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Pressure Ulcers and Demographic Characteristics of Patients in a Training and Research Hospital Home Healthcare Unit

Bir Eğitim ve Araştırma Hastanesi Evde Sağlık Biriminde Takip Edilen Basınç Ülserli Hastaların Demografik Özellikleri ve Basınç Ülseri

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Abstract

Objective: The main feature of the concept of home care is that healthcare services are provided to the person at home by healthcare professionals. Pressure ulcer development is common in patients receiving home healthcare services. The study aimed to determine the prevalence of pressure ulcers and the risk factors for pressure ulcer development in patients followed up in Atatürk Training and Research Hospital Home Health Unit.

Methods: The files of 387 patients who were followed up and treated for ulcers in the Home Healthcare Unit of Atatürk Training and Research Hospital between 01.01.2022 and 31.12.2022 were reviewed for the study. The files of 267 patients with pressure ulcers were included in the study.

Results: A total of 267 patients, 170 (63.7%) of whom were female, were included in the study. The mean age of the patients with pressure ulcers was 80.3±12.2 years. The most common sites of pressure ulcers were the gluteus (36%), sacrum (30%), heel (8%), back (7%), and coccyx (6%). Twenty seven (7%) ulcers were classified as stage 1, 214 (57%) as stage 2, 114 (31%) as stage 3, and 19 (5%) as stage 4 pressure ulcers. There were 109 (40.8%) patients who were tube fed and 120 (44.9%) patients who were fed with an oral nutritional solution.

Conclusion: The assessment of risk factors should be part of the initial examination of every patient admitted to the home healthcare system. The importance of nutritional support in patients in the high-risk group should be emphasized

Keywords: Pressure ulcers, home healthcare services, risk factors

Öz

Amaç: Evde bakım kavramının temel özelliği, sağlık hizmetlerinin sağlık profesyonelleri tarafından evde kişiye verilmesidir. Evde sağlık hizmeti alan hastalarda basınç ülseri gelişimi sık görülür. Bu çalışmada, Atatürk Eğitim ve Araştırma Hastanesi Evde Sağlık Hizmetleri Birimi'nde izlenen hastalarda basınç ülseri prevalansının ve bası yarası gelişimi için risk faktörlerinin belirlenmesi amaçlandı.

Yöntem: Atatürk Eğitim ve Araştırma Hastanesi Evde Sağlık Birimi'nde 01.01.2022-31.12.2022 tarihleri arasında basınç ülseri nedeniyle takip ve tedavi edilen 387 hastanın dosyası çalışma için incelendi. Basınç ülseri olan 267 hastanın dosyaları çalışmaya dahil edildi.



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Öz

Bulgular: Çalışmaya 170'i (%63,7) kadın olmak üzere toplam 267 hasta dahil edildi. Basınç ülseri olan hastaların yaş ortalaması 80,3±12,2 idi. Basınç ülserlerinin en yaygın geliştiği bölgeler gluteus (%36), sakrum (%30), topuk (%8), sırt (%7) ve koksiks (%6) idi. Basınç yarası evreleri 27 (%7) hastada evre 1, 214 (%57) hastada evre 2, 114 (%31) hastada evre 3, 19 (%5) hastada ise evre 4 olarak tespit edildi. Tüple beslenen 109 (%40,8) hasta ve oral beslenme çözümü ile beslenen 120 (%44,9) hasta vardı.

Sonuç: Risk faktörlerinin değerlendirilmesi, evde sağlık sistemine başvuran her hastanın ilk muayenesinin bir parçası olmalıdır. Yüksek risk grubundaki hastalarda beslenme desteğinin önemi vurgulanmalıdır.

Anahtar Kelimeler: Basınç ülserleri, evde sağlık hizmetleri, risk faktörleri

Introduction

According to the World Health Organization, home care is the provision of care services in the home environment by formal and informal caregivers⁽¹⁾. Home care services are generally preferred by the elderly. The definition and scope of home care services vary according to country. There are approaches ranging from home visits to home examinations and treatment practices. Service providers range from health professionals to volunteers. In addition to being provided by the public or private sector as financed service, it can be provided by family members without payment. The main feature accepted about the definition of home care is that health and care services are provided to the person at home by health professionals⁽²⁾.

In our country, services to be provided to the elderly have been defined by legal regulations starting from the Public Health Law (Umumî Hıfzıssıhha Kanunu - UHK). The "Regulation on the Provision of Home Healthcare Services" was published in 2005. In this regulation, the definition of the service was made and working principles were determined⁽³⁾. The Directive on the Implementation Procedures and Principles of Home Healthcare Services provided by the Ministry of Health was published in 2010, and the home healthcare service has become a therapeutic service rather than a preventive health service, including examination, examination, and treatment⁽⁴⁾.

A pressure ulcer is defined as an unpreventable pressure area damage that causes ischemia, cell death, and tissue necrosis in an area on a bone prominence or body surface⁽⁵⁾. Pressure ulcers can cause serious consequences for patients and their relatives.

The intensity of the pressure, the time of the pressure, and the immunologic resistance of the tissue against this pressure are the factors in the formation of pressure ulcers⁽⁶⁾. Pressure ulcers are seen on 95% of the lower part

of the body; frequently on bone protrusions such as the ischium, sacrum, trochanters, back, and heel. In studies, the prevalence of pressure ulcers in home health services varies between 0 and 29%⁽⁷⁾. In the studies conducted in our country, the incidence of pressure ulcers was found to be between 13.2% and 31.4%⁽⁸⁻¹¹⁾.

Pressure ulcers are classified into 4 stages according to their clinical appearance;

- In a stage I ulcer, there is erythema that does not fade with finger pressure, usually occurring in a limited area on the bony prominences while skin integrity is intact.
- In a stage II ulcer, there is a partial loss of thick dermis with a pink ulcer bed, appearing as superficial open ulcers, reddish without yellow necrotic tissue.
- In a stage III ulcer, there is loss of full-thickness tissue. The subcutaneous adipose tissue can be seen in the ulcer bed, but bones, tendons, or muscles are not affected.
- In a stage IV ulcer, there is full-thickness tissue loss with bone, tendons, or muscles affected. Yellow necrotic tissue or eschar may present. There is often a tunnel and cavity under the ulcer⁽¹²⁾.

Pressure ulcers form due to multiple factors. These are extrinsic factors outside the patient and intrinsic factors arising from the patient. Extrinsic risk factors: pressure, friction, shearing-tearing, moisture-maceration. Intrinsic risk factors: age, anemia, dry skin, infection, hypotension, ischemia, malnutrition, spinal cord injuries, decreased muscle mass, spasticity, neurological diseases-consciousness status, immobility, urinary and fecal incontinence⁽¹³⁻¹⁶⁾.

The six steps included in the braden risk assessment scale, which is one of the scales frequently used for the assessment of pressure ulcer risks and planning of preventive interventions, are; risk assessment of all patients

at the first examination, daily reassessment of risks in all patients, daily skin examination, moisture management of the skin, improvement of nutrition and hydration, and reduction of pressure on bony prominences⁽¹⁷⁾. Lyman⁽¹⁸⁾, who implemented a preventive program including these steps, achieved a 95% reduction in heel ulcers in 6 months.

Pressure ulcers are a major health and economic problem with a significant increase in morbidity and mortality. Pressure ulcers are a problem that can be prevented by eliminating risk factors and careful care. The cost of identifying the risk factors that play a role in the formation of pressure ulcers and taking the necessary precautions against them is lower than the cost of ulcer treatment. In addition, the prevention of pressure ulcers in many diseases and the provision of quality care in their treatment are of great importance for the prognosis of the disease^(19,20).

This study aimed to determine the prevalence of pressure ulcers and risk factors for pressure ulcer development in patients followed up in the home healthcare unit of a training and research hospital.

Materials and Methods

The study was retrospective and cross-sectional. We reviewed the files of 387 patients who were followed and treated for wounds in the Home Healthcare Unit of Atatürk Training and Research Hospital between 01.01.2022 and 31.12.2022 and included the files of 267 patients with pressure ulcers. We inspected and recorded the age, gender, chronic diseases, nutritional status, pressure ulcer stage, site of pressure ulcer formation, use of a catheter, and enteral nutrition status of each patient. The team evaluated the pressure ulcers according to the Pressure Ulcer Classification of the National Pressure Ulcer Advisory Panel.

Statistical Analysis

Data were evaluated in the SPSS 24.0 Statistical Program. Descriptive analyzes collected in the study were presented using mean, median, standard deviation, and minimum-maximum values for numerical variables; categorical variables were presented using numbers and percentages. The conformity of the data to the normal distribution was tested via the Kolmogorov-Smirnov test.

Ethics committee approval was obtained from the Non-Interventional Clinical Research Ethics Committee of İzmir Katip Celebi University with the decision number 0046 on 23.02.2023.

Results

The mean age of the patients with pressure ulcers was 80.3±12.2 years and the range of age was 21-103 years. Pressure ulcers were observed more frequently in females; 170 (63.7%) of the patients were female. Regarding the conditions of the patients, 231 (86.5%) had hypertension, 180 (67.4%) had chronic heart disease, 165 (61.8%) had dementia, 156 (58.4%) had depression/psychosis, 133 (49.8%) had cerebrovascular disease, and 76 (28.5%) had diabetes mellitus (DM). Other comorbidities are given in Table 1.

Table 1. Demographic characteristics of the patients

Patient characteristics	
Age	Mean ± SD
All	80.3±12.2
Female	66.15±11.04
Male	66.15±8.4
Gender	n (%)
Female	170 (63.7)
Male	97 (36.3)
Comorbid diseases	n (%)
Hypertension	231 (86.5)
Heart diseases	180 (67.4)
Dementia	165 (61.8)
Depression/psychosis	156 (58.4)
Cerebrovascular disease	133 (49.8)
Diabetes mellitus	76 (28.5)
Osteoporosis	72 (27)
COPD	41 (15.4)
Cancer	32 (12)
Parkinson	30 (11.2)
CRF	23 (8.6)
Hip fracture	20 (7.5)
Cerebral palsy	6 (2.2)
Risk factors	n (%)
Diaper use	258 (96.6)
Urinary incontinence	253 (94.8)
Medical device use	124 (46.4)
Oral nutritional solution	120 (44.9)
Tube feeding	109 (40.8)
Urinary catheter use	50 (18.7)
The presence of tracheostomy	11 (4.1)
The number of medicines used	Median (min-max) 4.5 (0-18)

SD: Standard deviation, COPD: Chronic obstructive pulmonary disease, CRF: Chronic respiratory failure

Risk factors for pressure ulcers were diaper use in 258 (96.6%), urinary incontinence in 253 (94.8%), use of medical devices in 124 (46.4%), oral nutrition solution in 120 (44.9%), tube feeding in 109 (40.8%), catheter use in 50 (18.7%), and presence of tracheostomy in 11 (4.1%). The median number of medications used by the patients was 4.5 (0-18).

A total of 267 patients had 374 ulcers. The number of wounds per patient was 1.42±0.62. The most common sites of pressure ulcers were the gluteus (36%), sacrum (30%), heel (8%), back (7%), and coccyx (6%) (Table 2). Twenty seven (7%) ulcers were classified as stage 1, 214 (57%) as stage 2, 114 (31%) as stage 3, and 19 (5%) as stage 4 pressure ulcers.

Discussion

In this study, we evaluated the prevalence of pressure ulcers and risk factors for the formation of pressure ulcers in patients followed up in the home healthcare unit of a training and research hospital. The prevalence of pressure ulcers was 23.80% in Aktürk et al.⁽²¹⁾ and 22.80% in Şahin Demirci et al.⁽²²⁾. In our study, the prevalence of pressure ulcers was 19%. In our study, the frequency of pressure ulcers was similar to the

literature but slightly lower. This may be due to an increased awareness among family members regarding this subject over the years. Having more knowledge about pressure ulcers and a better understanding of preventive measures can be effective in reducing the risk of pressure ulcers. The increased awareness may lead to taking precautions such as more frequent repositioning of patients, using appropriate bed equipment, and regularly monitoring pressure points.

The mean age was 74.90 74.90±15.40 years in the study by Hisar and Erdoğan⁽²³⁾, 68 years (11-100) in the study by Aktürk et al.⁽²¹⁾, and 80 years (34-98) in the study by Şahin Demirci et al.⁽²²⁾. In our study, the mean age was 80.3±12.2 years. While inspecting the increase in the elderly population in society, we came across reports stating that the group of individuals over 80 years of age is the fastest increasing group⁽²⁴⁾. Deterioration of skin perfusion and skin turgor with aging, collagen regeneration, serum albumin level and immune response, weakness, loss of tissue elasticity, weakening of the connection between epidermis and dermis, and neurologic and cardiovascular problems increase the risk of pressure ulcer formation in advanced age⁽²⁵⁾.

In a study conducted by Efteli and Güneş⁽⁹⁾ with 122 patients in the intensive care unit of a university hospital, pressure ulcers were observed more frequently in females, whereas in a study conducted by Cremasco et al.⁽²⁶⁾ with 160 patients, they were observed more frequently in males. In addition, there are publications in the literature suggesting that there is no statistically significant relationship between the incidence of pressure ulcers and gender^(27,28). In our study, pressure ulcers were more common among women.

In the study by Hisar and Erdoğan⁽²³⁾ 36.20% of patients had a history of DM and/or hypertension, 25.5% had cerebrovascular events, 19.1% had bone fractures, and 10.6% had cancer; in the study by Lyman⁽¹⁸⁾ 91% of patients had a history of hip fractures, 65% had DM, 63% had cerebrovascular events, and 43% had peripheral vascular damage. In the study by Şahin Demirci et al.⁽²²⁾, 32.40% of the patients had a history of DM, 54.90% had hypertension, 36.60% had chronic heart disease, 45.10% had a history of cerebrovascular disease, and 9.90% had a history of malignant disease⁽²³⁾. In our study, 86.5% of the patients had a history of hypertension, 67.5% had chronic heart disease, 61.8% had dementia, 58.4% had depression/psychosis, 49.8% had cerebrovascular disease, and 28.5% had DM. Changes in tissue perfusion and nutrition in individuals with chronic diseases increase the risk of pressure ulcers.

Table 2. Characteristics of pressure ulcers

Characteristics of the ulcer	
The number of ulcers	Mean ± SD
All	1.42±0.62
Female	1.43±0.64
Males	1.40±0.59
Ulcer area (374)	n (%)
Gluteus	135 (36)
Sacrum	114 (30)
Heel	31 (8)
Back	25 (7)
Coccyx	23 (6)
Trochanter	18 (5)
Malleolus	11 (3)
Ear	6 (2)
Femur	3 (1)
Other	7 (2)
Ulcer stage	n (%)
Stage 1	27 (7)
Stage 2	214 (57)
Stage 3	114 (31)
Stage 4	19 (5)

SD: Standard deviation

The risk is especially high in diseases affecting tissue tolerance such as DM, chronic obstructive pulmonary disease, cancer, and cardiovascular and microvascular diseases⁽²⁵⁾. Chronic diseases are one of the important risk factors for pressure ulcer formation. Chronic diseases should be questioned and followed up more carefully during the first visit and follow-up of home healthcare patients.

In their study conducted in 2001, Hug et al.⁽²⁹⁾ found that the most common pressure ulcer type was stage 1 pressure ulcer. In the study by Ferrell et al.⁽³⁰⁾, 40.3% had stage 2, 27% stage 3 and 4 ulcers; in the study by Bergquist-Beringer et al.⁽¹⁶⁾, 49.10% had stage 1, 50% stage 2 ulcers. In the study by Aktürk et al.⁽²¹⁾, the most common pressure ulcer type was stage 2 ulcer (33%), and in the study by Şahin Demirci et al.⁽²²⁾, 61.1% of ulcers were stage 2 pressure ulcers. In our study, the most common pressure ulcers were stage 2 (57%) and stage 3 (31%) ulcers.

In the study of Karadag and Gumuskaya⁽³¹⁾, 37.4% of pressure ulcers were observed in the gluteal region and 18.7% in the scapular region; in the study of Hug et al.⁽²⁹⁾, it was reported that pressure ulcers were most commonly seen in the sacrum (53.4%), followed by the heel, trochanter, and ischium. Tel et al.⁽³²⁾ reported that 71% developed pressure ulcers on the coccyx, 21% on the scapula, and 1% on the elbow and costae. Ortak et al.⁽³³⁾ observed multiple pressure ulcers in 42 of 476 patients, and most of these ulcers were in the sacral region. In our study, pressure ulcers were most commonly seen in the gluteus (36%), sacrum (30%), heel (8%), back (7%), and coccyx (6%). The areas where pressure ulcers may occur, the importance of using air mattresses, and positioning of the patients should be explained the patient's relatives during training. In a study, it was reported that positioning the patient decreased ulcer formation and patient care service costs⁽²²⁾.

Malnutrition and its variables (low body weight and inadequate oral intake) are independent risk factors for pressure ulcer development. There are several studies in many countries and clinics showing an association between malnutrition and pressure ulcers. All patients admitted to the home healthcare system should be evaluated at the first visit with a valid and reliable nutrition screening tool to determine nutritional risk⁽¹⁸⁾. In Şahin Demirci et al.⁽²²⁾ 7 (9.9%) patients were fed with percutaneous endoscopic gastrostomy, 1 (1.4%) patient was fed with a nasogastric catheter, and 9 (12.7%) patients used enteral nutrition products. In our study, 109

(40.8%) of the patients were tube fed and 120 (44.9%) were using enteral nutrition solution.

Study Limitations

Conducting the study between 01.01.2022 and 31.12.2022 in a single center can be counted among the limitations of the study.

Conclusion

Pressure ulcer prevalence remains a significant concern, and various risk factors contribute to their development. Understanding the prevalence and risk factors associated with pressure ulcers is crucial for effective prevention and management strategies. The prevalence rates may vary across different populations and healthcare settings, but overall, they pose a significant burden on both patients and healthcare systems. Age, immobility, impaired sensory perception, poor nutritional status, and prolonged pressure are among the key risk factors identified. Implementing comprehensive preventive measures, such as regular skin assessments, appropriate support surfaces, early mobilization, adequate nutrition, and patient and caregiver education, can play a vital role in reducing the incidence of pressure ulcers and improving patient outcomes. The fact that pressure ulcers are preventable is critical in terms of identifying patients at high risk of pressure ulcers and evaluating them with a preventive medicine approach. It should become a part of home healthcare that every patient who is evaluated within the scope of the home healthcare system should be followed up from the first examination in terms of risk factors for pressure ulcer formation. If the patient has an ulcer, it should be evaluated in detail and treatment should be planned. In patients without pressure ulcers, necessary interventions should be made to prevent the formation of ulcers, and patients and their relatives should be trained in this regard to ensure regular and effective patient care.

Ethics

Ethics Committee Approval: Ethics committee approval was obtained from the Non-Interventional Clinical Research Ethics Committee of İzmir Katip Celebi University with the decision number 0046 on 23.02.2023.

Informed Consent: Retrospective study.

Peer-review: Externally and internally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: M.B.Ö., S.Ö., Concept: M.B.Ö., Design: M.B.Ö., Data Collection or Processing: S.Ö., Analysis or Interpretation: S.Ö., Literature Search: M.B.Ö., Writing: M.B.Ö.

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