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MENTORING FOR NURSES IN THE EARLY DETECTION OF DIABETIC NEUROPATHY AT THE MAGELANG CITY PUBLIC HEALTH CENTER

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ABSTRACT

Introduction: Diabetes Mellitus is an epidemic disease that affects about 8.3 in adults, which is estimated at 382 million people from the total population, and 46% of cases. (Uzoagu. A, 2017). Mentoring for nurses in carrying out early detection of diabetic neuropathy and its prevention in DM patients, can improve the quality of nurse services at the Public Health Centre in providing care patients particularly in detecting early onset of chronic complications of DM especially diabetic neuropathy.

Methods: This community service activities is involving nurses working at Public Health Centre in Magelang City, Indonesia. Education and training on early detection of diabetic neuropathy and electric massage procedures in the prevention of diabetic neuropathy was used to improve the knowledge of the nurses. The activity started by giving pre-test, education about diabetic neuropathy and its prevention, demonstration of early detection of diabetic neuropathy. Each nurse was given mentoring the practice of early detection of neuropathy for 1 month at the North, South, Jurang-ombo, Magelang Tengah Health Centers, then followed by an evaluation in the form of a post-test.

Results: The accompaniment of nurses in early detection showed an increase in knowledge from the less and moderate categories before being given treatment to medium and good categories. There were 12 (70.5%) level of knowledge with moderate criteria, and the level of knowledge in the good category was 5 (29.5%).

Simulating the practice of early detection of diabetic neuropathy, direct assistance on how to detect it to patients, and the practice of electric massage therapy were also performed.

Conclusions: There were benefits for nurses as health workers in charge of the prolanis program to follow training on early detection of neuropathy in order to improve their knowledge and ability to provide services to diabetic neuropathy.

Keyword :
Early detection of Neuropaty Diabetic, Mentoring, Nurses.

Introduction

Neuropathy is one of complications of diabetes mellitus that is often occurred in adulthood. Neuropathy occurs as a result of accumulation of metabolic product that aberrate nervous tissue. This results in an inhibition of the conduction system and demyelination of the nervous system. Peripheral systemic polyneuropathy becomes abnormal which influences patient's extremities. However, it often takes effect generally in lower extremity which could result in problems on movement system and the patient's skin.

Diabetic neuropathy with a prevalence of about 60% is the most common form of neuropathy in developed countries and can affect about half of all DM patients and contributes to substantial morbidity and mortality. Cosequently, it can result in a large economic burden (Haleh, G., 2018). To know more about the existence of diabetic neuropathy, it is necessary to understand about sign and symptom neuropathy by taking history and doing physical examination using monofilament test. Likewise, the need for action prevention patients with *neuropathy diabetic*.

Some measures to take care of DM patients who experience Diabetic Neuropathy include controlling glucose blood level and increasing physical activity, lowering body weight, and controlling diet.

The results of this community activity will be effective in effort accompaniment of nurse in providing care on patients with DM which experience complications especially in early detection and prevention of diabetes neuropathy.

Method

This community service involving nurses at the Magelang City Public Health Center which some activities including giving pre-tests about diabetic neuropathy and its prevention, education about early detection of neuropathy and mentoring nurses on how to detect diabetic neuropathy early, after assisting the detection of neuropathy followed by demonstrating the use of electric massage in patients with diabetic neuropathy.

Results and discussion
Results

Based on the results of pre and pot test scores showed an increase in the knowledge level in mean, median, minimum value and maximum value.

Table 1. Frequency Distribution of Knowledge of Early Detection of Diabetic Neuropathy Pre-test

Interval	Frequency	Percentage
Not enough	3	17.6%
Moderate	14	82.4%

The level of knowledge of the respondents before being given treatment for the level of knowledge was 3 (17.6 %), and the level of knowledge was 14 (82.4 %) .

Table 2. Frequency distribution Knowledge of Post-test Diabetic Neuropathy Early Detection

Interval	Frequency	Percentage
Moderate	12	70.5%
Good	5	29.5%

Based on the table, the level of knowledge of the respondents after being mentored by providing education about early detection of neuropathy for a moderate level of knowledge 12 (70.5%), and a good level of knowledge 5 (29.5 %) .

Table 3. Central Tendencies of Pre and Post test

Mean	Median	Minimum	Maximum
Pre 58,18	60.00 _	4 0	73
Posts 76.06	73.00 _	70	100

Based on the results of the pre and pot test scores, it shows an increase in scores which include: Mean, median, Minimum and Maximum value.
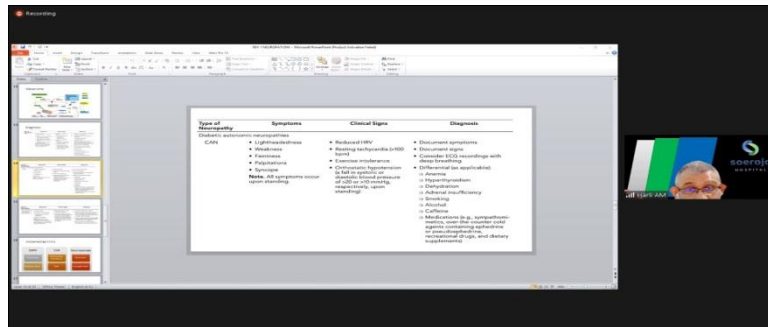
The activity of Nurses Mentoring

Figure 1. Online Education about Diabetes and Complications

Figure 2. Mentoring activities of early detection Diabetic Neuropaty

Figure 3. Mentoring activity of Electric Massage Therapy

Discussion

Nurses mentoring activities in early detection of neuropathy indicate an increase in knowledge from respondents, this is supported by the existence of learning media facilities, modules, practicals with Standard

Operating Procedures, as well as mentoring about early detection practices directly to patients from each training participant. Learning media has a role in increasing one's understanding and cognitive in learning, this is in accordance with the results of research which states that learning media is a means to visualize the learning process which is often also used in teaching, so that learning media greatly affect the results of the learning obtained trying to get to know real life processes, then the teaching needs to be delivered with the right media so that learning objectives can be achieved (Supardi, 2012).

Early detection and timely treatment are very important to prevent the severity of diabetic neuropathy. According to Josie C, 2021, currently there is no simple tool for the early detection of Diabetic Perifer Neuropaty (DPN) in routine clinical practice. More generally, screening for diabetic neuropathy involves taking a history for neuropathic symptoms and examining the feet, as well as with screening tests. Traditional screening tests benefit from being fast and easy; but only assesses function of larger nerves and cannot detect early changes in small nerve fibers. Next, two systematic reviews focused on the use of monofilament assays. (Haleh, 2018).

Early detection to determine the presence of neuropathy in respondents using a assessment instrument which includes a history of neuropathy complaints and a monofilament test, the monofilament test is a tool that can be used to predict the incidence of Diabetic Neuropathy. Monofilament values   indicate that higher insensitivity predicts a higher risk of foot ulceration; thus, practitioners need only use one tool to screen for diabetic neuropathy and to assess the risk of diabetic ulcers.

Nurses Mentoring in early detection of Diabetic Neuropathy has a very large role, because nurses who have been treating Diabetic Mellitus patients in the Chronic Disease Management Program do not know much about the symptoms and signs that are often experienced by patients with DM. And do not understand the examination procedure for early detection of Diabetic Neuropathy. With the training of nurses on duty in the Chronic Disease Management Program, it is very helpful to know early complications due to diabetes mellitus and prevent gangrene due to Diabetic Neuropathy. (Sunarmi, 2022).

Knowledge and skills of nurses in conducting early detection by history taking and examination of diabetic neuropathy with monofilament test showed an increase. By providing a manual in which there is an assessment guide on neuropathy complaints and direct mentoring practices regarding the monofilament test procedure to patients are the main factors for these changes, as research on increasing cadre knowledge about early detection of diabetic foot can be done with training (Parliani: 2020) .

Conclusions and Suggestions

1. Nurses as health professionals in charge of the prolanis program

should be trained on early detection of neuropathy in order to improve their abilities in providing care for DM patients, so that patients with diabetes can be monitored early for signs of diabetic neuropathy

2. DM patients who perform routine examinations at Prolanis don't have a monofilament test when visit for checking up.
3. Early Detection skills possessed by all trainees is a simple procedure by taking monofilament test examination and anamnesis guidance regarding complaints of diabetic neuropathy.

Recommendations

1. There is a needs to follow up the results of early detection of neuropathy by implementing of the use of electric massage therapy to neuropathy patients in the prolanis program activity to minimize further complications of neuropathy.
2. It is expected that the public health center can support to facilitate early detection of neuropathy and its prevention as an effort to minimize complications of diabetic ulcers due to diabetic neuropathy.
3. There is a need for follow-up assistance for independent early detection of diabetics themselves by using self-efficacy education and early detection of diabetic neuropathy .

Reference`

1. Agustini, 2019: *The Effect of Foot Massage on Decreasing Peripheral Neuropathy Diabetic Complaints in the Patients with Type 2 Diabetes Mellitus,*Journal of NersVol. 14, No. 3, http://dx.doi.org/10.20473/jn.v14i3(si).17152

2. Haleh Ghavami,2018: *Effect of lifestyle interventions on diabetic peripheral neuropathy in patients with type 2 diabetes, result of a randomized clinical trial*, Agri 2018;30(4):165- 170 doi: 10.5505/agri.2018.45477

3. Natalia Chantal Magalhaes da Silva, 2015: *Foot reflexology in Feet Impairment of People with type 2 Diabetes mellitus: Ramdomized trial*. Rev. Latino.Am.Enfermagem 2015, july-aug. 23(4) 603-10
4. Sunarmi, et.all: *The Effectiveness of Massage Therapy on Healing of Diabetic Neuropathy in Diabetes Mellitus Patients*, Scientific Foundation SPIROSKI, Skopje, Republic of MacedoniaOpen Access Macedonian Journal of Medical Sciences. 2022 Feb 28; 10(G):190-194.https://doi.org/10.3889/oamjms.2022.8564
5. Josie Carmichael at.all: *Advances in Screening, EarlyDiagnosis and Accurate Staging of Diabetic Neuropathy . Endocrino*l.

12:671257.doi:10.3389/fendo.2021.671257 . May 2021 | Volume 12 | Article 671257

6. Parliani : *Assistance in the use of foot wound screening diabetes for health workers and cadres in remote areasjces* (Journal of Character Education Society) , 2020, Vol. 3, No. 3, October 2020, p. 583-594

7. Shahram Baraz at.all: *Comparison of the accuracy of monofilament testing at various points of feet in peripheral diabetic neuropathy screening* . Journal of Diabetes & Metabolic Disorders 2014, 13:19 http://www.jdmdonline.com/content/13/1/19

8. Supardi**:** *The Effect of Learning Media and Interest in Learning on Physics Learning Outcomes* , Scientific Journal of Mathematics and Natural Sciences, 2012 Institute for Research and Community Services , Vol 2, No 1 **,** (LPPM) Universitas Indraprasta PGRI

9. Uzoagu A. onkonkwo, 2017 : *Diabetes and Wound angiogenesis*, International Journal Mol.Sci, 18.1419. DOI 10.3390/ijms18071419