problems [16]. Progressive muscle relaxation (PMR), proposed by Jacobson, is a method of releasing moderate pressure and releasing muscle groups [12 EY Hanna]. The continuity of PMR in reducing muscle tension was demonstrated in a fundamental report using electromyography [30].

The trainer guides the participants to feel the tension of the muscle groups and then relaxes the muscle groups; participants are encouraged to focus on their breathing rhythm and feel the pull and set of the chest. This systematic technique has been shown to produce a state of deep relaxation, reduce anxiety, and improve quality of life and self-care skills in patients with various non-cancerous conditions [31]. Like the opinion of Genç A. that PMRE in the muscular system is very useful for relaxing muscles, reducing anxiety, regulating blood pressure and controlling the production of lactic acid and can also reduce pain sensitivity besides that this can increase the immune system not only that but PMRE as well can improve the immune system both physically and mentally which can provide increased sleep comfort with the release of pins can provide a comfortable feeling against pain [32].

The researcher's assumption on this is that Self Intuitive Exercise/Therapy and Psychomotor Activity Gives a muscle relaxation effect, especially the gastrocnemius muscle. This system can provide improvements to venous circulation. Because if the Pam muscles are not functioning, the flow of blood circulation in the lower limbs is not smooth, so it will cause diabetic wounds because these diabetic wounds can occur due to the lack of smooth blood flow at the bottom of this promoter activity exercise will facilitate blood circulation in the lower limbs. so that the risk of diabetic wounds can be avoided or prevented because of the smooth flow of blood in the lower limbs. Agree with TSC Wong et and E Ray We can recommend muscle relaxation exercises for participants to focus on certain body parts, especially on the lower body parts, namely the lower limbs where the patient or participant is asked to focus on the lower limbs in a calm and relaxed condition by giving some auto suggestion instructions [33,34].

Exercise needs to be done and needs to be maintained, especially the normality of Abi's values. Because cell exercises are intuitive and psychomotor activity, the goal is to be able to provide strength to muscle tone and relax effects so that joints are not stiff and blood flow in the lower leg area becomes smooth so that emphasis is placed on participants or patients. who have a risk of diabetic ulcers to routinely carry out continuous exercise because this is the goal not for health workers but for the health of patients or participants because with smooth blood flow in the lower limbs this will prevent the risk of diabetic ulcers in patients and patients will avoid the risk of developing diabetic ulcers which is called amputation or gangrene. It is necessary to arrange a special schedule that is included in the secondary prevention program in the form of self-intuitive therapy and psychomotor activity because this therapy can reduce or prevent risk factors for diabetic foot complications so that this therapy needs to be carried out routinely if this therapy is not routinely carried out and is not programmed secondary then the risk The most fatal is the occurrence of nerve and blood vessel damage which can cause less blood flow to the lower limbs. To be more effective the actions given to respondents regarding what is related to psychomotor activity and intuitive cell therapy are expected to respondents to always pay attention to foot hygiene and pay attention to foot care because clean feet will determine the quality of life or guarantee the quality of life and improve health.

Researchers agree with this that intuitive cell therapy and psychomotor activity can facilitate blood flow or blood circulation in the lower limbs for that respondents to frequently or routinely carry out early diagnosis, early diagnosis and find out the value of Abi by measuring the value of Abi because the value of Abi is low it can prevent the risk of vascular disease, especially in the periphery and prevent foot complications, it is hoped that respondents will motivate themselves to do this therapy often, both routinely and regularly.

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