

Falling Risk Assessment of the Hospitalized Patients in Palliative Care Unit

Palyatif Bakım Ünitesinde Yatan Hastaların Düşme Risk Değerlendirmesi

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Abstract

Objective: Falls are an important causes of morbidity and mortality beyond existing health problems. It is aimed to determine the relationship between the risk of falling with chronic illnesses.

Material and methods: This is a non-randomized, cross-sectional study. 70 patients who have been followed up in Palliative Care Service of Tepecik Training and Research Hospital between November 2014 and May 2015; were included in the study. Data have been obtained by applying Tinetti walk-balance test and patient questionnaire after obtaining their consent. Statistical assesment was performed by chi-square test, SPSS package program.

Results: The average age of patients was 56.95±14.28. 72.8% of patients were under 65 years. 71.4% of all patients were female and 28.6% male. Overall Tinetti score average was found to be 19.27±8.07. Overall of the 58.6% cases, had medium and high risk for falling. Factors statistically related with falls were; age, gender, obesity, walking support, marital status, diabetes with operation (p<0.005).

Discussion: Factors related with falls are certain and therefore awareness of palliative care service staff as well as patients and their relatives is important.

Key words: Falling, palliative care, risk

Özet

Amaç: Düşmeler, mevcut sağlık sorunlarının ötesinde önemli bir morbidite ve mortalite nedenidir. Kronik hastalıklarla düşme riski arasındaki ilişkinin belirlenmesi amaçlanmaktadır.

Gereç ve Yöntem: Bu randomize olmayan, kesitsel bir çalışmadır. Kasım 2014-Mayıs 2015 tarihleri arasında Tepecik Eğitim ve Araştırma Hastanesi Palyatif Bakım Servisi'nde izlenen 70 hasta; çalışmaya dahil edildi. Veriler, hastaların onamları alındıktan sonra Tinetti yürüme dengesi testi ve hasta anketi uygulanarak elde edilmiştir. İstatistiksel değerlendirme SPSS paket programında ki-kare testi ile yapıldı.

Bulgular: Hastaların yaş ortalaması 56.95±14.28 idi. Hastaların %72.8'i 65 yaşın altındaydı. Tüm hastaların %71.4'ü kadın, %28.6'sı erkekti. Genel Tinetti puan ortalaması 19.27±8.07 olarak bulundu. %58,6 vakanın geneli, orta ve yüksek düşme riskine sahipti. Düşmelerle istatistiksel olarak ilişkili faktörler; yaş, cinsiyet, obezite, yürüme desteği, medeni durum, ameliyatlı diyabetik olma (p<0,005) şeklinde bulundu .

Tartışma: Düşmelerle ilgili faktörler kesindir ve bu nedenle palyatif bakım hizmeti personelinin yanı sıra hasta ve hasta yakınlarının farkındalığı önemlidir.

Anahtar kelimeler: Düşme, palyatif bakım, risk

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Introduction

The World Health Organization (WHO) defines fall as an event which results in a person coming to rest inadvertently on the ground or floor or other lower level (1). Falls are a major cause of morbidity and mortality in addition to present health problems. Although they are a significant issue in patients aged above 65 years, they are deemed important only in the presence of a comorbidity in patients aged below 65 years (2). Fall rates rise as high as 34% among patients above 65 years of age (3,4). Falls make up as high as 70% of multi-trauma patients presenting to the emergency units (2). Among multiple-trauma patients aged above 65 years, this rate is around 35% (1) and approximately 25% of these patients have at least one comorbidity (2). Falls account for 44% of all home accidents presenting to the emergency units among all age groups (5).

Often, adult patients are hospitalized in the palliative care units and majority of these patients have comorbidities affecting the quality of life. In addition to the present diseases, morbidities associated with falls further deteriorate the quality of life and bring about higher costs. Family medicine specialists following the biopsychosocial model are important factors in such cases because they put special emphasis on preventive medicine. Determining potential risks of falling for the patients and educating them on these risks while recommending mobility aids for those in need of one, should protect them from future traumas and reduce the health costs.

In this study, the risks of falling were evaluated and their relation with comorbidities were investigated in patients admitted to the Family Medicine Palliative Care Unit, Tepecik Teaching and Research Hospital.

Material and Method

This non-randomized and cross-sectional study was performed between November 2014 and May 2015.

Study Sample

The patients that were admitted between the above mentioned dates constituted the study sample. Since some of the inpatients were immobile and some were unconscious, the

Tinetti test could be applied only for 70 patients. Between these dates, 116 patients were admitted and 60.34% were eligible according to the study criteria.

Statistical Analysis

Study data were obtained from face-to-face interviews including questionnaires and the Tinetti test results. Collected data were analyzed with the Statistical Package for the Social Sciences (SPSS) program, using descriptive statistics and chi-square test. $P < 0.05$ was recognized as statistically significant.

Study Method

Study was performed by applying two forms; one questionnaire including items focusing on the sociodemographic characteristics and one form including the Tinetti test. Sociodemographic characteristics included the following information on each patient: age, gender, marital status, body mass index, educational level, chronic diseases, profession, use of mobility aids, and medication. The participants were also asked if they lived alone and if they had any children. The balance and gait sections of the Tinetti test were performed and recorded as two forms. This test has been developed by Mary Tinetti, working at the Yale university (6). The Tinetti test is recognized as the gold standard assessing balance and gait disorders in the elderly. The maximum total score is 28 points; maximum balance score is 16 points and maximum gait score is 12 points. Scores ≥ 24 are deemed low risk group for falls, 19-23 are deemed moderate risk group, while scores ≤ 18 are deemed as high-risk group (7). In high-risk results, the risk has been observed to rise as high as 5-fold (8). The specificity and sensitivity of the Tinetti test have been shown to be 85% and 93%, respectively (9).

Results

The mean age among the study population was 56.95 ± 14.28 (min:21, max:87). As 75.7% (n=53) were < 65 years of age, 24.3% (n=17) were ≥ 65 years of age. 71.4% (n=50) of the patients were female and 28.6% (n=20) were male. The mean age among women was 58.62 ± 12.23 years, whereas it was 52.80 ± 18.20 years among men.

The primary diagnosis of the study patients was excess weight (obesity-morbid obesity) in 74.3% (n=52), diabetes mellitus in 7.1% (n=5), malignancy in 4.2% (n=3), osteomyelitis in 2.9%

(n=2), and other diseases in the remaining 11.5%. Other diseases included asthma, iron deficiency anemia, cervical disc disease, peripheral vascular disease, ischemic heart diseases, and gonarthrosis.

Based on the body mass index, 82.8% (n=58) of the study population were assessed as obese, while 8.6% (n=6) were overweight, and 8.6% (n=6) were normal. The mean body mass index value was 48.19 ± 16.34 for all the patients. 74.3% (n=52) of the patients were not using any mobility aid, while 25.7% were using at least one mobility aid. 83.3% (n=15) of the patients with mobility aid were obese and morbid obese. As 38.8% (n=7) of the patients aged ≥ 65 years were using a mobility aid, this rate was 23.1% (n=12) among patients aged < 65 years.

According to the Tinetti test results, 38.6% (n=27) of the patients were evaluated as at high risk for falls (score ≤ 15), while 20.0% (n=14) and 41.4% (n=29) were evaluated as at moderate risk (score=19-23) and at low risk for falls (score > 24), respectively. In the high-risk group, 66.6% (n=18) were female and 33.4% (n=9) were male; in the moderate-risk group, 71.4% (n=10) were female and 28.6% (n=4) were male; in the low-risk group, 75.8% (n=22) were female and 24.2% (n=7) were male. The mean Tinetti score was 19.27 ± 8.07 (SD). The mean Tinetti score was 17 ± 7.80 (SD) in patients ≥ 65 years of age and 20.11 ± 8.08 (SD) in patients < 65 years of age.

Based on the Tinetti test results, married patients were categorized as follows: 30.4% (n=14) at high risk, 21.7% (n=10) at moderate risk, and 47.8% (n=22) at low risk for falls. The same categorization for the singles was as follows: 46.7% (n=7) at high risk, 13.3% (n=2) at moderate risk, and 40% (n=6) at low risk for falls. On the other hand, among divorced patients, 66.7% (n=6) were found to be at high risk, 22.2% (n=2) at moderate risk, and 11.1% (n=1) at low risk for falls. The Tinetti test results showed a statistically significant difference relative to marital status; the divorced patients with a Tinetti result of 13.77 ± 9.13 were at higher risk for falls ($p < 0.05$).

The groups did not exhibit a significant difference relative to diabetes alone, however, those with a history of diabetes showed lower Tinetti scores (18.42 ± 8.30). Moreover, patients with a history of diabetes combined with a

history of surgery were observed to display significantly higher risk for falls (mean Tinetti score, 15.57 ± 8.62) as compared to other groups ($p < 0.05$). It is seen that history of diabetes is a major risk factor for falls and that it significantly increases the risk in the presence of comorbidities and surgical interventions.

According to the body mass index; 34.4% (n=20) of the obese patients were at high risk, 22.4% (n=13) were at moderate risk, and 44.2% (n=25) were at low risk for falls. The risk for falling was higher in patients ≥ 65 years of age ($p < 0.05$). Similarly, the risk for falling was lower in obese and young patients than in other patients ($p < 0.05$).

The patients with inability to self-care (n=27) displayed a mean Tinetti score of 12.92 ± 7.72 , showing a significant correlation with risk of falls. The patients with limited self-care abilities demonstrated significantly higher risk of falls ($p = 0.000$).

Discussion

In general, the mean Tinetti score was 19.27 ± 8.07 ; it was 17 ± 7.80 in patients ≥ 65 years of age and 20.11 ± 8.08 in patients < 65 years of age. In total, 58.6% of the patients were at moderate and high risk for falls, while among patients ≥ 65 years of age, 84.1% were at moderate and high risk for falls.

A study conducted in the inner regions of Turkey evaluated 66 (23 male and 43 female) cases. The mean age was 68.45 ± 6.2 and the mean Tinetti total score was 24.5 ± 5.8 (10). Another study conducted in the province of Nigde assessed 90 patients above 65 years of age. The mean age was 71.11 ± 6.62 and the mean Tinetti score was 24.58 ± 3.62 (11). A study performed in the province of Denizli evaluated 80 patients with end-stage renal failure receiving hemodialysis. The mean age of the patients (35 male and 45 female) was 40.02 ± 8.93 , while the mean Tinetti score was 24.10 ± 5.62 (SD) (12). In the present study, similar to other studies, presence of more than one chronic diseases in patients needing palliative care was observed to significantly affect the walking ability and other functions in addition to increasing the risk for falling and showing a negative influence on the Tinetti score.

Ratio of using mobility aid was 25.7% (n=18).

Among patients ≥ 65 years of age, 38.8% (n=7) were using a mobility aid. According to the Tinetti test results, 77.7% (n=14) of the patients using a mobility aid were at high risk and 22.3% (n=4) were at moderate risk for falls. The mean Tinetti score of patients using a mobility aid was 12.70 ± 6.14 (SD).

The risk for falling was significantly higher in patients using a mobility aid (p=0.000). A study in Brasil evaluated 61 patients and found 47.9% at high risk and 10.4% at moderate risk for falls. The mean Tinetti score was 15.23 ± 11.03 (SD) (13). The risk for falling was similar in patients using a mobility aid in the palliative care unit and in those with a history of stroke. Nonetheless, only 8% of the patients using a mobility aid had a history of stroke. The highest risk for falling was demonstrated by the patients using mobility aid. The risk for falling in these patients appears to be higher than the risk occurring after stroke.

Onat et al. evaluated a total of 164 patients, 83 elderly, and 81 non-elderly. In this study, the rate of using mobility aid was 48.2% in elderly patients and a significant correlation was found between age and use of mobility aid (14). 38.8% of the patients aged ≥ 65 years were using a mobility aid. The absence of a correlation between age and use of mobility aid supports the view that chronic diseases requiring palliative care affect walking performance regardless of the age.

In the literature, low levels of education, advanced age, and female gender are mentioned among risk factors for falls. In the past, higher risk for falls in women has been associated with higher prevalence of age-related osteoporosis and musculoskeletal diseases. Low educational levels, low socioeconomic status, and poor environmental conditions have been claimed to elevate the risk of chronic diseases, indirectly leading to increased rates for falls (15). In the present study, the results obtained in the palliative care unit were consistent with those in the literature.

A study in Australia evaluated 5681 patients aged ≥ 65 years. In this study, the risk for falling was 31% higher in elderly and obese patients. Moreover, there was no significant difference between individuals with normal weight and elderly obese patients with regard to fall-related injuries (16). In the US, annual fall rate among people ≥ 65 years of age is higher than 33%. One

study evaluated 31602 cases aged ≥ 65 years between 1998 and 2006, investigating the relationship between falls and obesity. The fall rates were significantly higher in obese patients. Class I and II obesity cases exhibited considerably higher fall-related injury risks, while morbid obesity (class III) cases displayed lower fall-related injury risks. The reason behind lower fall-related injury risk in morbid obese patients was explained by the reduction of the trauma effect by obesity (17,18). Higher fall rates in the elderly and obese patients relative to those in the literature supports that obesity is a significant risk factor for falls at advanced ages. Decreases in bone density and musculoskeletal mass over, as well as higher arthrosis rates at advanced ages are believed to be the contributing factors making obesity a major risk factor for falls.

Conclusion

The above mentioned statistically significant factors (age, gender, obesity, mobility aid, educational level, marital status, history of diabetes and surgery) should always be borne in mind as risk factors for falling. In addition to the personnel in the palliative care unit, the patients and their relatives should also be educated in this matter to raise awareness and take due precautions.

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