



Further Analysis on Solution Treatment for Diabetes of Patients at Hospitals in Vietnam

Vu Thanh Binh^{1*}, Dinh Tran Ngoc Huy²

Abstract

In recent years in Vietnam, preventing and treatment for diabetes of patients in hospitals has been rising as hot issues because the number of patients with diabetes tend to increase much.

Our study uses mainly statistics and qualitative analysis synthesis and inductive methods, together with quantitative analysis with data and statistics.

Vu Thanh Binh et al (2021) said that Monitoring blood pressure with a continuous blood pressure monitor to carry around to detect masked hypertension (MH) in type 2 diabetes patients who are on outpatient treatment at Thai Binh Medical University Hospital, Thai Binh, Vietnam.

Our study results indicated that diabetes including type 1 and type 2 and can be identified at early stages and have prevention treatment solutions such as physical exercises, eating food with lipid, and Reduce the amount of foods with high starch and sugar content. Lat but not least, Strengthening knowledge and skills of nurses and doctors and quality of human resources operating in the field of diabetes. Finally, our paper will propose policy implications and recommendations.

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Key Words: Diabetes Prevention, Treatment, Nurses, Vietnam, Thai Binh Province.

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Introduction

Vu Thanh Binh et al (2021) found out that 186 patients with hypertension / type 2 diabetes, including 77 men and 109 more, the average age is 62.2 ± 9.3 years old, there are 98.9% of hypertensive patients with grade I, only 1.1% of hypertensive patients degree II; MH at night accounted for the highest rate of 43.0%, of which the average systolic blood pressure was 123.8 ± 9.8 mmHg, and diastolic blood pressure was 75.2 ± 6.1 mmHg; On average, the highest increase is around 9 am and 19 pm, slightly down around 13pm and down at the deepest around 2-3am. There is a synchronous variation between systolic and diastolic blood pressure.

The disease manifests itself discreetly, so it is

difficult for patients to detect and easy to ignore when there are serious complications, even years before the patient can detect it, so we must have methods to help patients detect and diagnose. disease early to have a direction to treat and prevent complications from the earliest stage from pre-diabetes.

Treatment of diabetes in Vietnam has been becoming one of hot issues in medicine, medical treatment fields, as well as for doctors and nurses training programs at hospitals and schools.

The paper organized with introduction, literature review, methodology, main results, discussion and conclusion with policy suggestions.

Corresponding author: Vu Thanh Binh

Address: ^{1*}PhD, Thai Binh University of Medicine and Pharmacy (TBUMP), Vietnam; ²MBA, Banking University HCMC, Ho Chi Minh City, Vietnam - International University of Japan, Japan.

^{1*}E-mail: binhvt@tbump.edu.vn

²E-mail: dtnhuy2010@gmail.com

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Literature Review

Previous Studies

Till now There are 2 types: type 1 diabetes and type 2 diabetes, which represent most common diabetes forms. There is currently no way to delay or prevent type 1 diabetes. However, type 2 diabetes - which accounts for 95% of all people with the disease - is completely preventable. Preventing diabetes means that you will have a healthy life, long life without worrying about serious complications on the heart, eyes, kidneys, nerves.

Pratley (2013) said that it will be a challenge for us to make diagnosis of diabetes of patients during beginning stages of disease.

And Thrasher (2017) stated first, when we understand about defects of pathophysiologic underlying, multiple found in choices of type 2 diabetes mellitus treatment.

Second, metformin could be used, preferably, in begin approach of changes in lifestyles and monotherapy, by US association of clinical endocrinologists.

Beside, Ge et al (2017) pointed that because of Diabetes mellitus, the mortality rate is 2.7% globally. TI considered as a chronic disease threatening our health and caused by a metabolic disorder of the system of endocrine.

Next, We summarize related studies in below table.

Table 1. Related studies

| Authors | Year | Results, contents |
|---|------|---|
| Shotlift and Duncan | 2005 | Early stages of diabete retinopathy are characterized by microvascular lesions, punctate, and mottled hemorrhages. |
| William | 2013 | Masked Hypertension (MH) is a condition in which blood pressure is of normal value when measured in the clinic, but increases when measured at home. Recent studies show that MH causes damage to target organs: left ventricular thickening, diastolic dysfunction, carotid artery endothelium thickening, proteinuria and is one of the cardiovascular risk factors compared with patients with truly normal blood pressure. |
| Lu et al | 2018 | Authors highly evaluate traditional methods as well as cutting-edge for treatment of diabetes. Because in modern medicine science, Chases and etio-pathologic risks for patients with Type 2 Diabetes (T2DM) became vital globally. |
| Vu Thanh Binh et al | 2021 | It is necessary to measure blood pressure 24 hours with an automatic carry - on device for type 2 diabetes patients to detect hidden hypertension, from which to see the blood pressure characteristics in these patients to work out on suitable care strategy. |
| Vu Thanh Binh, Dinh Tran Ngoc Huy, Le Dinh Tuan | 2021 | Performed a cross-sectional descriptive research on 80 patients (diabetes type 2) to be examined and treated at the Internal Medicine Department of Thai Binh Medical University Hospital from January to December 2019. Result: • The percentage of patients with damage to the retina accounts for 42.5%; of which, 38.8% were non-proliferative retinopathy, 17.5% were macular disease, 2.5% were pre-proliferative retinopathy and 1.2% were proliferative retinopathy. |

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Theory of Social Minding and Individual Behaviors

Albert Bandura's Social Cognitive Theory, based on 3 factors mainly: individual behavior, environment effects and cognitive factors, explaining peoples thinking and behaviors.

Where individual elements can consist of emotional cognitive, biological and behavior, and environment involve social and physical environment.

Secondly, human feeling, thoughts and actions will reflect behaviors and individual factors correlation. And human behaviour highly affected and directed

by beliefs, expectations, goals and intentions.

Thirdly, environment characteristics changes caused by changes in peoples' behaviors as well.

Hence, roles of human will be both creators and they are also products of environment around.

The relationship between environmental factors and individuals is considered as the mutual interaction between individual characteristics and environmental influences. People's desires, beliefs, emotional dispositions, and cognitive capacities are developed and regulated by social influences. Each person reacts differently to their environment and it



manifests in what they say and do, because each person has unique physical characteristics such as age, gender, race, height, weight, physical attraction and also have different roles and positions in society. Self-belief is the core concept of the theory, Bandura

has defined self-belief as people's confidence in their ability to perform a particular task in a given situation (Duy Tan University).

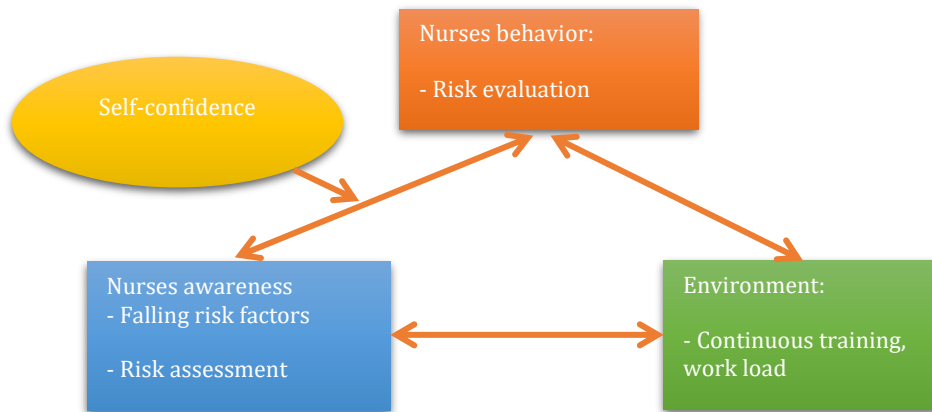


Figure 1. Theory framework (source: Pham Thi Bich Ngoc, 2021, Nam Dinh, Vietnam)

Within the scope of the study and through the review, study initially measured the self-efficacy of nurses in diabetes prevention for patients.

Methodology

Authors will use quantitative analysis: statistic and data analysis from provincial data. For qualitative analysis: authors use synthesis and inductive methods, combined with dialectical materialism methods.

Main Results

1) Prevention Treatment Solutions for Diabetes Maintain a Healthy Body Weight

Obesity, overweight is one of the important causes of type 2 diabetes. Studies show that for every 5 kg lost, the risk of diabetes is halved and this effect is maintained. many years later. To do this, patients need to exercise regularly. Because muscle cells are the "objects" that use glucose the most. And exercise is a way for the body to use sugar effectively. A human study in prediabetes (the stage before type 2 diabetes was diagnosed) showed that regular exercise (150 minutes per week) for 3 years was more effective in lowering blood sugar than with the use of the drug metformin, which is still used to lower blood sugar levels.

Reduce the amount of Foods with High Starch and Sugar Content

By reducing the amount of sugar in your diet, you will have better control of your blood sugar. There are two main types of roads that you need to know about. That is:

- Simple sugar: is the form of sugar found in fruits, dairy products, honey... When eating these simple sugars, the body absorbs quickly, pushing blood sugar up and stimulating the glands. The pancreas produces large amounts of insulin.
- Complex sugar: is a form of sugar found in starch, by combining many simple sugar molecules in nature. Complex sugars are found in cereals, sweet potatoes, wheat, rice, oats... and some legumes. When ingested, the absorption rate will be quite slow because the body has to break down these complex sugars into simple sugars that can be absorbed into the bloodstream.

So, what kind of sugar should you eat? Patients should eat complex sugars with low GI foods, such as whole grains, nuts, beans, and legumes. With these foods, the digestion time is prolonged, the sugar is slowly absorbed into the body, helping to regulate insulin and blood sugar, thereby preventing the risk of type 2 diabetes. Diabetics should eat less starch and sweets.



Eat Foods with Good Sources of Fat

The type of fat in the diet can also have a big impact on the development of type 2 diabetes. Certain types of saturated fat, trans fat (trans fat) can trigger the process. Chronic inflammation in the body, indirectly causes insulin resistance - the main cause of type 2 diabetes. In contrast, beneficial fats such as omega-3 acids, oleic fatty acids found in fish oil, olive oil It has anti-inflammatory effects and reduces insulin resistance. Combining these two beneficial oils will help reduce the risk of diabetes.

Bad fats you should limit include: fast food, processed food, peanut butter, condiments, confectionery, french fries, cheese sticks, pies, cakes, margarine... and fats animal fat (poultry skin, lard, beef fat...)

Beside, we need to identify causes of diabetes including but not limit to:

Currently, along with the development of medicine and society, it is very necessary to detect risk factors and screen them early for prevention and treatment at a very early stage to reduce the burden on patients. patient and society. The following are the risk factors for type 2 diabetes.

Diet has a Great Influence on Diabetes

Family history of members with diabetes (father, mother, grandfather, grandmother).

History of gestational diabetes

- Age > 40 years old
- Ethnicity
- Unhealthy diet

Poor nutrition during pregnancy mang.

Limit physical activity or be sedentary the more sedentary you are, the higher your risk of prediabetes.

Being overweight: Being overweight is a major risk factor for prediabetes. In particular, people with a BMI above 35 will be very susceptible to the disease.

- Waist size: Large waist circumference is one of the causes of insulin resistance.
- Dyslipidemia

High blood pressure > 140/90 mmHg.

Pregnant women who are pregnant, overweight and have diabetes history in family might be at higher risk of developing gestational diabetes.

Secondly, for those who belong to some groups of ethnic, also have higher risk of developing gestational diabetes, esp. For those with with gestational diabetes, previously diagnosed.

(source: vinmec.com, access date 14/7/2021).

2) Examples of Research on Diabetes

First We Look at Data in Below Table

Table 1. General Features of subjects

| Features | | Number | Ratio % |
|---|------------------|--------------|---------|
| Gender | Male | 77 | 41.4 |
| | Female | 109 | 58.6 |
| Age (year) | >=60 | 124 | 66.6 |
| | Min -> max | 38 -> 82 | |
| | average | 62.4 +- 9.3 | |
| BMI | >=23 | 74 | 49.8 |
| | Min -> max | 16.5 -> 30.6 | |
| | average | 22.3 +- 1.9 | |
| Time of diabetes discover (yrs) | > 5 | 118 | 63.4 |
| | Min -> max | 1 -> 22 | |
| | Average | 15.2 +- 8.6 | |
| Characteristics of blood pressure when measured at clinic | Normal | 100 | 53.8 |
| | Pre hypertension | 86 | 46.2 |

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(Source: Vu Thanh Binh et al, 2021)

Next we look at below table and analyze:

Table 2. Features of MH studies subjects

| | Number | Ratio % |
|-------------|--------|---------|
| MH 24 hours | 61 | 32.8 |
| MH day | 45 | 24.2 |
| MH night | 80 | 43.0 |
| Total | 186 | 100 |

Through analysis of 186 patients with type 2 diabetes with masked hypertension with 41.4% men, 58.6% women, average age 62.4 ± 9.3 years we see: 98.9% of patients with hypertension level I, only 1.1% of patients with hypertension level II; Masked hypertension at night accounted for the highest proportion of 43.0%, of which the average systolic blood pressure was 123.8 ± 9.8 mmHg, and diastolic blood pressure was 75.2 ± 6.1 mmHg; On average,



the highest increase is around 9am and 19 pm, slightly down around 13pm and down at the deepest around 2-3am. There is a synchronous variation between systolic and diastolic blood pressure and have nocturnal hypertension at night. (Source: Vu Thanh Binh et al, 2021).

3) Developing Human Resources, Doctors and Nurses

Strengthening knowledge and skills of nurses and doctors and quality of human resources operating in the field of diabetes.

Focus and increase training programs for doctors and nurses, sharing experience across big cities, HCM city, Hanoi, Nam Dinh and Thai Binh provinces, etc.

Building a community-based ecosystem in order to help patients.

Training patients on how to self-care themselves at home.

For nurses training and evaluating tools we can refer to:

Some Tools to Assess Nursing Knowledge and Practice

| No | Tool name | Time | Authors | Features |
|----|--|------|---------------------|---|
| 1 | Knowledge and performance among nurses | 2012 | Abou El Enein et al | Knowledge consists of 34 closed-ended questions, each correct answer gets 1 point. Practice consists of 34 items. Rate by 2 levels of complete and incomplete for each item |

Discussion

Some Common Complications of Diabetes

Eye complications: High blood sugar damages the capillary system at the bottom of the eye, leading to impaired vision or possibly blindness. In addition, eye complications such as cataracts, glaucoma... can also occur.

Cardiovascular Complications: Hyperlipidemia, high blood pressure, peripheral atherosclerosis causing embolism are some of the common complications of diabetes patients.

Neurological complications are the earliest and most frequent complications of diabetes. These include sensations of pain, numbness, heat in the legs, irregular heartbeat and breathing, or sweating.

Kidney complications: High blood sugar causes damage to the blood vessels in the kidneys, thereby reducing the kidney's filtering function, even kidney failure.

Infection complications: High blood sugar is a favorable condition for bacteria to grow and weaken the body's immune system, causing infections in many areas of the body.

For people with diabetes, the most effective way to prevent complications of the disease is to control blood sugar well. According to the American Diabetes Association (ADA), there is no one common denominator for a safe blood sugar level for all patients. Ideally, blood glucose should be reached between: HbA1c < 7%

(source: kiemsoatbenhtatphutho.gov.vn, access date 14/7/2021).

Penalver et al (2016) stated that currently we can have methods of treatment of diabetes type 2 mellitus, for instance, oral and injectable, with support of Treatment algorithms to reduce diabetes complication progress.

Then Blaslov et al (2018) said for treatment of diabetes (type 2 mellitus - TDM), we can consider treatment methods of initial or primary prevention can be effective.

Conclusion and Policy Implications

We recognize that there are several ways of treatment, esp. Preventing diabetes for patients in Vietnam.

Authors in this study will emphasize again roles of prevention methods of treatment diabetes for patients in emerging markets such as Vietnam.

Last but not least, we also can use some assessment tools for evaluating knowledge and practice of nurses for taking care of diabetes patients.

And Vu Thanh Binh, Dinh Tran Ngoc Huy, Le Dinh Tuan (2021) also mentioned that Patients who do not adhere to treatment have the risk of retinal damage 3.8 times higher than that of patients who adhere to treatment. And Patients with BMI ≥ 23 have 4.5 times greater risk of retinal damage than patients with BMI <23.

Also Miller et al (2019) presented that the key element of treatment will consider the insulin-producing beta cells and beta-cell dysfunction is central.



Limitation of Research

We need to expand our research models for other cities in Vietnam and other emerging markets.

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