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Research Article

Survival in the Intensive Care Unit: A Prognosis Patient with Rheumatoid Diseases

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ABSTRACT

Background: Rheumatic diseases can lead to increased mortality and decreased quality of life. Therefore, we conducted this study to determine the clinical characteristics of patients with rheumatic diseases hospitalized in the ICU.
Methods: In this study, which was conducted in Tehran province, patients who were diagnosed with underlying rheumatic diseases and were admitted to the ICI department were included in the study. Thus, the study encompassed 120 patients diagnosed with rheumatic diseases. In this study, the researchers extracted the list of hospitalized patients by referring to the ICU department. Then, a history was taken from the patients, and if they were suffering from underlying rheumatic disease according to the history taken (from the patient or the patient's companion), they were included in the study. The tools used included a demographic profile form and a patient clinical information checklist. and analyzed using SPSS software version 18.
Results: The results showed there was a significant relationship between gender, history of hospitalization, smoking, pressure ulcer, and age with the mortality of ICI patients (P value < 0.05). Also, a higher mortality rate was reported in all patients who had at least one type of underlying disease (P value < 0.05). Therefore, the ICU hospitalized the older patients for longer periods of time.
Conclusion: Variables such as age, sex, and underlying diseases were effective in the clinical condition of patients with RA. For this reason, it is necessary to pay attention to this issue in providing clinical care.

Introduction

The intensive care unit (ICU) ensures the patient receives specialized and appropriate care upon admission. Hospitalization of the patient in this department is done according to the clinical condition of the patient and according to the opinion of the specialist doctor [1-2]. Rheumatoid arthritis is one of the types of diseases that lead to hospitalization. If these patients suffer from other diseases, such as diabetes, cardiovascular diseases, lung diseases, cancer, and brain and nervous system diseases in addition to rheumatic diseases, they are at greater risk and will be admitted to the ICU [3-5].

Rheumatic diseases can lead to increased mortality, decreased quality of life, decreased physical activity, disease recurrence, increased care pressure in caregivers, mental health disorder, disability, functional impairment, pain, fatigue, and increased treatment costs [6-8]. The chronicity and disability of rheumatic diseases lead to a significant social and economic burden. The costs of this

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disease include direct and indirect costs imposed on the patient and the healthcare system. Among these costs, we can refer to those related to doctors, hospitals, nurses, medicine, providing medical equipment and necessities, and pain and disability [9-11].

Rheumatoid diseases have different types. Among these diseases, we can mention systemic lupus erythematosus, Rheumatoid, Hemophagocytes, Scleroderma, Vasculitis, Dermato-/Polymyositis and other rheumatic disorders [12]. Rheumatoid arthritis (RA) was the chronic inflammatory joint disease, which is defined as an autoimmune disease. This is a systemic disease with an unknown etiology, and people suffering from it may not show any symptoms. The main cause of this disease is unknown, and there is no effective treatment. The prevalence of RA in the world is significant, and it is influenced by various factors such as geographic location, lifestyle, gender, and other demographic variables [13-17]. In RA, infection and swelling of the joint have occurred, as a result of which the shape of the organs and the reduction of the function of the organ can be observed. In RA, extra-articular manifestations are common, and a variety of immune abnormalities that lead to disability can also be observed [18-19]. In this disease, the accumulation of inflammatory factors causes sinusitis and the destruction of cartilage and bone tissues of the joint, which manifests as joint swelling, sensitivity to touch, and joint dryness in the early hours of the day [20–21].

Another rheumatic disease is SLE. This disease is a systemic autoimmune disease with extensive clinical and immunological manifestations. In SLE, it simultaneously affects several body systems and organs at different times and causes a lot of damage to the body. This disease has detrimental effects on a person's physical, mental, and social health [22-24].

If the patient suffers from other diseases in addition to rheumatoid diseases, they are at greater risk, and their clinical condition requires ICU. In fact, a person suffering from underlying diseases is more vulnerable, and the risk of death increases [25-27]. Considering the mentioned cases and the importance of rheumatism, that is why this study was conducted.

Methods

In this study, which was conducted in Tehran province, patients who were diagnosed with underlying rheumatic diseases and were admitted to the ICI department were included in the study. Thus, we studied 120 patients with rheumatic diseases. Inclusion criteria included admission to the ICU and informed consent to participate in the study. The patient's unwillingness to continue the research at any time during the study and the incompleteness of the information related to the patient's clinical file were considered exclusion criteria.

In this study, the researchers extracted the list of hospitalized patients by referring to the ICU department. Then, a history was taken from the patients, and if they were suffering from underlying rheumatic disease according to the history taken (from the patient or the patient's companion), they were included in the study. In order to ensure that the patient has rheumatism, the patient's companion was asked to hand over the patient's previous medical records indicating that the patient had rheumatism. If the medical documents are delivered and reviewed by the researchers and the confirmation of the patient's rheumatic diseases is obtained, the research will be started.

The tools used included a demographic profile form and a patient clinical information checklist. This checklist contains questions about the patient's clinical condition, drugs used, rheumatism disease activity, patient's state of consciousness, ventilator use status, patient's mortality, patient's hospitalization duration, patient's clinical symptoms, patient's chronic diseases (diabetes, blood pressure, lung diseases, heart failure, kidney failure, and diseases related to the neurological system), type of rheumatic diseases, medications consumed, and outcome (death, discharge from ICU) [28]. The researchers completed the tool by conducting a clinical examination, studying the patient's file, and interviewing both the patient and the patient's companion. We used descriptive statistics like mean and standard deviation to look at the study's data, as well as analytical statistics like independent t and paired t, ANOVA, linear regression, and logistic regression. The significance level was considered at the level of 0.05 in SPSS software version 18.

Results

(Table 1) presents a comparison of the demographic characteristics of the patients based on their status of discharge and death. also, there was a significant relationship between gender, history of hospitalization, smoking, pressure ulcer, and age with the mortality of ICI patients (P value < 0.05).

(Table 2) showed the comparison of underlying diseases and types of rheumatic diseases according to the mortality status of patients. According to the findings, a higher mortality rate was reported in all patients who had at least one type of underlying disease (P value < 0.05).

(Table 3), there was a relationship between the patient's age and length of stay in the ICU. Therefore, older patients stayed in the ICU for longer periods of time.

Table 1- Demographic characteristics of case and control group patients

Variable		Total	Discharge N (%)	Death N (%)	P value
Gender	Male	55(45.8)	32(58.2)	23(41.8)	0.000, 23.94
	Female	65(54.2)	12(18.5)	53(81.5)	
ICU outcome	Death	44(36.7)	-	-	-
	Discharge	76(63.3)	-	-	
History of hospitalization	Yes	57(47.5)	26(45.6)	31(54.4)	0.05, 3.79
	No	63(52.5)	18(28.6)	45(71.4)	
Rheumatic type of disease	Rheumatoid arthritis	65(54.2)	25(38.5)	40(61.5)	0.71, 0.13
	SLE	38(31.7)	13(34.2)	25(65.8)	
	Other	17(14.2)	6(35.3)	11(64.7)	
Smoking history	Yes	54(45)	33(61.1)	21(38.9)	0.000, 31.46
	No	66(55)	11(16.7)	55(83.3)	
Pressure ulcer	Yes	26(21.7)	15(57.7)	11(42.3)	0.01, 6.55
	No	94(78.3)	29(30.9)	65(69.1)	
Age, M(SD)		68.63(10.28)	77.86(2.9)	63.28(9.16)	0.000

Table 2- Comparison of the underlying diseases of patients admitted to the ICU in the case and control groups

Variable			Total N (%)	Male N (%)	Female N (%)	Death N (%)	Discharge N (%)
Underlying disease	Diabetes	Yes	56(46.7)	30(54.5)	26(40)	38(86.4)	18(23.7)
		No	64(53.3)	25(45.5)	39(60)	6(13.6)	58(76.3)
	P, T		0.27, 1.2			0.006, 7.97	
	Cardiovascular diseases	Yes	47(39.2)	36(65.5)	11(16.9)	29(65.9)	18(23.7)
		No	73(60.8)	19(34.5)	54(83.1)	15(34.1)	58(76.3)
	P, T		0.000, 19.82			0.023, 5.28	
	Lung disease	Yes	25(20.8)	17(30.9)	8(12.3)	19(43.2)	6(7.9)
		No	95(79.2)	38(69.1)	57(87.7)	25(56.8)	70(92.1)
	P, T		0.000, 27.52			0.000, 95.15	
	Kidney diseases	Yes	10(8.3)	7(12.7)	3(4.6)	8(18.2)	2(2.6)
		No	110(91.7)	48(87.3)	62(95.4)	36(81.8)	74(97.4)
	P, T		0.001, 10.99			0.000, 45.34	
	Cancer	Yes	13(10.8)	9(16.4)	4(6.2)	9(20.5)	4(5.3)
		No	107(89.2)	46(83.6)	61(93.8)	35(79.5)	72(94.7)
	P, T		0.000, 13.98			0.000, 30.26	
	Nervous system	Yes	37(30.8)	19(34.5)	18(27.7)	19(43.2)	18(23.7)
		No	83(69.2)	36(65.5)	47(72.3)	25(56.8)	58(76.3)
P, T			0.11, 2.49			0.000, 13.7	
Type of rheumatic disease	Rheumatoid arthritis		65(54.2)	29(52.7)	36(55.4)	25(38.5)	40(61.5)
	lupus		38(31.7)	17(30.9)	21(32.3)	13(34.2)	25(65.8)
	Other		17(14.2)	9(16.4)	8(12.3)	6(35.3)	11(64.7)
P, F			0.61, 0.25			0.71, 0.13	

Table 3- Examining the relationship between the age of the patients and the duration of the patient's stay in the ICU

Variable	Sum of Squares	Mean Square	R	R Square	F	Sig.
Regression	9191.364	9191.364	0.855	0.730	319.511	0.000
Residual	3394.503	28.767				
Total	12585.867					

Discussion

A person's illness leads to many problems in the person, family, and society. So that disease caused by disability affects the quality of a person's life and causes a lot of economic pressure on society [29-33]. The goal of this study was to identify the clinical characteristics of RA patients admitted to the ICU.

In the study by Brünner et al. (Germany), which examined the clinical outcomes of patients hospitalized in the ICU, 108 patients with rheumatic diseases were included retrospectively. Out of the 108 examined patients, 48 had RA, 14 had vasculitis, 30 had collagenosis, and the rest had other rheumatic disorders. The ICU mortality rate was 16%, while the hospital mortality rate was 20%. Sepsis accounted for 55% of

these patients' deaths, followed by complications from rheumatic disease at 4%, and cardiovascular diseases at 4%. [34]. A study by Larcher et al. (France) looked at what happened to patients in the intensive care unit (ICU) who had a diagnosis of systemic rheumatism. The study found that infections (39% of the cases) and flare-ups of SRD (35% of the cases) were the main reasons why patients were hospitalized. Also, in-hospital mortality was 30.5%, and one-year mortality was 37.7% [35]. The results of the studies show that the mortality rate is high in ICU patients who are hospitalized due to rheumatic diseases.

With the goal of looking into what happens to people with rheumatic disorders who are hospitalized in the ICU, Cavallasca et al.'s study from Argentina looked at 31 patients to see what caused their rheumatic disease to get worse, as well as infections, recurrences, and other diseases. According to the findings, out of 31 examined patients, 17 patients died. Also, the length of stay for patients in the ICU was 7.42 (6.39) days in the alive group and 6.58 (8.83) days in the dead group [36]. Also, in the study of Beil et al., which examined the prognosis of rheumatic patients hospitalized in the ICU, 138 patients were examined in the case group and 644 patients were examined in the control group. According to the findings, among the most important admission diagnoses of the case group patients were pneumonia with a rate of 31.9%, infections with a rate of 28.2%, respiratory failure with a rate of 24.6%, and other diseases were listed as the causes of hospitalization. Also, 23.2% died in the ICU, and 31.9% died in the hospital [12]. Patients with RA are more prone to kidney complications, gastrointestinal bleeding, and increased mortality due to the use of non-steroidal anti-inflammatory drugs [37-38].

Conclusion

Variables such as age, sex, and underlying diseases were effective in the clinical condition of patients with RA. For this reason, it is necessary to pay attention to this issue in providing clinical care.

Data Reproducibility

The dataset presented in the study is available on request from the corresponding author during submission or after its publication. The data are not publicly available due to [confidentiality].

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