

# Follow-up of Geriatric Patients With Pressure Ulcers By Plastic, Reconstructive and Aesthetic Surgery in Intensive Care Conditions

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## ABSTRACT

**Objective:** The aim of this study was to define the Follow-up results and the observation of relationship between the clinical features and wound conditions of geriatric patients with pressure ulcers treated in the intensive care unit by Plastic, Reconstructive and Aesthetic Surgery (PRAS)

**Methods:** The research was carried out at Evliya Çelebi Training and Research Hospital of Kütahya University of Health Sciences between January 2018 and January 2020. All pressure ulcers on set of our patients was observed during hospitalization. Study was conducted on 215 patients hospitalized in neurology and general intensive care units. Ulcer diagnosis was performed by European Pressure Ulcer Advisory Panel (EPUAP) and National Pressure Ulcer Advisory Panel (NPUAP). Patient data were collected and evaluated by surgical care nurse and PRC surgeon together during the visit. The confidentiality and personal rights of each patient were respected.

**Results:** There were 215 patients with pressure injuries, 45.6% were hospitalized in the neurology intensive care unit and 42.5% were with the diagnosis of cerebrovascular disease, 41.6% of patients state of consciousness was evaluated as confused. Gender prevalence were 52.2% were female with mean age  $72.5 \pm 2.4$ . There are 43.2% of the ulcers were in the sacral area, 52% were in stage 2, all patients had fecal / urinary incontinence.

**Conclusion:** Awareness and education of the care professionals working in intensive care units in terms of preventive measures can save patients from pressure ulcers and avoid patients from the difficult and risky surgical interventions.

**Keywords:** Geriatrics, Intensive care, pressure ulcer

## 1. INTRODUCTION

Pressure ulcer is a condition of skin injury and necrosis caused by pressure alone or a combination of pressure and laceration/ friction which progress to complete closure or cessation of circulation of blood vessels in localized skin and / or subcutaneous tissues, usually occurring on bone protrusion areas (1,2).

Pressure ulcers are frequently seen in Intensive Care Units (ICU) where physical activity and mobilization are limited due to the sedative, analgesic and muscle relaxant drugs used. Patients in ICU are also frequently applied with mechanical ventilation because of loss of consciousness or general condition disorders. A prolonged stay in ICU can lead to ventilation disorders, incontinence, malnutrition, inflammation and hypoalbuminemia which in turn leads to excessive risk for pressure ulcers (3).

Pressure ulcers develop most often in the elderly, intensive care patients, and those who are long-term bed ridden. They are usually seen where there are bone protrusions and have a negative effect on quality of life, as they result in a slower healing process, prolonged hospital stay, increased risk of developing complications, may even be life-threatening and there by increase the cost of care (3,4,5).

If this commonly seen pathology is not treated, it can lead to infection and sepsis, and ultimately death. A multidisciplinary approach to treatment is important. For successful treatment, the branches of plastic surgery, general surgery, orthopedics, internal medicine, endocrinology, infection, neurology, physical therapy and rehabilitation are required to work incollaboration, with the inclusion of nurses and all health care professionals (6).

Although the risk of pressure ulcers may be high, they can be prevented by taking the appropriate measures, and thus, length of hospital stay, treatment cost, nosocomial infections and mortality rates can be reduced (3).

This research was planned to define the clinical features of geriatric patients and the pressure ulcers that developed during their hospital stay and to discuss clinical experiences.

The aim of this study was to define follow-up results and the observation of relationship between the clinical features and wound conditions of geriatric patients with pressure ulcers treated in the intensive care unit by Plastic, Reconstructive and Aesthetic Surgery (PRAS).

## 2. METHODS

The research was conducted at Evliya Çelebi Training and Research Hospital, Kütahya University of Health Sciences between January 2018 and January 2020. Approval for this retrospective study was granted by the Ethics Committee of Okan University (Decision No: 14 / 22.01.2020). All the study procedures were in accordance with the 2008 regulations of the Helsinki Declaration. The study included a total of 215 patients hospitalized in the Neurology and General Intensive Care Units with the onset of pressure ulcers observed during hospitalization. The laboratory findings obtained on the day of PRAS consultation and on each patient visit were evaluated and measures were taken to eliminate the pressure effects. These measures included changing the position of the patient every 2 hours, the use of airbeds to ensure an even distribution of the patient's weight at all points, and the application of a silicone cushion with a central hole to the body parts corresponding to the bone protrusions. Systemic treatment (correction of anemia, hypoproteinemia and hypoalbuminemia) and local ulcer care were applied. If the ulcer was infected, parenteral antibiotic treatment was started as soon as possible according to the tissue culture and antibiogram test results evaluated by the infectious disease specialist. If the ulcer was clean, a prophylactic broad spectrum antibiotic was given 1 hour before the operation and was continued as needed. The necrotic tissues were debrided by tangential excision in each dressing. The patients were made ready for surgery within 2 to 3 weeks. Patients were accepted as suitable candidates for surgical treatment when the general health condition was stable, necrotic tissue was completely eliminated from the ulcers, the ulcer edges had started to contract and hemoglobin with total protein returned to normal limits. Surgery was performed with the consent of the patient's relatives. Conservative treatment was applied when surgical treatment could not be performed for any of the stated reasons.

Inclusion criteria:

- Age >70 years
- Hospitalised in Intensive Care Unit (ICU)

- Patients with an ASA score of 3
- Patients taking anticoagulants
- Pressure ulcer developed during hospitalisation
  - Informed consent for participation in the study was obtained from relatives of the patient (PRC).

Exclusion criteria:

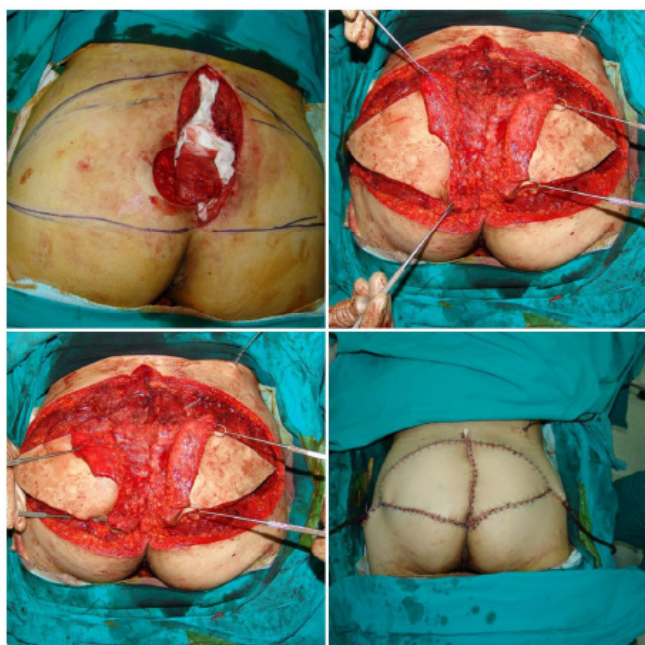
- Age <70 years
- Inpatients other than in ICU.
- Pressure ulcer developed before hospitalization
- Consent was not obtained from relatives of the patient for participation in the study.

Ulcer diagnosis was made according to the pressure ulcer classification system defined by the European Pressure Ulcer Advisory Panel (EPUAP) and National Pressure Ulcer Advisory Panel (NPUAP). Data and patient information were collected from the ulcer diagnosis and follow-up form of the Ministry of Health. Systemic diagnosis (consciousness, physical competence) and body mass indexes of the patients were evaluated according to the standards of the Ministry of Health. Patient data were collected by a nurse with a master's degree in surgical care nursing and a PhD in public health nursing and the PRA surgeon together during the patient visits and the patient evaluations were made in collaboration. The confidentiality and personal rights of each patient were respected. The data collection took approximately 20 minutes per patient. Conservative treatment consisted of daily washing of the pressure ulcers, necrotic areas with gauze and applying saline wet dressings. For severely affected patients, debridement was performed bedside with local anesthesia and for those with mild form of disease debridement was performed in the operating room under spinal or general anesthesia. Surgical closure of the pressure ulcer was made with flap surgery and skin grafting. Skin grafting could be applied to well granulated pressure ulcers in the trochanteric or heel regions, which were not in continuous contact with the bed and bore no patients weight. Flap surgery was performed in ischial, sacral and gluteal weight bearing regions. The surgical method to be chosen in the treatment of pressure sores varied according to the anatomical localization of the wound. The flaps we preferred in the sacral region were; the gluteus maximus muscle-skin rotation flap, bilateral gluteal V-Y advancement flap (Fig 1), unilateral V-Y advancement flap (Fig 2), transverse lumbosacral flap, and limberg flap. In the trochanteric region, tensor fascia lata muscle-skin transposition flap, tensor fascia lata VY advancement flap, posterior gluteal thigh flap, vastus lateralis muscle flap, and subcutaneous pedicle tensor fascia lata myocutaneous island flap is preferred.

Data obtained in the study were analysed statistically using IBM SPSS Statistics software (SPSS IBM, Turkey). Conformity of the data to normal distribution was evaluated. Descriptive statistical methods (mean, standard deviation, frequency) were used



**Figure 1.** Pressure Ulcer Repair with Skin Advancement Flap



**Figure 2.** Pressure Ulcer Repair with Bilateral V-Y Flap

### 3. RESULTS

During our study, the number of hospitalizations in intensive care units was 1150 in two years, and bedsores developed in 215 of the hospitalized patients. this rate was determined as 18.69% of hospitalized patients. The 215 patients with pressure ulcers comprised 52.2% females and 47.8% males with a mean age of  $72.5 \pm 2.4$  years, and mean body mass index of  $20.1 \pm 1.8$ . Of the total patients, 45.6% were hospitalized in the Neurology ICU and 42.5% had a diagnosis of cerebrovascular disease. Respiration with a mask was applied to 40.4%, 26.9% were intubated, and 33% had no comorbidity other than hypertension. It was determined that 73.9% of the cases were dependent on physical activity evaluation, and 36.2% were fed via enteral routes (nasogastric, gastrostomy, jejunostomy). In the evaluation of state of consciousness, 41.6% were confused. The ulcers were in the sacral area in 43.2% of the patients, at stage 2 in 52%, and stage 1 in 22.3%. All the patients had fecal / urinary incontinence (Table 1). According to the laboratory findings on the day of PRAS consultation and per patient visit, mean hemoglobin values were  $10.3 \pm 1.04$  mg / dl, mean albumin values were  $2.4 \pm 0.2$  gr / dl, and mean hematocrit values were  $32.7\% \pm 2.77$ . Surgery was applied to 58 geriatric patients whose ulcers developed in the hospital (Table 2). Vacuum-assisted dressing was used in 17 patients of which 15 recovered. Conservative treatment was applied to 140 patients with recovery recorded in 120. Successful recovery was seen in 80% of the treated patients. In patients with low albumin, hemoglobin and hematocrit values, the ulcers healing process was observed to be much faster after replacement. Ulcer lines were renewed and re-sutured was performed in three of our patients who developed separation of the suture lines as a complication. In a case who developed wound infection, the signs of infection were dressing and regressed with medical treatment without the need for additional intervention. Venous congestion developed six hours after the operation in a patient whose sacral defect was closed with a superior gluteal artery perforator island flap. Due to partial necrosis, a second operation was performed to advance the existing flap and the defect was closed. Other complications such as total flap loss, hematoma, and seroma were not observed in any of the cases. The mean hospital stay was found to be 16.26 (2-52) days.

**Table 1.** Sociodemographic characteristics and clinical features of the geriatric patients in the study

FEATURE	N	%
INTENSIVE CARE		
General IC	117	54.4
Neurology IC	98	45.6
GENDER		
Female	112	52.2
Male	103	47.8
MEDICAL DIAGNOSIS		
Cerebrovascular Event	92	42.5
General condition disorder	57	26.5
Pneumonia	39	18.5
Chronic Obstructive Pulmonary Disease (COPD)	27	12.5
STATE OF CONSCIOUSNESS		
Confused	88	41.6
Coma	62	28.7
Conscious	42	19.5
Stupor	23	10.2
RESPIRATORY SUPPORT		
Mask	87	40.4
Nasal cannula	70	32.7
Intubation	58	26.9
PHYSICAL ACTIVITY		
Dependent	159	73.9
Semi-dependent	56	26.1
ADDITIONAL DISEASE		
Hypertension	71	33.0
Diabetes	68	31.8
COPD	32	14.8
Pneumonia	30	13.9
Diabetes Hypertension +	14	6.5
NUTRITION		
Enteral	78	36.2
Oral	71	33.2
Parenteral	66	30.6
PRESSURE ULCER REGION		
Sacrum	93	43.2
Coccyx	39	18.1
Trochanter	31	14.4
Heel	30	13.9
Scapula	22	10.4
PRESSURE ULCERSTAGE		
Stage 2	112	52.0
Stage 1	48	22.3
Stage 3	42	19.5
Stage 4	13	6.2
Total	215	100.0

**Table 2.** Laboratory values of the geriatric patients in the study

FEATURE	Value
Meanage (years)	72.5±2.4
Body mass index average	20.1±1.8
Average hemoglobin values	10.3±1.04mg/dl
Average albumin values	2.4±0.2gr/dl
Average hematocrit values	32.7±2.77

#### 4. DISCUSSION

Despite the advances in patient care in recent years, the care, treatment and post-treatment rehabilitation of pressure ulcers are among the most difficult surgical problems. Recurrence of pressure ulcers is a common problem regardless of the treatment method used (7). Ultimately, attempts to prevent pressure ulcers and patient education should be part of the treatment of every patient (8,9). The anatomic localization of pressure ulcers is important as it can help in preventive interventions. Although ulcers can develop in any localisation under pressure, the most common areas in the current study were seen to be the sacrum, heels, ischium and trochanter. In a study of 200 patients, Dansereau and Conway identified the anatomic distribution of compression ulcers as 28% ischial, 19% trochanteric, 17% sacral and 36% other regions (heel, malleolus, knee, etc.). (9). In a series of 108 cases studied by Ercocen et al., pressure ulcers were detected as 47% sacral, 27% trochanteric, 15% ischial and 11% other regions (heel, malleolus, elbow and back) (10). Similar findings have been found in many studies (11,12). In the current cases, the most common localisation of pressure ulcers was sacral at 43.2%, followed by the coccyx region at 18.1%, and the trochanter region at 14.4%. In Western societies, pressure ulcers are more common in the ischial region, because of better rehabilitation with the patient sitting up earlier. In the current study, it was seen that the patients spent more time in the supine or lateral position due to the longer rehabilitation and poor adaptation to daily life because of low educational and economic levels. This explains why sacral pressure ulcers were so frequently seen in the current cases.

In a previous study of ICU patients in Turkey, the frequency of pressure ulcers was found to be 28.6%, with average patient age of 56.2 years (12). The incidence of pressure ulcers in intensive care units has been reported between %11 and %29 in different studies (13), and our results of frequency of pressure ulcers were found as %18.69 were found to be in agreement with the literature findings. In a study from Macedonia of 2099 ICU patients, the frequency of pressure ulcers was found to be 12.19%, with an average age of 76.38 years (13). In a study conducted in Italy, the frequency of pressure ulcers was found to be 22.7%, and the average age was  $83.7 \pm 7.8$  years for those without pressure ulcers, and  $85.6 \pm 6.9$  years for those with pressure ulcers (14). In the current study of 215 patients with pressure ulcers, 45.6% were in Neurology ICU, 52.2% were female, the mean age was  $72.5 \pm 2.4$  years, and 42.5% were hospitalized with the diagnosis of cerebrovascular disease. During the 2 year

period of the study, 2774 patients were admitted to the Neurology and General ICUs, of which 215 (7.75%) met the inclusion criteria of this study.

According to the results of the current study survival analysis, the mean BMI of patients who developed pressure ulcers was  $20.1 \pm 1.8$ . While ulcers developed in all cachectic patients, approximately one-tenth of patients who were over weight developed an ulcer. According to the current study findings, it can be said that cachexia and excess weight are important factors in the development of pressure ulcers. In weak individuals, ulcers development is facilitated by adipose tissue resulting from changes in negative nitrogen balance. Being over weight causes the adipose tissue to deteriorate and the underlying tissues to be come more susceptible to ischemic damage (15,16). In a study by Neloska et al (2016), it was reported that 70.28% of cachectic patients developed pressure ulcers (13). Another study also stated that the rate of pressure ulcers was higher in cachectic and obese elderly patients compared to other groups (17).

The mean albumin value of the current study patients was  $2.4 \pm 0.2$  gr/dl. It was observed that ulcer healing was faster when the albumin level was within the normal referenceranges. Previous studies have indicated that there is a positive relationship between pressure ulcer prevalence and low albumin level (18,19). In a study by Neloska et al. (2016), a significant correlation was determined between the presence of hypoalbuminemia and pressure ulcer development (13). Jaul and Menzel (2014) also reported that albumin level is a statistically significant factor in pressure ulcer development (17).

The mean hemoglobin values of the current study patients was  $10.3 \pm 1.04$  mg/dl. In patients with low hemoglobin values, the risk of developing pressure ulcers is high. Ulcer healing was observed to be faster when the hemoglobin level was within the normal referenceranges in the current study patients. In a study by Hanonu (2014), the hemoglobin value of patients who developed pressure ulcers was determined to be  $9.76 \pm 1.71$  g/dl (20). In a study of 2099 patients, Neloska et al. (2016) reported that patients with low hemoglobin developed pressure ulcers (13). Neiva et al (2014), reported that the mean hemoglobin value of patients who developed pressure ulcers was  $10.5 \pm 1.3$  g / dl and a significant relationship was determined between low hemoglobin level and pressure ulcer development (21). The current study results can be seen to support the findings of previous studies showing that low hemoglobin level is a risk factor for pressure ulcer development.

Since relapse is frequently seen following the surgical treatment of pressure ulcers, especially in compression pressure ulcers, care should be taken not to damage adjacent flap areas while planning flaps in surgical treatment. Debridement is the first step in the surgical treatment of pressure ulcers (22). After debridement, the defect exposed is covered by appropriate skin or muscle-skin flaps. Small, superficial pressure ulcers localized in the sacral region can be closed with local cutaneous flaps (22). Musculocutaneous

flaps should be preferred for wide and deep sacral compression ulcers. The most preferred muscle is the gluteus maximus muscle (23). In patients with a wide, deep cavity in the current study, the first choice was a gluteus maximus muscle-skin flaps. In trochanteric pressure ulcers, Foster et al. used a tensor fascia lata flap in 73 cases, and reported flap success rate of 93% and complication rate of 15% (24). In the current study cases, the first option was the tensor fascia lata muscle-skin flap. In one case, subcutaneous pedicle tensor fascia lata flap was applied, but partial necrosis developed in the flap. In trochanteric ulcers that destroy deep tissue and bone, a vastus lateralis muscle-skin flap with better blood supply and volume is preferred instead of a tensor fascia lata flap, which is a thin flap. This flap was used in 3 cases and no complications were encountered after the operation. Ischial pressure ulcers are the region with the highest incidence of relapse despite successful reconstruction. The recurrence rate for flaps used to close localized pressure ulcers in this region has been reported as 27.8% for fasciocutaneous flaps and 63% for musculocutaneous flaps (24). Among the flap options, gluteal thigh flap, which is fed from the descending branch of the inferior gluteal artery, is used most often. This flap can be prepared as a muscle-skin flap or a fasciocutaneous flap. Other flap options are inferior gluteus maximus muscle-skin flap and biceps femoris V-Y advancement flap (23). The lower half of the gluteus maximus muscle is carried with the skin on it in the form of a rotation flap. Hamstring muscles individually or collectively, gracilis or tensorfascia lata muscle-skin flaps are other muscle-skin flaps which are preferred to close ischial pressure ulcers. If the defect is large, as in the current study cases was ischial pressure injured, gluteal muscle-skin flaps were preferred because of the good blood supply and sufficient cushioning. Medium-sized defects were covered with posterior gluteal thigh flaps.

## 5. CONCLUSION

As health care professionals working in ICU, providing daily care to patients are the first link directly witnessing primary changes in pressure ulcers, they have to be aware of preventive measures, the algorithm for effective intervention to additional problems in the early period, and the effective and timely prevention of malnutrition. Thus, the clinical problem of pressure ulcers can be resolved before reaching the difficult and risky surgical intervention stage. It should be kept in mind that surgical treatment of pressure ulcers is the last step and resolution of the basic problem can be achieved effectively with raised levels of awareness and education programs. More attention should be given to patients over the age of 70 years as the risk of pressure ulcer development is much higher in this patient group.

## REFERENCES

- [1] National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel, Pan Pacific Pressure Injury Alliance, In: Haesler, E. (Ed.), Prevention an Treatment of Pressure Ulcers: Clinical Practice <https://www.epuap.org/wp-content/>

- uploads/2016/10/quick-reference-guide-digital-npuap-epuap-pppia-jan2016.pdf. (Accessed: 30.10.2019).
- [2] Gencer ZE, Ozkan O. Pressure Ulcers Surveillance Report. *Journal of the Turkish Society of Intensive Care* 2015; 13 (1): 26-30.
- [3] Kiraner E, Terzi B, Uzun Ekinci A, Tunali B. Characteristics of patients with pressure wound in the intensive care unit. *Journal of Intensive Care Nursing* 2016; 20(2): 78–82.
- [4] Katran HB. The research on the incidence of pressure sores in a surgical intensive care unit and the risk factors affecting the development of pressure sores. *Journal of Academic Research in Nursing* 2015; 1(1): 9–13.
- [5] Çelik S, Dirimeşe E, Taşdemir N. Prevention and Management of Nurses' Pressure Injury. *Bakırköy Medical Journal* 2017; 13: 134-139.
- [6] Tavakolli K, Rutkowski S, Cope C, Hassall M. Recurrence rates of ischial sores in paraplegics and tetraplegics treated with hamstring flaps: an 8-year study. *Br J Plast Surg* 1999; 52: 476-479.
- [7] Grewal PS, Sawant NH, Deaney CN, Gibson KM. Pressure sore prevention in hospital patients: a clinical audit. *J Wound Care* 1999; 8: 129-131.
- [8] Shipperley T. Guidelines for pressure ulcer prevention and management, *Nurs Times* 2000; 96: 11-22.
- [9] Dansereau JG, Conway H. Closure of decubiti in paraplegics. Report on 2000 cases. *Plast Reconstr Surg* 1964; 33: 474-477.
- [10] Ercocen AR, Yilmaz S, Can Z, Emiroglu M, Yormuk E. Surgical treatment of pressure sores: Evaluation of 108 cases. *Turkish Plastic Surgery Journal* 2000; 8: 82-89.
- [11] Lepistö M, Erikson E, Hietanen H, Asko-Seljavaara S. Patient with Pressure Ulcers in Finnish Hospitals. *International Journal of Practice* 2001; 7: 280-287.
- [12] Ulker Efteli E, Gunes U. The Effect of Perfusion Values on Pressure Wound Development. *Anatolian Journal of Nursing and Health Sciences* 2014; 17 (3): 140-143.
- [13] Neloska L, Damevska K, Nikolchev A, Pavleska L, Petreska-Zovic B, Kostov M. The association between malnutrition and pressure ulcers in elderly in long-term care facility. *Macedonian Journal of Medical Sciences* 2016; 4 (3): 423–426.
- [14] Chiari P, Forni C, Guberti M, Gazineo D, Ronzoni S, D'Alessandro F. Predictive factors for pressure ulcers in an older adult population hospitalized for hip fractures. A prognostic cohort study. *Plos One* 2017; 9(12): 1-12.
- [15] Karadağ A. Pressure ulcers: Evaluation, prevention and treatment. *CU Journal of Nursing School* 2003; 7 (2): 41-48.
- [16] Jaul E, Menzel J. Pressure Ulcers in the Elderly, as a Public Health Problem. *Journal of General Practice* 2014; 2 (5): 1-3.
- [17] Hyun S, Li X, Vermillion B. Body Mass Index and Pressure Ulcers: Improved Predictability of Pressure Ulcers in Intensive Care Patients. *Am J Crit Care* 2014; 23(6): 495–500.
- [18] Borghardt AT, Prado TN do, Bicudo SDS, Castro DS de, Oliveira Bringente ME de. Pressure ulcers in critically ill patients: incidence and associated factors. *Rev Bras Enferm* 2016; 69 (3): 432–436.
- [19] Montalcini T, Moraca M, Ferro Y. Nutritional parameters predicting pressure ulcers and short-term mortality in patients with minimal conscious state as a result of traumatic and non-traumatic acquired brain injury. *Journal of Translational Medicine* 2015; 13 (1): 1–8.
- [20] Hanönü S. Determination of Prevalence of Pressure Ulcers Due to Medical Devices in Intensive Care Units, M.Sc. Thesis, Gazi University Institute of Health Sciences Ankara 2014; 35-44.
- [21] Neiva GP, Carnevalli JR, Cataldi RL, Furtado DM, Fabri RL, Silva PS. Hematological change parameters in patients with pressure ulcer at long-term care hospital. *Einstein* 2014; 12 (3): 305-308.
- [22] Yamamoto Y, Tsutsumida A, Murazumi M, Sugihara TC. Long term outcome of pressure sores treated with flap coverage. *Plast Reconstr Surg* 1997; 100: 1212-1217.
- [23] Çizmeci O, Emekli U. Pressure Wounds. *Turkey Journal of Physical Medicine and Rehabilitation* 1999; 3:50-57.
- [24] Foster RD, Anthony JP, Mathes SJ, Hoffman WY, Young D, Eshima I. Flap selection as a determinant of success in pressure sore coverage. *Arch Surg* 1997; 132: 868-873.

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