Original Article

Effects of Age and Comorbidities on Prognosis and Mortality in Geriatric Patient Groups in İntensive Care

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Abstract

Backround: Treatment of geriatric intensive care patients is tiring and difficult for intensive care physicians due to comorbidities, accompanying acute illnesses and vulnerabilities. **Aim:** The aim of our study was to determine other factors affecting mortality and morbidity with age in geriatric intensive care patients. **Patients and Methods:** A total of 937 geriatric intensive care patients were divided into three groups as young-old (65-74 years), middle-old (75-84 years), and oldest-old (85 years and more). Demographic characteristics such as age, gender, and comorbid diseases (oncological malignancy, chronic renal failure, sepsis, chronic anemia, hypertension, diabetes mellitus, chronic obstructive pulmonary disease, pulmonary embolism) were recorded. The number of patients who needed a mechanical ventilator, developed decubit ulcers, underwent percutaneous tracheostomy, and renal replacement therapy were recorded. In addition, the number of central venous catheter insertions for patients, Acute Physiology and Chronic Health Evaluation II scores (APACHE II), hospitalization days, and mortality rates were recorded and compared. **Results:** In the comparison between the groups in terms of gender, in the 65-74 years' age group, male gender was higher, while in the age group of 85 years and more, the female gender was found to be statistically higher. Among comorbid diseases, the rate of oncological malignancy was found to be statistically significantly lower in patients aged 85 years and more. Comparing the APACHE II scores of the patients as per the groups, scores were found to be statistically significantly higher in the oldest-old group. APACHE II Score, central venous catheter application, chronic obstructive pulmonary disease, chronic renal failure, sepsis, oncological malignancy, and renal replacement therapy were shown to be statistically significant as factors affecting death. The factors affecting the survival or hospitalization time of the patients of decubit ulcer, mechanical ventilator, percutaneous tracheostomy, chronic obstructive pulmonary disease, Sepsis, APACHE II Score, and age were shown to be statistically significant. **Conclusion:** Our study showed that not only age has an effect on mortality and morbidity in geriatric intensive care patients but also comorbidities and intensive care treatments of the patients are also effective in this process.

Keywords: *Comorbities, elderly patients, intensive care, old*

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Introduction

With the increase in the geriatric population all over the world, the number of elderly patients in intensive care units (ICUs) is increasing. More than 15% of patients in ICUs are elderly patients aged more than 65 years.[1] Treatment of these patients is tiring and difficult for intensive care physicians due to comorbidities, accompanying acute illnesses, and vulnerabilities.[2]

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Age may increase existing comorbidity and organ dysfunction but its effect on ICU admission and mortality is still controversial. Although there are no major epidemiological studies addressing this issue, the elderly patient population in ICUs is stated to be increasing day by day. In many studies, it is recommended that the classification of elderly patients should not be made only by age, scoring systems should be implemented, and treatment should be directed accordingly.[3] The main factor affecting mortality is not chronological age but the severity of the existing diseases and the functional status of the patient before intensive care admission.[4]

Since our hospital is in an area with dense elderly population, the number of elderly patients we admit to intensive care is increasing day by day. In our study, primarily, 937 geriatric, advanced intensive care patients who were followed up in the ICU between January 2017 and April 2021 were classified as young-old (65-74 years), middle-old (75-84 years), and oldest-old (85 years and more). The hypothesis of our study is that age is not the only factor determining mortality in elderly patients, but other factors may also be effective on mortality and morbidity. To reveal these factors independently of age, patients were divided into groups as per their age. The aim of our study was to determine other factors affecting mortality and morbidity with age in geriatric intensive care patients.

Material and Method

The study was designed as a retrospective cross-sectional study. After approval by the Ethics Committee of Health Sciences University, Hamidiye Clinical Research Ethics Committee, a total of 937 geriatric patients who were admitted in the ICU between January 2017 and April 2021 were included in the study. Patients over the age of 65 years, treated in the ICUs of the Anesthesiology and Reanimation Clinic, and whose patient information could be accessed through the hospital information system were included in the study. Patients under 65 years of age and whose patient information could not be accessed were excluded from the study.

A total of 937 geriatric intensive care patients were divided into three groups as young-old (65-74 years), middle-old (75-84 years), and oldest-old (85 years and more). Demographic characteristics such as age, gender, and comorbid diseases (oncological malignancy [OM], chronic renal failure [CRF], sepsis, chronic anemia [CA], hypertension [HT], diabetes mellitus [DM], chronic obstructive pulmonary disease [COPD], and pulmonary embolism [PE]) were recorded. The number of patients who needed a mechanical ventilator (MV), developed decubit ulcers (DU), underwent percutaneous tracheostomy (PT), and renal replacement therapy (hemodialysis or hemodiafiltration) were recorded. In addition, the number of central venous catheter (CVC) insertions for patients, Acute Physiology and Chronic Health Evaluation II (APACHE II) scores, hospitalization days, and mortality rates were recorded and compared.

Since our hospital is located in an area where the geriatric age group lives, it has become a center for elderly patients in recent years. Geriatric patient admission criteria to our 36-bed advanced ICU are patients who continue to have hypoxia and respiratory distress despite mask oxygen therapy, patients who need mechanical ventilation, patients with a Glasgow Coma Score (GCS) less than 8, hemodynamically unstable patients in need of inotropic support, and postoperative geriatric patients who need close follow-up. The ICU accepts patients from the emergency room, inpatient services, and other hospitals. A CVC was inserted for all patients who underwent endotracheal intubation and were connected to a mechanical ventilator and patients where peripheral venous access could not be established during hospitalization. Percutaneous tracheostomy was performed in all patients whose general condition had improved but could not be weaned from the ventilator due to neurological reasons (GCS <8) and who did not have terminal period malignancy exceeding 3 weeks on the day of hospitalization.

Statistical analysis

For the analysis of the data, PSPP published by the Free Software Foundation and Microsoft Excel computer programs were used. Data are presented as mean ± standard deviation (mean ± SD) and number of patients (n). Chi-squared test was used for comparisons between groups and ANOVA (post hoc: Bonferroni) test was used to determine differences between groups. Kaplan–Meier, log rank method, and Cox regression (Backward: Wald) were used for the survival analysis of the patients. For the analysis of dependent variables and independent variables, the logistic regression method (Backward: Wald) and Hosmer and Lemeshow Test technique was used. P <.05 was considered significant.

Results

Between January 2017 and April 2021, a total of 937 geriatric patients aged more than 65 years who were treated in the advanced, 36-bed Anesthesiology and Reanimation ICUs and whose data could be accessed were retrospectively analyzed. Of these, 299 (31.9%) aged between 65 and 74 (young-old), 332 (35.4%) aged 75-84 (middle-old), and 306 (32.7%) aged more than

85 years (oldest-old) were identified and there was no statistically significant difference in the distribution of patients as per age groups (P =0.38) [Figure 1]. Among these patients, 5 patients were aged 100 years and more. In the comparison between the groups in terms of gender, in the 65-74 age group, male gender was higher, while in the age group of 85 years and more, the female gender was found to be statistically significantly higher (P <.05) [Table 1].

For the total of 937 patients, pressure ulcer occurred in 113 (12.06%), 699 (74.6%) patients required mechanical ventilator support, and percutaneous tracheostomy

Table 1: Comparison of the groups in terms of the gender of the patients *(P<0.05)

	Groups								*P*
	65-74		75-84		85-over		Total		
	n	%	*n*	%	*n*	%	*n*	%	
Gender									
Female	110	36.8%	175	52.7%	185	60.5%	470	50.2%	0.0001*
Male	189	63.2%	157	47.3%	121	39.5%	467	49.8%	

Table 2: Comparison of the groups in terms of cobomorbidities (COPD, DM, Chronic renal failure (CRF), hypertension (HT), chronic anemia (CA), Oncological malignancy (OM), presence of sepsis and pulmonary embolism (PE) in hospitalization diagnosis, percutaneous tracheostomy (PT) application, central venous catheter (CVC) application, renal replacement therapy (RRT) application and precence of decubit ulsers (DU)

	Groups								*P*
	65-74		75-84		85-over		Total		
	n	%	*n*	%	*n*	%	*n*	%	
DU									
No	269	90.0%	290	87.3%	265	86.6%	824	87.9%	0.41
Yes	30	10.0%	42	12.7%	41	13.4%	113	12.1%	
CVC									
No	72	24.1%	90	27.1%	76	24.8%	238	25.4%	0.66
Yes	227	75.9%	242	72.9%	230	75.2%	699	74.6%	
PT									
No	276	92.3%	310	93.4%	275	89.9%	861	91.9%	0.26
Yes	23	7.7%	22	6.6%	31	10.1%	76	8.1%	
COPD									
No	256	85.6%	284	85.5%	269	87.9%	809	86.3%	0.62
Yes	43	14.4%	48	14.5%	37	12.1%	128	13.7%	
DM									
No	228	76.3%	268	80.7%	254	83.0%	750	80.0%	0.11
Yes	71	23.7%	64	19.3%	52	17.0%	187	20.0%	
CRF									
No	258	86.3%	275	82.8%	263	85.9%	796	85.0%	0.402
Yes	41	13.7%	57	17.2%	43	14.1%	141	15.0%	
HT									
No	229	76.6%	244	73.5%	239	78.1%	712	76.0%	0.38
Yes	70	23.4%	88	26.5%	67	21.9%	225	24.0%	
CA									
No	295	98.7%	328	98.8%	305	99.7%	928	99.0%	0.38
Yes	4	1.3%	4	1.2%	1	0.3%	9	1.0%	
Sepsis									
No	208	69.6%	234	70.5%	214	69.9%	656	70.0%	0.96
Yes	91	30.4%	98	29.5%	92	30.1%	281	30.0%	
PE									
No	288	96.3%	326	98.2%	296	96.7%	910	97.1%	0.33
Yes	11	3.7%	6	1.8%	10	3.3%	27	2.9%	
OM									
No	243	81.3%	289	87.0%	287	93.8%	819	87.4%	0.001*
Yes	56	18.7%	43	13.0%	19	6.2%	118	12.6%	
RRT									
No	256	85.6%	293	88.3%	280	91.5%	829	88.4%	0.055
Yes	43	14.4%	39	11.7%	26	8.5%	108	11.6%	

(Chi-squared test) (P<0.05)*

Table 3: Comparison of groups in terms of APACHE II scores and intensive care unit (ICU) day (means-SD)

	Groups								*P*
	65-74		75-84		85-over		Total		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
APACHE II score	25.30	9.60	26.33	8.99	27.95	8.87	26.56	9.19	0.01*
ICU Day	19.23	19.93	18.58	21.67	15.61	14.68	17.82	19.11	0.04*

ANOVA post hoc: Bonferonni *(P<0.05)

Table 4: Comparison of the groups in terms of discharge and death rates

	Groups								*P*
	65-74		75-84		85-over		Total		
	n	%	*n*	%	*n*	%	*n*	%	
Discharge	95	31.8%	115	34.6%	94	30.7%	304	32.4%	0.55
Exitus	204	68.2%	217	65.4%	212	69.3%	633	67.6%	0.55

was performed for 76 (8.11%) patients. When the comorbidities of the patients are examined, COPD was present in 128 (13.66%) patients, DM in 187 (19.96%) patients, CRF in 141 (15.05%) patients, HT in 225 (24.01%) patients, chronic anemia in 9 (0.96%) patients, and oncological malignancy in 118 (12.59%) patients. In addition, sepsis was detected in 281 (29.99%) patients and PE was found as the primary diagnosis in 27 (2.88%) patients.

When the age distribution of patients with pressure ulcers was examined, 30 (10.03%) were in the age range of 65-74 years, 42 (12.65%) in the age range of 75-84 years, and 41 (13.4%) more than 85 years. When the age distribution of patients requiring MV was examined, 227 (75.92%) were in the age range of 65-74 years, 242 (72.89%) in the 75-84 age range, and 230 (75.16%) were aged 85 years and more. The age distribution of the patients who underwent PT was examined and 23 (7.69%) were in the age range of 65-74 years, 22 (6.63%) in the 75-84 age range, and 31 (10.13%) aged more than 85 years. The age distribution of patients who had CVC was 227 (75.9%) in the age range of 65-74 years, 242 (72.9%) in the age range of 75-84 years, and 230 (75.2%) in the age range of 85 years and more. There was no statistically significant difference between the groups (P >.05) [Table 2].

A comparison was made between the groups in terms of their comorbidities. When the age distribution of the patients with COPD was examined, 43 (14.38%) were in the age range of 65-74 years, 48 (14.46%) in the age range of 75-84 years, and 37 (12.09%) in the age range of 85 years and more. When the age distribution of the patients with DM was examined, 71 (23.75%) were in the age range of 65-74 years, 64 (19.28%) in the age range of 75-84 years, and 52 (16.99%) in the age range of 85 years and more. When the age distribution

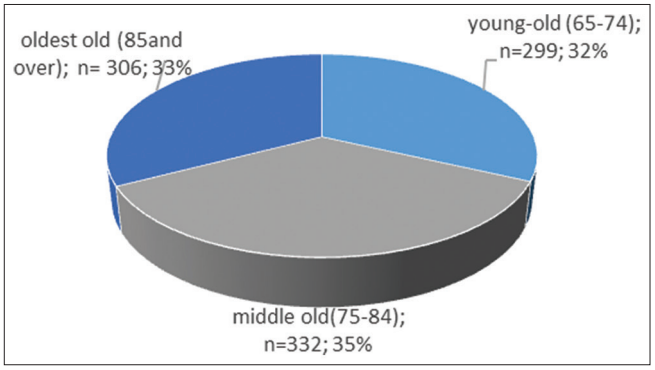

Figure 1: Distribution of Groups according to the number of patients (P =0.38)

of patients with chronic renal failure was examined, 41 (13.71%) were in the age range of 65-74 years, 57 (17.17%) in the age range of 75-84 years, and 43 (14.05%) in the age range of 85 years and more. When the age distribution of the patients with hypertension was examined, 70 (23.41%) were in the age range of 65-74 years, 88 (26%) in the age range of 75-84 years, and 67 (21.9%) in the age range of 85 years and more. When the age distribution of the patients with chronic anemia was examined, 4 (1.34%) were in the age range of 65-74 years, 4 (1.34%) in the age range of 75-84 years, and 1 (0.33%) in the age range of 85 years and more. When the age distribution of the patients with oncological malignancy was examined, there were 56 (18.73%) in the age range of 65-74 years, 43 (12.95%) in the 75-84 age range, and 19 (6.21%) in the 85 years and more age range. Among comorbid diseases, the rate of oncological malignancy was found to be statistically significantly lower in patients aged 85 years and more (P <.05) [Table 2].

In addition, when the age distribution of the patients with sepsis at first diagnosis was examined, 91 (30.43%) were in the age range of 65-74 years, 98 (29.52%) in the age range of 75-84 years, and 92 (30.07%) in the range of 85 years and more. When patients with pulmonary embolism were examined, 11 (3.68%) were in the age range of 65-74 years, 6 (1.81%) in the age range of 75-84 years, and 10 (3.27%) in the age range of 85 years and more. There was no statistical difference between the groups (P >.05) [Table 2].

Table 5: Life analyzes of groups according to hospitalization days by Kaplan-Meier method

Means and Medians for Survival Time								
Groups	Mean[a]				Median			
	Estimate	Std. Error	95% Confidence Interval		Estimate	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound			Lower Bound	Upper Bound
65-74	27,505	1,890	23,800	31,210	20,000	1,499	17,062	22,938
75-84	29,606	2,891	23,940	35,272	18,000	1,215	15,619	20,381
85 and over	21,992	1,315	19,415	24,569	15,000	1,073	12,897	17,103
Overall	26,677	1,353	24,025	29,330	18,000	0.789	16,454	19,546

Table 6: Evaluation of dependent variable (day of ICU) and explanatory variables (decubit ulser (DU), central venous catheter (CVC) application, percutaneous tracheostomy (PT) application, COPD, DM, Chronic renal failure (CRF), hypertension (HT), chronic anemia (CA), Sepsis, pulmonary embolism (PE), Oncological malignancy (OM), APACHE II score) by Cox Regression method

COX	B	SE	Wald	Sig.	Exp (B)	95,0% CI for Exp (B)	
						Lower	Upper
DU	-0.374	0.065	33,411	0.000	0.688	0.606	0.781
CVC	0.243	0.070	11,969	0.001	1.275	1.111	1.462
PT	-0.387	0.073	28,086	0.000	0.679	0.589	0.784
COPD	-0.199	0.077	6,704	0.010	0.819	0.705	0.953
Sepsis	0.084	0.047	3,236	0.042	1.087	0.993	1.191
APACHE II	0.031	0.005	37,784	0.000	1.032	1.021	1.042
Young-old			10,317	0.006			
Middle-old	-0.033	0.063	0.273	0.602	0.968	0.855	1.095
Oldest-old	0.195	0.064	9,264	0.002	1.215	1.072	1.377

Table 7: Evaluation of dependent variable (death-exitus) and explanatory variables decubit ulser (DU), central venous catheter (CVC), percutaneous tracheostomy (PT), COPD, DM, Chronic renal failure (CRF), hypertension (HT), chronic anemia (CA), Sepsis, pulmonary embolism (PE), Oncological malignancy (OM), APACHE II score, ICU day) by backward wald method

	B	S.E.	Wald	Sig.	Exp (B)	95% C.I. for EXP (B)	
						Lower	Upper
APACHE II	0.088	0.011	60,857	0.0001	1.092	1.068	1.116
CVC	0.546	0.108	25,365	0.0001	1.726	1.396	2.135
COPD	-0.526	0.130	16,265	0.0001	0.591	0.458	0.763
CRF	0.242	0.140	2,973	0.085	1.273	0.968	1.676
Sepsis	1.353	0.154	77,643	0.0001	3.870	2.864	5.229
OM	0.558	0.155	12,921	0.0001	1.747	1.289	2.367
Constant	-0.868	0.365	5,663	0.017	0.420		

Hosmer and Lemeshow Test Chi-square=14,275; *P*=0.075

Comparing the APACHE II scores of the patients as per the groups, scores were found to be statistically significantly higher in the oldest-old group (P <.05) [Table 3].

When the total hospitalization days of the patients were compared between the groups, it was statistically significantly higher in the middle-old group (P <.05) [Table 3].

A statistical difference was not found when the discharge and death rates of the patients were compared as per the groups (P >.05) [Table 4].

Survival analysis of age groups was performed and survival rates were calculated by Kaplan-Meier method within the group. The longest hospitalization was in the young-old (median: 20.00 ± 1.50) group and the shortest hospitalization duration was in the oldest-old group (median: 15 ± 1.07) [Table 5]. The difference in intensive care hospitalization days was statistically significant between the groups (Kaplan-Meier - log rank; P =0.029). Compared to other groups (65-74 years old, 75-84 years old), the difference in duration of hospital stay in intensive care was found to be statistically significant in the oldest-old group (P =0.025, P =.017). The Cox regression method was used to reveal the cause-effect relationship between the dependent variable (intensive care hospitalization day) and the

explanatory variables (pressure ulcer, CVK, PT, COPD, DM, CRF, HT, anemia, sepsis, pulmonary embolism, oncological malignancy, Apache score, renal replacement therapy). With the Backward-Wald technique, all variables were modeled, and in the resulting model equation, the factors affecting the survival or hospitalization time of the patients of pressure ulcer, MV, PT, COPD, Sepsis, APACHE II Score, and age were shown to be statistically significant (P <.05) [Table 6].

Logistic regression was used to reveal the cause-effect relationship between the dependent variable (death-ex) and the explanatory variables (pressure ulcer, CVK, PT, COPD, DM, CRF, HT, anemia, sepsis, PE, oncological malignancy, APACHE II Score, length of ICU stay). All variables were included in the model with the Backward-Wald technique. APACHE II Score (odds ratio [OR]: 1.09; P = 0.0001), CVK application (OR: 1.73; P = 0.0001), COPD (OR: 0.59; P = .0001), renal failure (OR: 1.27; P = .085), sepsis (OR: 3.87; P = .00001), oncological malignancy (OR: 1.75; P = .0001), and renal replacement therapy (OR: 2.08; P = .0001) were shown to be statistically significant as factors affecting death in the model equation (P <.05) [Table 7].

Discussion

In some countries, triage is applied especially for patients aged more than 85 years, patients with chronic severe disease, and patients with malignancies for intensive care admission due to limited resources. In our country, geriatric patients with intensive care indications are hospitalized without age restrictions. In some studies, it was reported that intensive care refusal is higher, especially in patients aged more than 75 years.[5] Low physiological reserve in elderly patients is a factor that makes it difficult to wean from organ supporting systems such as mechanical ventilation, vasopressor therapy, and renal replacement therapy. This involves prolongation of the intensive care stay.[6] In our study, renal replacement therapy and mechanical ventilation were found to increase both the hospitalization days and mortality. CVC insertion was also found to be associated with mortality in our study. This can be explained by the fact that CVC is applied to all patients with mechanical ventilator support in our ICU.

In the comparison of genders between the groups, the female gender was higher in patients aged more than 85 years. This can be explained by the longer life expectancy of women in our country. The APACHE II score, which is described as the best risk prediction score, is used as a routine hospitalization score in our ICU. It is of great importance especially in determining multiorgan failure and mortality and can be used safely in elderly patients.[6,7] In the comparison between groups, APACHE II score was found to be statistically significantly higher in the group aged more than 85 years. This may be due to the patient's age being one of the parameters in the scoring. In our study, APACHE II scoring was determined to be one of the factors associated with mortality.

Age and comorbidity should be considered together as determinants of mortality and morbidity in elderly patients. In particular, cognitive and functional status in patients should be considered prior to admission in the ICU. While creating scoring systems, all data should be considered. In our study, among the comorbidities of the patients, the effects of COPD, CRF, and the presence of oncological malignancy on mortality were found to be statistically significant.

Prolonged invasive or noninvasive ventilation, acute kidney failure, and sepsis are associated with increased mortality in elderly patients. It is thought that the systemic inflammatory response that changes with age is effective in the increase in sepsis mortality.[8-10] In our study, in accordance with the literature, mortality was found to be higher in patients who were followed up with tracheostomy due to prolonged mechanical ventilation, patients with a diagnosis of sepsis during hospitalization, and patients who received renal replacement therapy.

In our study, an association was found between the days of hospitalization in the ICU and mortality. In previous studies, prolonged intensive care stay was associated with poor quality survival, cognitive and functional impairment, long-term sequelae, and increased mortality.[11,12]

The elderly population is increasing all over the world but epidemiological data about intensive care processes for elderly patients are not sufficiently reported and published in every country. Existing data prevent a global result from being obtained and standardization of the intensive care processes for elderly patients with scoring systems. We think that the data from our hospital, which has turned into a geriatric intensive care center, can contribute in this respect. When calculating the life expectancy or mortality expectancy of elderly patients in ICU, not only age, but also comorbidities, previous functional activity and cognitive status should be taken into account. In a study evaluating the mortality of 6,205 patients diagnosed with community-acquired pneumonia, there was no significant difference in mortality for patients aged less than 65 years with at least one comorbidity and patients between 65 and 79 years of age, while mortality was higher over 80 years of age. Oldest-old group patients appear to be at a greater

risk for community-acquired pneumonia.[13] While there was no difference in mortality between the groups in our study, hospitalization days were found to be statistically shorter in the oldest-old group compared to the other groups. The number of oncological patients was less in this group. The number of patients with malignancy who die at relatively young age may be less in the oldest-old group.

Percutaneous tracheostomy is a preferred procedure to reduce the need for sedation, early mobilization and early oral feeding, and decrease the duration of mechanical ventilation, although its effect on mortality is discussed. Avoiding percutaneous tracheostomy, especially in geriatric patients, will deprive patients of these advantages.[14,15] In a study conducted with geriatric trauma patients, patients aged more than 80 years had less response to treatment and mortality was higher compared to the 65-79 age group.[16] In our ICU, the decision for percutaneous tracheostomy is made as per the mechanical ventilation duration and neurological conditions of the patients. Age is not a limiting factor because the patient can be allowed to discharge from the ICU even with a home-ventilator. A total of 41 geriatric patients were discharged from our ICU with a home ventilator.

Percutaneous tracheostomy was also among the factors associated with mortality in the Cox regression analysis. This situation also supports the relationship between hospitalization days and mortality, considering that tracheostomized patients stay in hospital longer. In elderly traumatic intensive care patients, tracheostomy was found to be of great benefit, especially in eliminating issues of concern. The decrease in delirium incidence due to early mobilization, early nutrition, the decrease in the amount of sedative agent used, and depth of sedation is associated with increased survival.[17] In our study, no statistically significant difference was found among the factors that affected mortality, when compared between the groups, including the development of pressure ulcers, the need for mechanical ventilators, the use of CVC, and renal replacement therapy. Increasing age of the patients alone did not cause an increase in mortality.

One of the important limitations of our study is that it is not a prospective study and is based only on data that were obtained retrospectively. However, the large sample size presented is valuable for the reliability of the data and results. Another limitation is that the subsequent life span of the patients who were discharged was not followed. There can be no mention of how the current intensive care treatment contributes to the life span and quality of the patients.

All authors declare no conflict of interest that may have influenced either the conduct or the presentation of the research.

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Conclusion

Our study showed that not only age has an effect on mortality and morbidity in geriatric patients but also comorbidities and intensive care treatments of the patients are also effective in this process. Factors affecting the days of hospitalization were shown to be the presence of pressure ulcers, the need for mechanical ventilation, percutaneous tracheostomy, APACHE II score, age, presence of sepsis, and accompanying COPD. While there was no difference in mortality between the groups in our study, the factors affecting mortality were found to be comorbid diseases such as COPD, CRF, oncological malignancy, diagnosis of sepsis, and renal replacement therapy. The factors affecting the increase in hospitalization days were determined to be mechanical ventilation and accompanying CVC insertion and high APACHE II score. Evaluating these parameters during intensive care admission and follow-up will contribute to the prediction of length of stay, discharge, or mortality.

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Conflicts of interest

There are no conflicts of interest.

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