

Management of Diabetic Foot Ulcer- Case Study

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Abstract: Diabetic foot is the most serious and common complication which occurs in 15% of diabetic people. Regular foot examination plays an important role in ulcer prevention and good occupational health approach is essential for effective wound healing and rescuing limbs from amputations. These interventions reduce the amputation rate by up to 85%. The purpose of this paper is to identify the case study and provide a nursing care plan for the patient with diabetic foot through nursing theory. Method of work: The current study is a case study based on the nursing care plan of a patient diagnosed with diabetic foot. This paper aimed to evaluate the problems of the diabetic ulcer patient and its management through Abdullah's theory. We report a 62 year old female patient, with pain and discomfort, drowsiness.

Conclusion: By implementing the nursing process in the right way the intended goals were achieved. Nurses in their professional work must have great responsibilities in providing quality care, educating patients for care and raising their level of care.

Keywords: diabetic foot, complications, management

1. Introduction

Diabetic foot is the most serious and common complication which occurs in 15% of diabetic people. Regular foot examination plays an important role in ulcer prevention and good occupational health approach is essential for effective wound healing and rescuing limbs from amputations. These interventions reduce the amputation rate by up to 85%. People with diabetes develop foot ulcers because of neuropathy (sensory, motor, and autonomic deficits), ischaemia, or both.

Diabetic foot ulcer is a serious concern for the patient and also the whole level or system of health care. For every expense incurred in preventing the onset of ulcers, the most is spent on treating and treating diabetic ulcer. In this article, we emphasize that a change in priorities is needed. To prevent a diabetic foot ulcer, we need more knowledge on the effect of interventions and practices already applied worldwide in all settings. To prevent a recurrent foot ulcer, home foot temperature monitoring , which relieve pressure and some surgical interventions turn out to be effective (Bus et al., 2016).

Diabetic foot problems not only cause the loss of the individual / patient's job, reduce or shatter income, impede their educational pursuits and damage social relationships, but also cause psychological damage to patients and their environment (Cavanagh et al., 2005). Diagnosis of diabetic foot at risk, regular examination of foot at risk, education of patients, family members and health workers, management of nonulcerative pathologies and management of diabetic ulcer are key elements of diabetic foot management (Jeffcoate et al., 2003) (American Diabetes Association, 2010). In addition, other risk factors such as hypertension, alcohol, smoking, hyperlipidemia, obesity, and visual impairment should be treated in patients (Boulton et al., 2008), (Alexiadou, Doupis, 2012), (Schaper et al., 2016).

Case presentation

In the presentation of the two-year case study with diabetic foot ulcer, the case was managed in the Gjakova Regional Hospital, first in the first year, then in the Endocrine Clinic at UCCK from November 2020 for 7 consecutive days. Abdellah's theory was used to manage the case along with the nursing care plan. Abdellah's theory is derived from Henderson's theory; is, in fact, the extension of Henderson's 14 basic human needs. However, Abdellah used a problem-solving approach to solve the nursing problems. In developing her theory, she used Maslow's theory of hierarchical needs. "The Theory of 21 Nursing Problems" was formulated as a scientific theory and differentiated between the nursing model and the medical model in nursing education for quality professional care. Abdellah identified 21 problems in maintaining or achieving patients's physical, psychological, and social balance. Moreover, patients' needs are further divided into four categories: physiological, security, love and (emotional) belonging, the need for self-actualization, deriving from Maslow's pyramidal hierarchy of needs. We report a 62-year-old female patient, with pain and discomfort, drowsiness, theft, etc. She said the pain was very intense and was even more severe when she lay down and nothing could ease her. She was married and had 5 children. She indicated that there had been previous hospitalizations and other interventions. The patient confessed that she did not sleep much at night, during the day she felt very tired. Diagnosed with type 2 diabetes for 13 years now and with insulin therapy, diabetic ulcer and hypertension. She also confesses that she had a family history with this diagnosis mother and brother. She initially referred to the Regional Hospital in Gjakova and was diagnosed with type 2 diabetes mellitus and right leg ulcer, after the last condition with Covid 19 she was sent home. During this time he was also positive with Covid 19 and was treated with therapy. He then comes to the UCCK at the Endocrine Clinic, has performed a series of tests and examinations. The patient has amputated her right leg up to the groin, as well as an ulcer (diabetic ulcer) on her left foot. Through our case we implement the nursing care plan based on nursing theory. The patient in the University Clinical Center of Kosovo performed the bone density measurement with Spine position 0.810g / cm² which corresponded to a T-score of -2.4 (76%) and Z-score -1.0 (88%) as a conclusion according to WHO this T-Score is slightly low (normal T-score above -1.0) and corresponds to the diagnosis of Osteopenia and the risk for fracture is moderate. In the additional analyzes performed it is concluded that the value of CRP-HL has given a high result of 207.1H mg / L. The patient was managed for 7 days. The patient was asked about 21 Abdellah problems through models of designing personal, health, emotional and other needs.

2. Literature review

Diabetes is a chronic progressive disease that causes physical, social and psychological challenges, which in turn increases the risk of mental problems (Uchendu and Blake, 2017). The number of diabetes patients has increased four times in the last three decades, and diabetes mellitus is the ninth leading cause of death (Zheng et al., 2018). According to the International Diabetes Organization, the number of people with diabetes has risen from 151 million in 2000 to 415 million in 2015 and is estimated to be 642 million by 2040 (Namayandeh et al., 2019).

Diabetic foot complications are the most common cause of lower limb amputations in the world. The risk of lower limb amputation is 15 to 46 times higher in diabetics than in people who do not have diabetes mellitus (Lavery et al., 1996). It is estimated that about 5% of all patients with diabetes present with a history of foot ulceration, while the lifetime risk of diabetic patients developing this complication is 15% (Abbott et al., 2002). The majority (60–80%) of foot ulcers will heal, while 10–15% of them will remain active, and 5–24% of them will finally lead to limb amputation within a period of 6–18 months after the first evaluation (Lauterbach et al., 2010). The risk of leg ulcers and limb amputations increases with the age and duration of diabetes (Lavery et al., 1998) (Malgrange et al., 2003). Prevention of diabetic foot is essential, given the negative impact on the patient's quality of life and the economic burden associated with health care (Prompers et al., 2008). Diabetic foot ulcer is a major health problem and its management involves a multidisciplinary approach. Multidisciplinary team work can reduce foot ulcer and amputation rates, decrease healthcare costs, and lead to better quality of life for patients with diabetic foot ulcer risk (Aydin et al., 2010), (Aalaa et al., 2012). This review aims to provide an overview of current diabetic foot ulcer management strategies, from prevention to treatment options. The authors believe that it may be useful to primary care physicians, nurses, podiatrists, diabetologists, and vascular surgeons, as well as all healthcare providers involved in the prevention or management of diabetic foot ulcers.

Nursing, like other sciences, is at the beginning and nurses, like other professions, need theories (Ghanbari, 2004). Using the nursing theories results in achieving therapeutic goals and continue treatment and improving the quality of life in patients with diabetes (Araújo et al., 2018). This theory is a patient-centered theory in which nurses have a key role in identifying and solving problems. As mentioned, the nurse, in this theory, is expected to help patients to meet their needs through problem-solving method. It is determined after examining the patients' conditions and the nature and severity of the problem (Hojjati, 2015). The functioning of nursing as a theory contributes to improving the quality of nursing care (Younas, Quennell, 2019). The American Diabetes Association has recommended that a preventive team as a multidisciplinary teams can decrease the risk of amputation by 50- 85%, it also can reduce complications and improve quality of life. Musculoskeletal complications involving the foot can put patients at risk for developing ulcer. Among the foot joints like metatarsophalangeal and subtalar joints are exposed at a higher level of pressure which can lead to the development of foot ulceration. And some physical therapy modalities can be used in the treatment of diabetic foot ulcer like: superficial heater (Infrared treatment), electrical stimulation, laser and magnetic field treatment. Than range of joint motion and stretching exercises (which are beneficial to increase blood flow at the feet), proprioception and balance exercises which can reduce the risk of falling. (Turan J et al, 2015).

Abdellah's theory of 21 problems includes:

1. Maintaining hygiene and comfort
2. Promoting physical activity such as exercise, rest, sleep
3. Promote safety by preventing accidents, injuries or other trauma
4. Maintaining good body mechanics and preventing deformation
5. Oxygen supply
6. Maintaining nutritional status
7. Facilitation of elimination
8. Fluid control or management and electrolyte balance
9. Familiarity with physiological responses to the state of the organism in disease and in a state of health, difference, comparison.
10. Ease of regular maintenance of mechanism function
11. Maintaining the regular function of the senses

12. Positive and negative acceptance, express feelings and reactions
13. Identify emotions associated with the disease
14. Effective maintenance of verbal and nonverbal communication
15. Encouraging the development of productivity in interpersonal relationships
16. Facilitating progress toward achieving and fulfilling personal spiritual goals
17. Creating and maintaining a therapeutic environment
18. Facilitating self-awareness as an individual with altered physical, emotional, and developmental needs
19. Accepting the optimal possible goals in the light of physical and emotional limitations
20. Using community resources to help solve problems that arise with the disease
21. Understanding and the role of social problems as factors influencing the cause of the disease.

3. Conclusion

Implementing a health education program, in addition to performing professional, multidisciplinary nursing work, favors the prevention of diabetic foot ulcer and thus reduces the risk of amputation. The role of nurses can be in health care or in the institution, in individual health, community education, health systems management, patient care and improving quality of life. Nurses also play the role of educator in the field of diabetes prevention in general, diabetic foot, foot care and foot injury prevention. In the health care dimension, nurses are responsible for early detection of any changes in skin and foot sensation, foot care, clothing, etc. Case management through nursing theory has brought the situation that the patient based on his needs his goal has been met.

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