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Research Article

Investigating the Prevalence of Headache and Its Influencing Factors in the Intensive Care Unit

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ABSTRACT

Background: Headache may be aggravated by factors such as contracting new diseases, taking medications, or being hospitalized. One of the diseases that is effective in causing pain, especially headaches in patients, is the Covid-19 disease. for this reason, this study was conducted with the aim of the prevalence and factors affecting headache in covid-19 patients admitted to the ICU.

Methods: This study is a part of the registry related to covid-19 patients, and the researchers analyzed the data after obtaining the code of ethics in the research. in this study, the tool that was used included a demographic profile form and a checklist for examining pain and its influencing factors in patients admitted to the ICU. data analysis was done using SPSS version 16 software and independent t-tests, ANOVA, linear regression and confirmatory statistics.

Results: Result showed 1114 (78.8%) of the patients reported headache and 300 (21.2%) of the patients had no complaints about headache. regarding the type of pain, it was shown that 341(30.6%) had Pressure type, 360(32.3%) had Tightening type, 335(30.1%) had Throbbing type and 78(7%) had Irritability type. Also, in relation to the duration of pain, it was shown that 228(20.5%) had pain less than 1 hour, 171(15.4%) had pain between one hour and 24 hours and 715(64.2%) had pain more than 24 were hours. Also, 178(16%) of the patients had moderate headache and 936(84%) of the patients had severe headache.

Conclusion: Considering the high prevalence of headache in patients with covid-19 hospitalized in the ICU, it is necessary to take necessary intervention measures to reduce the patient's headache.

Introduction

Headache is one of the common problems among patients, which is a risk factor in the field of chronic headache. Primary headaches are one of the most common and debilitating forms of pain in patients. In the global burden of disease (GBD), it has been shown that types of headaches are the most debilitating diseases in the age range between 15 and 49 years old [1-2].

Headache in each age group will have different prevalence and complications. So that in the youth group, it leads to various complications such as absenteeism from school, limiting social and physical activities of teenagers, negative impact on parents' jobs, reduced learning and finally dropping out of school in affected youths and adolescents [1,3]. On the other hand, causing headaches at older ages and especially at old age, due to facing other chronic diseases, can cause more complications for the patient. Also, due to the presence of other chronic diseases in the elderly, such as neck pain, increased autonomic symptoms, and the occurrence of various types of chronic pain in the elderly, diagnostic and treatment options for the elderly with headaches and migraines are more complicated [4-5].

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Headache may be aggravated by factors such as contracting new diseases, taking medications, or being hospitalized. One of the diseases that is effective in causing pain, especially headaches in patients, is the Covid-19 disease. In addition to headache, Covid-19 causes various types of pain, including abdominal pain, neck pain, knee pain, chest pain, leg pain, and pain in other parts of the body [6-8]. The lack of any definitive treatment or prevention has caused many problems and worries in societies and has caused changes and reduction in people's quality of life. Considering the new emergence of the disease Covid-19 and its high prevalence, it is considered as an important challenge that it is necessary to identify and investigate the factors affecting it as well as the complications caused by Covid-19 [9-11].

The disease of Covid-19 affects all age groups and for this reason the headache caused by it is very important [12-14]. Also, this disease, due to the destructive effects it has on the health of patients, leads to hospitalization of the patient, especially in the special care department [15-17]. If the patient is hospitalized in the ICU, various complications will arise for the patient [18], among which headache can be mentioned [19]. Continuous and continuous assessment of pain in patients can lead to reduction of patient hospitalization in the ICU, reduction of the duration of mechanical ventilation of the patient, reduction of hospital infections and increase of patient satisfaction. [20].

Aim:

Considering that the covid-19 disease is a new disease and the complications of this disease are not known, for this reason, this study was conducted with the aim of the prevalence and factors affecting headache in covid-19 patients admitted to the ICU.

Methods

This study is a part of the registry related to covid-19 patients, and the researchers analyzed the data after obtaining the code of ethics in the research (IR.MEDILAM.REC.1400.103). In this study, which was conducted in the group of data related to patients hospitalized in the ICU department, the information of the patients who met the conditions for entering the study according to the following entry and exit criteria were reviewed.

Inclusion criteria: 1- having covid-19 according to the doctor's opinion, 2- hospitalization in the ICU, 3- the age of the patient is between 18 and 65 years. Exclusion criteria: 1- Patient suffering from any new disease during hospitalization (for example, stroke or heart attack or any new disease that affects pain and headache).

In this study, the tool that was used included a demographic profile form and a checklist for examining pain and its influencing factors in patients admitted to the ICU. The aforementioned checklist contains questions about the presence of headache in the patient (yes/no), duration of pain (less than 1 hour, between 1 hour and 24 hours, more than 1 day), type of pain (pressure, tightening, throbbing, irritability), The history of headache in the patient before admission (yes/no), lateralization of pain (Bilateral, Unilateral), ESR level, CRP status. Data analysis was done using SPSS version 16 software and independent t-tests, ANOVA, linear regression and confirmatory statistics.

Results

(Table 1) showed the demographic characteristics of patients with Covid-19 hospitalized in the ICU. According to the findings, M(SD) age of the patients was 49.93(11.37) years. Also, 1114 (78.8%) of the patients reported headache and 300 (21.2%) of the patients had no complaints about headache (Table 1).

Table 1- Demographic characteristics of research patients

Variable		N	%
Gender	Male	893	63.2
	Female	521	36.8
Marital status	Single	750	53
	Have a wife	664	47
History of hospitalization for covid-19	Yes	24	1.7
	No	1390	98.3
History of chronic disease	Yes	1255	88.8
	No	159	11.2
History of previous headache	Yes	۱۶۶	۱۱/۷
	No	1248	88.2
PCR	Yes	1344	95
	No	70	5
Headache	Yes	1114	78.8
	No	300	21.2
Age	M(SD)	49.93(11.37)	

(Table 2) compares the demographic characteristics of patients with and without headache. also, in the group of patients with headache, most of them were male with a rate of 69.3%, married with a rate of 52.3% and without previous history of headache with a rate of 85.1%. Also, according to the findings, a significant relationship was observed between age and ESR level with the presence of headache. So that in patients with older age and higher ESR, the amount of headache was higher and its intensity was also higher.

Table 2- Comparison of demographic characteristics of patients with and without headache hospitalized in the ICU

Variable		NO headache	Headache	P, F
Gender	Male	121(40.3)	772(69.3)	0.000, 325.42
	Female	179(59.7)	342(30.7)	
Marital status	Single	133(44.3)	531(47.7)	0.04, 4.23
	Have a wife	167(55.7)	583(52.3)	
History of headache before the patient's admission	Yes	6(2)	18(1.6)	0.39, 0.73
	No	294(98)	1096(98.4)	
History of previous headache	Yes	16(5.3)	166(14.9)	0.000, 115.28
	No	284(94.7)	948(85.1)	
PCR	Yes	291(97)	1053(94.5)	0.000, 16.06
	No	9(3)	61(5.5)	
CRP	2+	284(94.7)	586(52.6)	0.000, 201.6
	3+	16(5.3)	528(47.4)	
ERS	M(SD)	39.81(0.99)	40.39(1.65)	0.000, 34.10
Age	M(SD)	41.17(9.54)	52.29(10.65)	0.000, 268.72

The findings of (Table 3) show the comparison of headache intensity according to the measured variables. So that there is a significant relationship between gender status, history of previous headache, duration of pain and headache severity (P<0.05).

Regarding the type of pain, it was shown that 341(30.6%) had Pressure type, 360(32.3%) had Tightening type, 335(30.1%) had Throbbing type and 78(7%) had Irritability type. Also, in relation to the duration of pain, it was shown that 228(20.5%) had pain less than 1 hour, 171(15.4%) had pain between one hour and 24 hours and 715(64.2%) had pain more than 24 were hours. Also, 178(16%) of the patients had moderate headache and 936(84%) of the patients had severe headache.

Table 3- Comparison of headache severity status according to patients' measurement characteristics

Variable		Severe headache	Mild-moderate headache	P, F
Gender	Male	628(67.1)	144(80.9)	0.000,
	Female	308(32.9)	34(19.1)	13.53
Marital status	Single	444(47.4)	87(48.9)	0.72, 0.12
	Have a wife	492(52.6)	91(51.1)	
History of hospitalization	Yes	14(1.5)	4(2.2)	0.46, 0.53
	No	922(98.5)	174(97.8)	
History of previous headache	Yes	163(17.4)	3(1.7)	0.000,
	No	773(82.6)	175(98.3)	29.91
Duration of pain	Less than 1 hour	147(15.7)	81(45.5)	0.000,
	Between one hour and 24 hours	145(15.5)	26(14.6)	45.56
	More than 24 hours	644(68.8)	71(39.9)	
Type of pain	Pressure	279(29.8)	62(34.8)	0.16, 1.72
	Tightening	298(31.8)	62(34.8)	
	Throbbing	294(31.4)	41(23)	
	Irritability	65(6.9)	13(7.3)	
Lateralization of pain	Bilateral	384(41)	56(31.5)	0.01, 5.74
	Unilateral	552(59)	122(68.5)	
CRP	2+	495(52.9)	91(51.1)	0.66, 0.18
	3+	441(47.1)	87(48.9)	
ERS	M(SD)	40.35(1.59)	40.61(1.92)	0.05, 3.70
Age	M(SD)	52.15(10.75)	53.02(10.09)	0.32, 0.92

Discussion

The prevalence of diseases related to neuroscience is high and it is important to take supportive measures to reduce the complications caused by these diseases [21-22]. If these complications are related to other diseases, especially the emerging disease of Covid-19, it becomes more important. For this reason, this study was conducted with the aim of prevalence and factors affecting headache in patients with covid-19 hospitalized in the ICU.

Result showed, the prevalence of headache was 78.8%. Various studies have been conducted on the prevalence of headache in patients with Covid-19, which have been conducted with various methods, including prospective and retrospective. Retrospective studies include D'Ascanio et al.' study in Japan, where the prevalence of headache is 12.3% [23], Luigetti M. et al.'s study in Italy, whose prevalence is 4.7% [24], Ellington et al.'s study in USD With a sample size of 91412, its prevalence is equal to 26.6% [25], in the study of Kim et al. in South Korea, its prevalence is equal to 31.4% [26], in the study of Vacchiano et al [27]. Xu XW et al indicated in China with a prevalence of 33.9% [28]. Also, among the prospective studies, we can refer to the study by Lapostolle et al. with a prevalence of 50.2% [29]. Among the reasons for the difference between the results of this study and the results of the aforementioned studies, we can mention the difference in the size of the examined sample, the demographic characteristics of the patients, as well as the type of department in which the patients were admitted. So that in some studies, patients from all departments have been admitted, while in this study, only ICU patients have been examined.

Also, 178(16%) of the patients had moderate headache and 936(84%) of the patients had severe headache. in various studies, the examination of headache in patients with covid-19 has been done by meta-analysis method, which shows the presence of headache in these patients. So that in the meta-analysis study by Islam et al., it is equal to 10.1% (95% CI: 8.76-11.49) report [15], in the meta-analysis study by César Fernández-de-las-Peñas et al., the prevalence of headache is equal to 47.1% (95% CI: 35.8--35.8 58.6) was reported [30]. The results of the aforementioned studies are consistent with the results of this study regarding the presence of headache in patients admitted to the ICU.

According to the findings of this study, 715 (64.2%) of the reported pain durations were more than 24 hours. In the study of Safawi et al., 48.7% of patients had diffuse pain and 77% had pain that was compressing in nature. Also, in relation to the duration of pain, it was shown that the experience of pain in terms of the duration of the pain was as follows: 233 (53.1%) of the patients in the First 2 days, 149 (33.9%) of the patients in the Third to 7th day, 38(8.7%) of Eight to fourteen days patients and 19(4.3%) of Fourteen days to 2 months patients reported pain [31]. Also, in Mutiawati et al.'s study, which examined the prevalence of headache after the patient recovered, it showed that 72.1% in 1 to 4 weeks, 16.7% in 1 to 3 months, and 4.2 in 4 to 6 months. % was reported [32]. The results of the aforementioned studies are consistent with the results of this study regarding the long duration of pain in patients with Covid-19.

Conclusion

Considering the high prevalence of headache in patients with covid-19 hospitalized in the ICU, it is necessary to take necessary intervention measures to reduce the patient's headache.

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