



EVALUATION OF PRESSURE SORES IN INTENSIVE CARE; WHAT SITUATION ARE WE IN? YOĞUN BAKIMDA BASI YARALARININ DEĞERLENDİRİLMESİ; NE DURUMDAYIZ?

Ayşe Ayyıldız¹, Birgül Yelken¹


1 Osmangazi Üniversitesi Tıp Fakültesi, Anesteziyoloji ve Reanimasyon Anabilim Dalı, Eskişehir, Türkiye

Sorumlu Yazar/Corresponding Author: Ayşe Ayyıldız E-mail: drayseayyildiz@gmail.com

Geliş Tarihi/Received: 09.04.2021 Kabul Tarihi-Accepted: 29.04.2021 Available Online Date/Çevrimiçi Yayın Tarihi: 30.04.2021

Cite this article as: Ayyıldız A, Yelken B. Evaluation of Pressure Sores in Intensive Care: What Situation Are We In?

J Cukurova Anesth Surg. 2021;4(1):61-66. Doi: 10.36516/jocass.2021.73

 0000-0002-8206-6921, 0000-0001-9677-9028

Abstract

Introduction: Pressure sores are a serious health problem that is common in the intensive care unit (ICU), increasing the length of hospital stay, cost and mortality rate, and should be prevented first. This study was conducted in order to determine the risk factors that may affect our pressure sore prevalence and development.

Materials and Methods: The pressure sore data of the patients treated in the Anesthesia Intensive Care Unit for six months between June 1, 2019 and December 31, 2019 were examined. The demographic characteristics, hospitalization diagnoses, pressure sore risk factors, locations and stages of the patients with pressure sores were recorded.

Results: The number of patients followed up during the six-month period was 275 and 52 of the patients had pressure sores (18.9%). Forty of the patients were 65 years and older, and advanced age was found to be a significant risk factor ($p < 0.01$). Considering the patients who developed pressure sores in our intensive care follow-up, it was seen that the average pressure sore development day was 17.1st day. (3rd-44th day) Pressure sores were most common in the sacral region and stage two.

Conclusion: While the most important risk factors for pressure ulcer development were emphasized as advanced age; in our study, in parallel with the literature, advanced age was the most common. Pressure sores rate and analysis, which is one of the mandatory parameters as an indicator of quality in intensive care, is one of the issues that should be dominated by every intensive care worker.

Key Words: Pressure sores, intensive care quality indicators, Braden risk scale

Öz

Giriş: Bası yaraları, yoğun bakım ünitesinde (YBÜ) sık görülen, hastanede kalış süresini, maliyeti ve ölüm oranını artıran öncelikle önlenmesi gereken ciddi bir sağlık sorunudur. Bu çalışma, bası yarası prevalansımızı ve gelişimimizi etkileyebilecek risk faktörlerini belirlemek amacıyla yapılmıştır.

Materyal ve Metot: Anestezi Yoğun Bakım Ünitesinde 1 Haziran 2019 ile 31 Aralık 2019 tarihleri arasında altı ay süreyle tedavi gören hastaların bası yarası verileri incelendi. Bası yarası olan hastaların demografik özellikleri, hastanede yatış tanıları, bası yarası risk faktörleri, yerleşim yerleri ve evreleri kaydedildi.

Bulgular: Çalışmamız sonucunda Altı aylık dönemde takip edilen hasta sayısı 275 idi ve hastaların 52'sinde bası yarası vardı (% 18.9). Hastaların 40'ı 65 yaş ve üzerindeki ve ileri yaş en önemli risk faktörü olarak bulundu ($p < 0.01$). Yoğun bakım takibimizde bası yarası gelişen hastalar incelendiğinde ortalama bası yarası gelişme günününün 17.1. gün olduğu görüldü. (3-44. Gün) Bası yaralarının en sık sakral bölgede ve ikinci evrede olduğu görüldü.

Sonuç: Bası yaraları gelişimi için en önemli risk faktörü genelde ileri yaş olarak vurgulanırken çalışmamızda da literatüre paralel olarak ileri yaşın en yaygın risk faktörü olduğu görüldü. Yoğun bakımda kalite göstergesi olarak zorunlu parametrelerden biri olan bası yarası oranı ve analizi, her yoğun bakım çalışmasının hâkim olması gereken konulardan biridir.

Anahtar Kelimeler: Bası yaraları, yoğun bakım kalite göstergeleri, braden risk skalası

Introduction

Pressure sores are necrosis and ulcerations that occur as a result of impaired circulation in the subcutaneous tissues of the skin due to repetitive and prolonged pressures, especially in areas with bony protrusions¹. It is more common in areas with bones just under the skin such as the ear, shoulder, elbow, sacral area, hip, knee, heel, compared to other body parts².

Advanced age, higher or lower body weight, immobility, diabetes, fecal incontinence, urinary incontinence and hypoalbuminemia can be listed as the main risk factors for pressure sores²⁻⁴.

Pressure sores are a serious health problem that is common in the intensive care unit (ICU), increasing the length of hospital stay, cost and mortality rate, and should be prevented first. Studies have shown that while the prevalence of pressure sores in intensive care varies between 4-49%, the incidence is between 4-12%⁵. The reasons for pressure sores in intensive care patients can be listed as bedridden dependency, the

use of sedative and muscle relaxant drugs, the need for mechanical ventilation, loss of consciousness and metabolic problems^{6,7}. Patients in the intensive care unit are regularly evaluated with the Braden scale, which is the most frequently used scale for evaluating the risk of pressure sores. Sensory perception, humidity, activity, nutrition, movement, friction and tearing are evaluated on the Braden scale⁸.

This study was conducted in order to determine the risk factors that may affect our pressure sore prevalence and development.

Materials and Methods

After obtaining ethical approval from Eskişehir Osmangazi University Non-Invasive Clinical Research Ethics Committee with the decision number 11 dated 14.01.2020, the pressure sore data of the patients treated in the Anesthesia Intensive Care Unit for six months between June 1, 2019 and December 31, 2019 were examined. The demographic

characteristics, hospitalization diagnoses, pressure sore risk factors, locations and stages of the patients with pressure sores were recorded. Pressure sores were graded as stage 1-4 and unstageable stage. Stage 1; The presence of a rash that does not disappear with pressing on the skin, but the integrity of the skin is not impaired, Stage 2; partial depth tissue loss affecting the epidermis and / or the upper layer of the dermis, Stage 3; Full-depth tissue loss or necrosis including all tissues starting from the epidermis to the fat layer and extending to the upper fascia. Stage 4; As in the 3rd stage, with the loss of tissue at full depth, the progression of necrosis under the fascia, to the bone tissue, to the supporting structures such as the tendon and joint capsule, Unstageable stage; the damage to all of the skin and subcutaneous tissues, as the surface is covered with eschar, the depth of the underlying wound is not fully known, were classified. In the intensive care unit, the Braden risk scale was applied weekly at admission and afterwards. Unless indicated in the physician's request, patients were routinely given positions every 2 hours, pads were placed on pressure points, the skin was tried to be kept dry and clean, and measures were taken to protect skin integrity.

While evaluating the data in the research, besides the descriptive statistical methods (mean, standard deviation), while comparing the quantitative data, the Mann Whitney U test; Chi-square test was used when comparing qualitative data. All data were evaluated by transferring them to SPSS for Windows program.

Results

The number of patients followed up during the six-month period was 275, and 52 of the patients had pressure sores (18.9%). Twenty-one of the 52 patients recorded

had pressure sores on ICU submission, and thirty-one of 52 patients developed pressure sores during our follow-up. When patients who were admitted to the intensive care unit with pressure sores were removed, it was observed that the rate of actual pressure sore development decreased up to 12.2%. The mean age of the patients was 69,4 (std.dev 16,09) and the ratio of the men was 61.5% (n: 32). Forty of the patients were 65 years and older, and advanced age was found to be a significant risk factor ($p < 0.01$).

Table 1. Demographic datas of patients

	Level	Counts	Proportion	p
Gender	M	32	0.615	0.136
	F	20	0.385	0.126
Decubitus History	Yes	21	0.404	0.126
	No	31	0.596	0.212

Table 2. Descriptive Statistics

	Age	Length of stay (day)	Pressure sore formation (day)
Mean	69.481	30.294	17.097
Median	71.500	25.000	13.000
Std. Deviation	16.093	19.685	11.571
p	< .001	0.002	0.008

The average length of stay in the intensive care unit was 51 days (4-82 days). (Table 1,2) Considering the patients who developed pressure sores in our intensive care follow-up, it was seen that the average pressure sore development day was 17.1st day. (3rd-44th day) Pressure sores were most common in the sacral region and stage two. (table 3,4)

Table 3. Distribution of pressure sores by location

LOCATION	COUNT (%)
SACRUM	41 (%78.8)
TROCENTERIC	2 (%3.84)
OXYPTAL	1 (%1.92)
HEEL	3(%5.76)
SCAPULA	1 (%1.92)
MULTIPLE	4(%7.69)

Table 4. Percentages of pressure sores according to their stages

STAGE	COUNT (%)
1	-
2	28(%53.8)
3	18 (%34.6)
4	2 (%3.84)
UNSTAGEABLE	4 (%7.69)

Thirty-three patients had stabilization at the same stage; there was improvement in 16 patients and worsening in only three patients. The second most common risk factor was diabetes mellitus (DM) with the

presence of 18 patients (34.6%). No significant difference was found between the group with and without DM in terms of the mean day of pressure ulcer development (p: 0.493). No significant difference was found between the recovery rates in the group with and without DM. (P: 0.484) The third most common risk factor in patients was hypoalbuminemia with 12 patients.

Discussion

Patients in intensive care are susceptible to pressure sores due to many risk factors. Therefore, making regular evaluations to prevent its development, eliminating risk factors and, if pressure sore are developed, treating them effectively, reduces morbidity and mortality in intensive care⁷.

In our study, in line with the literature, the most important risk factor for the development of pressure sores was found to be advanced age⁹. Deterioration of skin perfusion and turgor pressure, decrease in immune response, loss of tissue elasticity in elderly patients contribute to the development of pressure sores. In addition, changes in consciousness and nutritional problems that we frequently see in elderly patients worsen the current picture.

In poorly controlled DM patients, the risk of easy pressure sores development and difficult wound healing are present, while the risk of infection of the wound also increases¹¹. In our study, no statistically significant difference was found in DM patients when compared with other patients in terms of mean time of wound opening and wound healing.

Edema caused by hypoalbuminemia due to reasons such as increased catabolism, inflammation, ineffective nutrition of patients in intensive care unit negatively

affects wound healing⁴. Hypoalbuminemia was the third most common risk factor in our patients, and when we compared it with other patients, no significant difference was found in terms of wound healing.

While frequently positioning intensive care patients, putting pads on pressure points, early mobilization if possible, keeping the skin clean and dry can be counted as the main protection and treatment strategies, stabilization can be achieved at least at the same stage with appropriate interventions^{12,13}. In our patients, stabilization at the same stage was observed in 63.4% (n: 33) of the patients, and improvement in the stage in 30.7% with appropriate and necessary treatments.

Conclusion

Pressure sores rate and analysis, which is one of the mandatory parameters as an indicator of quality in intensive care, is one of the issues that should be dominated by every intensive care worker.

Conflict of Interest

The authors declared they do not have anything to disclose regarding conflict of interest with respect to this manuscript.

Ethics

Ethical approval for this study was obtained by Eskişehir Osmangazi University Non-Invasive Clinical Research Ethics Committee. (11-14.01.2020)

References

1. Özgenel GY, Kahveci R, Akın S, et al. Bası yaralarında tedavi prensiplerimiz ve sonuçlarımız. *Uludağ Üniversitesi Tıp Fakültesi Dergisi*, 2002;28(2):27-32.
2. Turgut N, Ak A, Ak E, et al. Yoğun Bakım Hastalarında Basınç Ülseri Sıklığı, Önlenmesi ve Tedavisi. *Türk Yoğun Bakım Dergisi*. 2017;15(2):72. <https://doi.org/10.4274/tybdd.84755>
3. Beğer T. Yoğun Bakımda Dekübit Ülserleri: Risk Faktörleri ve Önlenmesi. *Yoğun Bakım Dergisi* 2004;4(4):244-253
4. Yeniçay R, Rakıcioğlu N. Yaşlılarda bası yaraları ve beslenme tedavisi. *Sakarya Tıp Dergisi*. 2019;9(3):387-97.
5. Shahin ES, Dassen T, Halfens RJ. Pressure ulcer prevalence and incidence in intensive care patients: a literature review. *Nursing in critical care*. 2008;13(2):71-79. <https://doi.org/10.1111/j.1478-5153.2007.00249.x>
6. Wolverton CL, Hobbs LA, Beeson T, et al. Nosocomial pressure ulcer rates in critical care: performance improvement project. *Journal of Nursing Care Quality*. 2005;20(1), 56-62. <https://doi.org/10.1097/00001786-200501000-00010>
7. Ersoy EO, Öcal S, Öz A, et al. Yoğun bakım hastalarında bası yarası gelişiminde rol oynayabilecek risk faktörlerinin değerlendirilmesi. *Yoğun Bakım Derg.* 2013;4(1), 9-12.
8. Braden B, Bergstrom N. A conceptual schema for the study of the etiology of pressure sores. *Rehabilitation nursing*. 1987;12(1), 8-16. <https://doi.org/10.1002/j.2048-7940.1987.tb00541.x>
9. Stal S, Serure A, Donovan W, et al. The perioperative management of the patient with pressure sores. *Annals of plastic surgery*. 1983;11(4):347-56. <https://doi.org/10.1097/0000637-198310000-00016>
10. İnan DG, Öztunç G. Çukurova Üniversitesi Balcalı Hastanesi'nde yatan hastalarda basınç ülseri prevalansı. *Tez*. Adana, Çukurova Üniversitesi Yüksek Lisans tezi. 2009
11. Krupp AE, Monfre J. (2015). Pressure ulcers in the ICU patient: an update on prevention and treatment. *Current infectious disease reports*, 2015;17(3):11. <https://doi.org/10.1007/s11908-015-0468-7>
12. Phillips, L. Providing correct pressure-relieving devices for optimum outcome. *British Journal of Nursing*. 1999;8(21), 1447-52. <https://doi.org/10.12968/bjon.1999.8.21.1447>
13. Stechmiller JK, Cowan L, Whitney JD, et al. Guidelines for the prevention of pressure ulcers. *Wound Repair Regen*. 2008;16(2):151-68. <https://doi.org/10.1111/j.1524-475X.2008.00356>