

UNIVERSITY OF MEDICINE AND PHARMACY OF CRAIOVA

PhD STUDIES

PhD THESIS

ABSTRACT

**THE STUDY OF THE NURSING PROCESS CHARACTERISTICS IN THE PATIENTS WITH
TYPE 2 DIABETES MELLITUS, ACCORDING TO THE DISEASE STAGE**

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Key Words: type 2 diabetes mellitus (DM), nursing process, nursing diagnosis, types of dependencies, therapeutical education (TE), nursing care, fundamental needs

I. GENERAL PART

Stage of Research and Knowledge

1. General Remarks on Diabetes Mellitus

1.1. Definition. DM is defined as a group of disorders associating alterations of the glucidic, lipidic, proteic, hydroelectrolythic and vitaminic metabolism, with a series of ocular, renal and nervous complications, presenting a high cardiovascular risk

1.2. Epidemiology of DM. DM has become a worldwide epidemiological disease, evolving proportionally to the overweight/ obesity epidemy. Worldwidely, there were registered 382 million patients with DM (adults 20-79 years old) in 2013, estimating a growth up to 592 million in 2035. For Romania, on October 31st 2013, there was estimated that the number of DM patients (20-79 years old) will reach 850.000, thus recording a prevalence of 5.1%.

2. Type 2 Diabetes Mellitus

The diagnosis of type 2 DM is based on the clinical data (signs and symptoms) and on the laboratory tests results.

2.1. Symptoms of Type 2 DM. In type 2 DM the symptoms are less relevant than in type 1 DM, they are not observed in time, the diagnosis being performed sometimes by chance, after lots of years of disease evolution, in the stage of irreversible chronic complications. The symptoms of type 2 DM refer to polyuria, polyphagia, polydipsia, marked weight loss, marked asthenia.

Signs of type 2 DM refer to: various skin and urinary tract infections, problems of sight clearness, tingles or numbness at low limbs levels, gangrene, vaginites.

2.2. Laboratory Tests for Diagnosis. These refer to glycemia dosage (*a jeun* and occasional), performing the glucose tolerance test (GTT) and dosage of glycosylated haemoglobin.

2.3. The management of type 2 DM comprises four **TEME** programs (**T** = therapeutical program, **E** = educational program, **M** = monitoring program and **E** = evaluation program).

2.4. Complications of DM

2.4.1. The acute complications of DM are: hypoglycemia (and hypoglycemic coma) and hyperglycemia (diabetic ketoacidosis, nonketotic hyperglycemic hyperosmolar state) and lactic acidosis.

2.4.2. The chronic complications of DM are: microvascular (diabetic retinopathy, diabetic nephropathy and diabetic neuropathy), macrovascular (ischemic cardiopathy, cerebrovascular disease and diabetic arteriopathy) and mixt (diabetic leg).

2.5. Prevention of DM. Types of preventiion (after OMS 1994): primary, secondary and tertiary prevention.

3. The nursing process represents the method through which the patient's healthcare is performed.

3.1. The stages of the nursing process are: the stage of data collecting, the stage of establishing the nursing diagnosis, intervention planning, implementing interventions and their evaluation.

3.2. The purpose of implementing the nursing process is to obtain the good health of the patient, biologically (organic or/ and functional), psychologically and socially speaking. The identification of the patient's good health is performed by the medical staff that evaluate the health state and, also, through the patient's self-perception.

In order to identify the problems of a patient, the nurse should thoroughly evaluate, for every cared patient, each and every of the 14 fundamental needs (the Virginia Henderson model) in their natural order.

II. SPECIAL PART

Personal Contribution

4. Purpose of the Study. Through the present study I intended to prove the efficiency of the diabetes specialist nurse intervention, in optimizing the bio-psycho-social parameters of the type 2 DM patient and to highlight some particular aspects of the nursing care according to the evolution stage of this disease.

5. Material and Method. The study is a prospective, interventional one and it took place over a period of 12 months, from November 1st 2011 until October 31st 2012 within the Clinic of Diabetes, Nutrition, Metabolical Diseases of the Emergency County Hospital of Craiova. It consisted in the registration (over a period of 6 months, from November 1st 2011 until April 30th 2012) of 100 type 2 DM patients, hospitalized in the above mentioned clinic, who were nursing evaluated at admittance, after 7 days from admittance and 6 months after discharge. Before starting the study, every patient who agreed to enter the group was informed about what the study implied and he signed an Informal Consent. Collecting the personal data (name, surname, age, sex, disease stage, the duration of diabetes and the followed treatment, data referring to the medical diagnoses and associated complications) and establishing the nursing diagnoses after Virginia Henderson's model were recorded on the "Nurse record". For every one of the 14 fundamental needs we established what data should be followed, mainly taking into consideration the degree of knowledge regarding the alterations induced by diabetes in the studied patients and we noted both the planning and implementation of the interventions, alongside their evaluation. The intervention consisted in the inclusion of these patients within an educational program based on the patient's needs and the results of the intervention were statistically analyzed. The study is interventional and aims at every one of the 14 human fundamental needs, focusing upon their afferent health educational methods.

6.Results

6.1. Statistical Analysis of the Studied Group. The studied group included 100 type 2 DM patients, 48 women and 52 men; 63 from the urban area and 37 from the rural one: aged between 32 and 87 years old; 85 old cases and 15 new cases; 8 cases without any complications, 3 cases with acute complications, 80 with chronic complications and 9 with both chronic and acute complications.

6.2. Results of Implementing the Nursing Process

The need to breathe and have a good blood circulation. Tachypnea and dyspnea were observed only at hospital admittance in about 17 patients, a dependency that was not observed either at discharge or at the 6 months evaluation. The arterial tension values showed admittance dependencies in a percentage of 31% of cases, while after 6 months there was recorded a diminishing by 50% compared to the initial situation.

The need to eat and hydrate oneself. Highly statistical significant alterations between having a fixed meal program, number of meals, glucide intake and alcohol intake. (at admittance and after 6 months).

The need to eliminate. At admittance, 34% presented polyuria, while at 7 days and 6 months evaluations no patient suffered from polyuria. Frequent constipation was observed at all 3 evaluations.

The need to move and have a good posture. There highlights a significant increase of movement tolerance after 6 months from the initial intervention.

The need to sleep and rest. Sleep quality highly and significantly improved in the studied patients, between the intial evaluation and the final one.

The need to dress and undress. There were not recorded any changes between the initial and the final moments.

The need to maintain the body temperature under normal values. Normalizing the temperature after applying the drug treatment.

The need to be clean and to protect one's teguments. Mycoses and ulcerations highly and significantly reduced and oral hygiene statistically improved.

The need to prevent hazards. The existence of various risks related to: not knowing the treatment, inadequate alimentation and non-cooperation with the family statistically improved between the admittance time and the 6 months evaluation.

The need to communicate. Communication with the medical staff, with the family and colleagues/ friends substantially improved.

The need to act according to one's self convictions and values, to practice religion. There were not any statistical changes.

The need to stay busy in order to be useful significantly improved.

The need to recreate. The number of activities including movement was very low in any time of the evaluation; the number of sedentary activities was higher at admittance, while "other activities" had a higher percentage both at admittance and after 6 months.

The need to learn how to preserve one's health. There were recorded substantial improvements between the hospital admittance and the 6 months evaluation.

7. Discussions

Tachypnea and dyspnea were due to some acute respiratory infections, chronic respiratory infections with acute relapses and cardiac decompensations.

The high values of AT recorded at admittance were due to an incorrect diet (program, number of meals/ day, quantity of carbon hydrates) and to a deficiency in administering medication.

Polyuria was due to a metabolic imbalance. Constipation was due to the absence of fibers in alimentation, poor hydration, sedenatism and also to autonomic diabetic neuropathy.

The lack of practicing a constant physical exercise was due to obliterant arteriopathy and arthralgias.

Hectic sleep was due to the metabolic imbalance and also to the patients' lack of adjustment to the hospital environment.

Morning fever was due to severe infections associated with DM. Itching and mycoses were due to tegumentary infections, diabetic nephropathy, and also to the presence of senile itching, ulcerations being caused by diabetic neuropathy, infections and various injuries of the leg.

Lipodystrophy was due to an incorrect insulin administration technique by the type 2 DM patients requiring insulin.

The risk of not knowing the treatment, the importance of self-monitoring, the role of the physical exercise, of self examination and of health alimentation, were due to a lack of training the patients or not applying the knowledge they possessed.

The nurse specialized in diabetes plays an important part in the TE of the patient and his/ her family; the patients must be helped to pass over the psychological barrier of accepting the disease, facing the daily challenges.

8. Conclusions

From the present study there resulted that in the hospital there were admitted 2 large categories of patients with type 2 DM: the recently diagnosed (for metabolic balancing, establishing therapeutical conduct and therapeutical education) and old cases (for metabolic balancing, reevaluation of therapeutical conduct and intensification of therapeutical education). Taking into consideration the duration of the disease, we considered that the previously known patients with type 2 DM are patients with an advanced stage of the disease, which from the nursing point of view is translated by total highly dependencies. From the present study, there resulted that, even though recently diagnosed with type 2 DM, most of the patients presented dependencies on the nursing process with degrees many times similar to the older cases, leading us to our first conclusion: diagnosing type 2 DM is frequently performed in advanced stages of the disease. This fact is materialized by total highly dependencies, no matter the known/ declared duration of the disease. The second conclusion of the present study is that the

nursing interventions should correspond not only to the present nursing diagnoses (international NANDA) but also to the forthcoming ones (profilactic intervention). The third conclusion is that the nurse activity should be complementary to the medical activity, although still an autonomous one (of preserving hygiene, of communication, of establishing connections to the family, of identifying problems related to the patient's psychology, to his capacity and his family to collaborate, of finding some particular solution according to the individual's capacity to understand, to his wish to intervene in preserving his health, to his financial possibilities and to many other particular aspects). The fourth conclusion of the present study is that the patient's education is an extremely important non-pharmacological therapy alongside the pharmacological one. The former should take into consideration the level of knowledge and personal needs and it should be performed permanently and planned regularly, both in the hospital, in the specialty ambulatory and in the community. This fact involves a very good communication with the community nurse (who, at present, is not involved in the specific diabetes activity – lack of instruction) and also a coordination of the nurse specialized in diabetes. The present study proved the efficiency of the sessions of therapeutical education in acquiring the self-care knowledge of the diabetes patients. We showed that this activity is required even in the patients with an old disease (over 10 years since diagnosing), because the information diffuses in time or there appears new information, or the patient did not receive all the necessary information at the right moment. Moreover, the way of transmitting the information by the nurse is quite important, a special efficiency being the learning of “among syblings” and the participation in sessions together with one or more members of the family.