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A Comparative Analysis of Occupational Accidents among Health Workers Before and During the COVID-19 Pandemic

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ABSTRACT

Objective: The study aimed to evaluate the occupational accidents in pre-pandemic and during the COVID-19 pandemic within hospital. **Materials and Methods:** This descriptive case series study consists of occupational accidents in a university hospital between June 11th, 2018, and December 31st, 2021. Sample selection was not made and the entire population was taken into consideration. The data was obtained from the records of the Occupational Safety and Health Department of the hospital. Descriptive statistics and the SPSS program version 25.0 were used to analyze the data. **Results:** While the occupational group with the highest number of occupational accidents in the pre-pandemic period was cleaning personnel (34.8%), it was determined that the most occupational accidents were seen in nurses (37.5%) during the pandemic. A statistically significant difference was detected between pre- and during-pandemic occupational accidents and the variables of age and working hours ($p<0.05$). The occupational accidents' types were mostly sharp-stab injuries (43.6%–44.4%) and musculoskeletal injuries (22.7%–15%) pre-pandemic period and during the pandemic, respectively. The superiority of the staff who have had occupational accidents were women and the 20–29 age group. **Conclusion:** It is recommended that health policymakers and hospital administrators determine strategies to reduce occupational accidents among health workers.

Keywords: COVID-19, Health Workers, Hospital, Occupational Accident.

Hastane Çalışanlarının COVID -19 Öncesi ve COVID -19 Süreci İş Kazalarının Karşılaştırılması

ÖZ

Amaç: Bu çalışmada hastane çalışanlarının COVID-19 öncesi ve COVID-19 süreci iş kazalarının karşılaştırılması amaçlanmıştır. **Gereç ve Yöntem:** Tanımlayıcı olgu serisi türündeki bu çalışma bir üniversite hastanesinde 11 Haziran 2018 ile 31 Aralık 2021 tarihleri arasında meydana gelen iş kazalarını kapsamaktadır. Çalışmada örneklem seçimine gidilmemiş ve evrenin tamamı değerlendirmeye alınmıştır. Veriler hastanenin İş Sağlığı ve Güvenliği Birimi kayıtlarından elde edilmiştir. Verilerin analizinde tanımlayıcı istatistiklerden ve SPSS programından faydalanılmıştır. **Bulgular:** Pandemi öncesi dönemde iş kazalarının en fazla görüldüğü meslek grubu temizlik personeli iken (%34,8) pandemi döneminde iş kazalarının en fazla hemşirelerde görüldüğü (%37,5) tespit edilmiştir. Pandemi öncesi ve pandemi sırasında yaşanan iş kazaları ile yaş ve çalışma saati değişkenleri arasında istatistiksel olarak anlamlı fark tespit edilmiştir ($p<0,05$). Pandemi öncesi ve pandemi süreci iş kazalarının en fazla kesici alet yaralanmaları (%43,6-%44,4) ve kas-iskelet sistemi yaralanmaları (%22,7-%15) nedeniyle yaşandığı görülmüştür. İş kazası geçiren çalışanların çoğunluğunu kadınların ve 20-29 yaş grubunun oluşturduğu tespit edilmiştir. **Sonuç:** Sağlık politika yapıcıların ve hastane yöneticilerinin, sağlık çalışanlarının maruz kaldığı iş kazalarını azaltmaya yönelik stratejiler belirlemesi önerilmektedir.

Anahtar Kelimeler: COVID-19, Sağlık Çalışanı, Hastane, İş Kazası.

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INTRODUCTION

Occupational accidents are one of the critical public health problems, especially in middle- and low-income countries. An occupational accident is defined as “*an unexpected and unplanned occurrence, including acts of violence, arising out of or in connection with work, which results in one or more workers incurring a personal injury, disease, or death*” in the sixteenth conference of labor statisticians at international level (Raheem & Hinze, 2014). According to the World Health Organization (WHO) and the International Labour Organization (ILO), approximately two million workers die each year from occupation-related causes. In addition, occupational accidents cause negative effects on household incomes, reduce productivity, and place an additional burden on health systems (World Health Organization & International Labour Organization, 2021). Furthermore, it was stated that the expectancy of a healthy life of individuals decreased by 3.5 years in one of every thousand employees owing to occupational accidents (Varacallo & Knoblauch, 2022).

Hospitals are an important subsystem of healthcare. It has been stated that the hospital working environment is a complex and potentially dangerous place for health workers (dos Santos Santiago Ribeiro & de Cassia de Marchi Barcellos Dalri, 2021). The threats and risks faced by health workers in hospitals can be classified as physical, biological, chemical, ergonomic, psychosocial, and safety-related (which consists of risks related to falls and bumps, sharp injuries, contact with extreme-temperature objects, electricity, fire, and explosion) hazards (Saia et al., 2010). Studies show that the numbers of occupational accidents in growing countries are generally greater than in developed ones due to inadequate staffing, lack of experience, safety equipment, and training programs, long working hours, and inadequate standardized cautions (Saia et al., 2010; Kakizaki et al., 2011; Markovic-Denic et al., 2015). Recently, one of the risk factors for health workers has been the COVID-19 outbreak.

The COVID-19 virus first appeared in China at the end of 2019 and soon spread worldwide and was announced as a pandemic by WHO (Lee & Kim, 2021). It has been stated that health workers are more vulnerable to occupational injuries during the pandemic (Baek et al., 2021). In a study assessing the pandemic's effects on the statistics of occupational accidents in Turkey belong to 2020, the number of occupational accidents was found to be reduced in 2020 compared to 2018 and 2019, but there was no decrease in the frequency and severity of occupational accidents (Çalış, 2022). Along with the increasing patient burden in this period, the risk of transmission of the disease, the problems in providing personal protective equipment, and the increase in the burden on the health systems have created an important source of stress for the staff. In the study conducted in South Korea, to determine the occupational groups with high risk for COVID-19, it is highlighted that health

workers are among the high-risk occupational groups, and it is suggested for governments to take precautions to prevent COVID-19 in these areas and protect vulnerable groups (Lee & Kim, 2021).

The study aimed to evaluate occupational accidents in pre-pandemic and during the COVID-19 pandemic within hospital.

Research questions

- Is there a difference between pre-pandemic and pandemic-period occupational accidents?
- Do pre-pandemic and pandemic-period accidents differ according to the occupational group?
- Is there a difference between the types of occupational accidents before and during the pandemic?
- What is the severity of occupational accidents before and during the pandemic?

MATERIALS AND METHODS

Study type

This is a descriptive case series study.

Study group

The population of study involved occupational accidents between June 11th, 2018, and December 31st, 2021. In the study, no sample selection was made. The entire population was considered, and, tried to be reached.

Inclusion criteria

The data obtained for the 21-months between the dates of June 11, 2018, and March 11, 2020, has been evaluated as pre-pandemic period data. Also, the data obtained for another 21-months between the dates of 12 March 2020, when a patient was diagnosed with COVID-19 in Turkey for the first time, and 31 December 2021 has been evaluated as pandemic period data.

Exclusion criteria

Occupational accidents that did not meet the inclusion criteria were excluded.

Data collection tools

The data has been obtained via the records of the Occupational Health and Safety Department.

Statistical analysis

Descriptive statistics, Microsoft Excel PivotTable reports, and Statistical Package for Social Sciences for Windows 25.0 (IBM Corp.; Armonk, NY, USA) were used to analyze the data. Standard deviation (SD), frequency, percentage, and mean value calculations were used to describe the socio-demographic characteristics, and continuous and categorical variables. The chi-square test was practiced to determine the relationship between pre-pandemic and pandemic variables. In the analyses carried out, ‘ $p < 0.05$ ’ was accepted as the statistical significance threshold. The Classification of the Labor and Social Security Ministry -General Directorate of Labor and information in the related literature have been used to classify the types and results of occupational accidents (Ministry of Labour

and Social Security, General Directorate of Labour, 2022; Akgün, 2015; Uçak, 2009).

Ethical considerations

This study was approved by the Committee of Bandırma Onyedi Eylül University Health Sciences Non-Interventional Research Ethics (Date: 09.05.2022 Issue No: 2022-5/51). Institutional permission was obtained. At all stages of the study, research and publication ethics and the Declaration of Helsinki were followed.

RESULTS

In the hospital where the study was conducted, the average number of the health workers in the pre-pandemic period was calculated as 986, and during the pandemic was calculated as 937. Table 1 represents the sociodemographic characteristics of the participants. Accordingly, 71.8% of the staff who had an occupational accident pre-pandemic and 70.6% of the staff who were exposed to occupational accident during the pandemic were women.

Table 1. Sociodemographic characteristics of individuals who faced occupational accident(s) (n=341).

Sociodemographic characteristics of the individuals	Pre-pandemic n=181		During pandemic n=160	
	n	%	n	%
Gender				
Male	51	28.2	47	29.4
Female	130	71.8	113	70.6
Age Group				
20-29	66	36.5	79	49.4
30-39	40	22.1	41	25.6
40-49	54	29.8	25	15.6
50 +	21	11.6	15	9.4
Occupational Group				
Cleaning staff	63	34.8	37	23.1
Nurse	57	31.5	60	37.5
Technician	22	12.2	19	11.9
Administrative staff	12	6.6	7	4.4
Kitchen Staff	7	3.9	10	6.3
Porter	7	3.9	2	1.3
Physician	3	1.7	3	1.9
Electrical-mechanical technicians	3	1.7	5	3.1
Biologist	2	1.1	1	0.6
Security personal	2	1.1	0	0.0
Auxiliary staff	2	1.1	15	9.4
Biomedical technician	1	0.6	1	0.6
Total	181	100.0	160	100.0

In the study, 34.8% of the staff who were exposed to occupational accident in pre-pandemic period were cleaning staff and 31.5% were nurses. These numbers are 37.5% (nurses) and 23.1% (cleaning staff) during the pandemic period.

Evaluation of the Table 2 shows the types of occupational accidents. Accordingly, 43.6% of the

pre-pandemic occupational accidents were sharp injuries and 22.7% by musculoskeletal injuries. On the other hand, 44.4% of the occupational accidents during the pandemic period were sharp-stab injuries and 15% were musculoskeletal injuries.

Table 2. Types of occupational accidents (n=341).

Types of occupational accident	Pre-pandemic		During pandemic	
	n	%	n	%
Sharp-stab injuries	79	43.6	71	44.4
Musculoskeletal injuries	41	22.7	24	15.0
People falling	26	14.4	22	13.8
Exposure to chemicals and meds	13	7.2	12	7.5
High-temperature exposure	7	3.9	3	1.9
Exposure to blood-body fluids	5	2.8	10	6.3
Accidents caused by equipment and machinery	3	1.7	2	1.3
Others	7	3.9	16	10.0
Total	181	100.0	160	100.0

It was found that 81.8% of pre-pandemic occupational accidents and 75.6% of pandemic-period accidents occurred during the day shift (08:00-18:00) (Table 3). It was detected that the majority of the occupational accidents experienced before the pandemic and during

the pandemic period did not result in any lost workday(s) with the ratio of 83.4 and 83.8% respectively. Also, the majority of the occupational accidents that have occurred resulted in injury for both time periods (100%-99.4%) (Table 3).

Table 1. The time period in which the accident occurred, the lost workday, and the result of the accident (n=341).

Time period of the accident	Pre-pandemic		During pandemic	
	n	%	n	%
Day shift (08:00-18:00)	148	81.8	121	75.6
Night shift (18:00-08:00)	33	18.2	39	24.4
Lost workday(s)				
No lost workday(s)	151	83.4	134	83.8
1-5 days	18	9.9	19	11.9
6-10 days	10	5.5	3	1.9
11+ days	2	1.1	4	2.5
Result of the accident				
Injury	181	100.0	159	99.4
Amputation	0	0.0	0	0.0
Death	0	0	1	0.6
Total	181	100.0	160	100.0

A statistically significant difference between the variable of gender for the pre-pandemic and pandemic time periods was not found within the scope of this analysis (Table 4). However, there was a statistically significant difference when the ages of individuals exposed to occupational accidents and pre-pandemic and during-pandemic periods were compared. During the pandemic, it has been

determined that the occupational accident rates of health workers aged 40-49 and 50+ have decreased. Furthermore, a statistically significant difference was also found between the working shifts and the pre-pandemic and during pandemic. It has been observed that occupational accidents tend to occur more on the night shift during the pandemic.

Table 2. Significance values between pre- and during-pandemic variables using the Chi-square test.

Variables		Pre-pandemic		During pandemic		Total		χ^2 test, P
		n	%	n	%	n	%	
Gender	Male	52	52.5	47	47.5	99	29.0	0.495
	Female	129	53.3	113	46.7	242	71.0	
	Total	181	53.1	160	46.9	341	100.0	
Age	20-29	66	45.5	79	54.5	145	42.5	0.007
	30-39	39	48.8	41	51.2	80	23.5	
	40-49	55	68.8	25	31.3	80	23.5	
	50+	21	58.3	15	41.7	36	10.6	
	Total	181	53.1	160	46.9	341	100.0	
Working period	Day shift	148	55.8	117	44.2	265	77.7	0.037
	Night shift	33	43.4	43	56.6	76	22.3	
	Total	181	53.1	160	46.9	341	100.0	

Statistical significance threshold= $p < 0.05$; χ^2 =Chi-Square test

DISCUSSION

This study aimed to evaluate the occupational accidents that occurred in a university hospital before and during the pandemic. It was stated that the majority of the employees who had pre-pandemic and pandemic period occupational accidents were women (Table 1). Diktas et al. (2021) determined that 60.2% of the hospital workers who had occupational accidents before the pandemic and 63.1% during the pandemic were women, in line with our findings. In a study where Markovic-Denic et al. (2015) evaluated healthcare professionals' exposure to body fluids and blood, it was determined that 74.9% of the participants were women. In another research studied in Brazil, 86.3% of employees who had occupational accidents were women (dos Santos Santiago Ribeiro & de Cassia de Marchi Barcellos Dalri, 2021). It can be interpreted as a normal situation that the injuries are more common in women since the health sector is a female-dominant sector. In this study, it is indicated that there was no significant difference between gender and occupational accidents pre-pandemic and during the pandemic.

In the study, it was found that the majority of individuals who had an occupational accident before and during the pandemic were in the 20–29 age group. In terms of the age of those exposed to occupational accidents pre- and during the pandemic, a statistically significant difference was found. It has been observed that the occupational accident rates of employees aged 40–49 and staff aged 50+ have decreased during the pandemic. In the study of Diktas et al. (2021), healthcare workers' blood and body fluids exposure, needlepoint, needlestick injuries, and pre- and during pandemic were statistically different depending on their age group. The highest exposure before the pandemic was between the ages of 30 and 40, and during the pandemic period, it was seen above the age of 40. In a study conducted in Korea, the negatory impact of COVID-19 on the increasing rate of occupational accidents was found to increase as the

sample group of the study age. While the increase rate for the youngest group (15.29) decreases by 4.6%, it was observed that the oldest group's (over 50 years old) decrease was 8.2% (Baek et al., 2021). In another study conducted in Turkey, it was found that most of the injuries caused by occupational accidents occurred with individuals aged between 31–40. Both pre- and during the pandemic, the age distribution of the patients was statistically significant ($p < 0.001$ for each). However, it has been observed that the pandemic's effect wasn't statistically significant on this distribution (Demir et al., 2023). This may be due to the fact that more remote or part-time work opportunities are given to the older age group, as they are at high risk during the pandemic. In addition, since healthcare is considered to be a sector in which the younger age group whose experience level is lower than the older age group is predominantly involved in Turkey, it is expected that occupational accidents are more common in those with younger age.

In this study, pre-pandemic, the cleaning staff (34.8%), nurses (31.5%), and technicians (12.2%) were the employees who had occupational accidents the most, and during the pandemic, nurses (37.5%), cleaning personnel (23.1%), and technicians (11.9%) were detected to be among the most injured. Studies have shown that nurses have the profession with the highest incidence of injury. Nurses, who represent one of the largest groups of the hospital workforce and take part in patient care uninterruptedly, are the employees who suffer the most from unsafe conditions and are most exposed to occupational risk factors (dos Santos Santiago Ribeiro & de Cassia de Marchi Barcellos Dalri, 2021; Bekele et al., 2015; Nouetchognou et al., 2016). In research studied in Brazil, it was observed that 82.3% of the employees experiencing an occupational accident were nurses and 12.3% were cleaning staff (dos Santos Santiago Ribeiro & de Cassia de Marchi Barcellos Dalri, 2021). In the study of Diktas et al. (2021) carried out in Turkey, 16.8% of the injured before the pandemic were physicians, 53.6% were nurses; 50.2% of those injured by an

occupational accident during the pandemic were nurses; and 33.6% were cleaning staff. In another study conducted in a teaching hospital in Turkey, the rate of occupational accidents was statistically and significantly lower in physicians than in nurses (Engin, 2014). The fact that nurses and technicians are the most affected occupational groups by occupational accidents may be caused by patient density in the university hospital and the overworked due to the complex duties and tasks that require specialization. In this study, it was stated that the rate of occupational accidents during the pandemic among the cleaning staff was lower than before the pandemic. That situation might be seen as a result of the training of the cleaning staff in compliance with the guides prepared by the COVID-19 Scientific Committee in the Ministry of Health and the cleaning instructions prepared by the hospitals' infection control committee, paying attention to the use of personal protection equipment and all phases of cleaning procedures due to the COVID-19 pandemic.

It was observed that 43.6% of pre-pandemic occupational accidents and 44.4% of during pandemic occupational accidents were sharp-stab injuries. Studies show that the mostly occurred occupational accidents among healthcare workers are needlestick and sharp tool injuries (Markovic-Denic et al., 2015; Bekele et al., 2015; Engin, 2014; Gorman et al., 2014; Lu et al., 2020; Phillips, 2016). A study conducted in Korea indicated that COVID-19 reduced occupational accidents. It was emphasized that government policies are important during the pandemic period to reduce occupational accidents and that attention should be focused on areas where working conditions cannot be changed during the pandemic and where there is a possible increase in workload due to COVID-19 (Baek et al., 2021). In a study evaluating health workers' exposure situation to bodily fluids and blood pre- and during the pandemic in Turkey, it was determined that the exposure decreased during the pandemic, but there was no significant difference in terms of exposure to bodily fluids and blood pre- and during the pandemic. In the same study, it was determined that while the rate of needle tip injury was 81.2% before the pandemic, this rate was 91.4% during pandemic. Also, the rate of injury with a sharp tool was 8.9% pre-pandemic and 2.4% during pandemic (Diktas et al., 2021). Delaying elective interventions other than emergency healthcare procedures during the pandemic might have an impact of this result. In addition, it is thought that additional attention may have been paid to the use of personal protective equipment due to the contamination risk during the pandemic, in terms of exposure to bodily fluids and blood. Some studies show the opposite of our study findings. According to Demir et al.'s research (2023), occupational accidents in the health sector increased from 7% pre-pandemic to 11.2% during the pandemic. In the same study, it was determined that the number of needlestick injuries increased from 13 to 17 in the pre-pandemic period, and the number of splashes of objects/samples of the patient into the eye increased from 6 to 19 during the pandemic. It has been

stated that this may be due to the workload during the pandemic (Demir et al., 2023). In this study, it was stated that the type and the rate of accidents pre-pandemic and during the pandemic was not significantly differed. The results of the study show that, in line with the literature findings, most occupational accidents occur as sharp injuries and musculoskeletal injuries. The organization of well-designed education and awareness programs by the hospital infection control committee and by the Ministry of Health of the Republic of Turkey at the beginning and during the COVID-19 pandemic has been highly advantageous in reducing risky occupational exposure. In order to prevent and reduce such injuries and accidents among hospital workers, it is important to have and use an adequate number and variety of personal protective equipment; to use safe medical equipment; to employ experienced personnel in high-risk units; to regularly train employees on personal protection equipment and body mechanics; and also, to conduct workforce analysis regularly.

In our study, it was found that the majority of occupational accidents pre-pandemic and during the pandemic resulted in injuries. While no accident that ended up with amputation was encountered in both periods, it was determined that one fatal occupational accident occurred during the pandemic. Celik et al. (2013) stated that 83.9% of the employees who had an occupational accident were discharged after their first medical care in the emergency service, and 16.1% were hospitalized and treated. According to Demir et al.'s study (2023), 93.1% of those who experienced occupational accidents were released the same day after receiving treatments from the emergency department, while 6.9% required hospitalization. Although hospitals contain many dangers and risks, they are institutions where the incidence of mortal or permanent physical damage is low due to the nature of the work done.

In our study, it was found that in the pre- and during pandemic, occupational accidents mostly occurred between 08:00 and 18:00, which is the day shift (81.8%-75.6%). A statistically significant difference was found when the working period was compared with the pre-pandemic and pandemic periods. It has been observed that occupational accidents are proportionally higher on the night shift during the pandemic. In the study of Demir et al. (2023) 61.2% of the pre-pandemic cases occurred at 08:01-16:00 and 34.4% of these occurred at 04:01-12:00, in line with the results of our study. Similarly, during the pandemic period, 64.7% of the cases occurred at 08:01-16:00 and 30.8% of cases occurred at 04:01-12:00. 64.1% of the occupational accidents occurred between the hours of 08:00 and 16:00, according to Celik et al.'s study (2013). In the study of Sayhan et al. (2013) it was observed that 62.1% of the employees who had an occupational accident were exposed between the hours of 08:00-16:00 and 37.9% between 16:00-08:00. In the study of Markovic-Denic et al. (2015), 50.5% of the individuals who had an occupational accident stated that they worked in all shifts, 38.3% only in the morning shift, 9.3% in the day shift, and 1.9% only in the night shift.

The fact is that pre-pandemic and during pandemic occupational accidents occur more often during the day shift. It is thought that the reason for this situation may be due to the planned patient hospitalizations, patient visits and examinations, surgical interventions, patient care and consultations being carried out predominantly between these hours. Since the hours of patient mobility, workload, and chaos are the highest in hospitals, it can be considered normal to experience accidents at this time. During this time, to reduce occupational accidents; it is important to distribute the workload proportionally among the hospital staff, to standardize the processes related to patient care, to make assignments within the scope of specializations, and to provide training to the employees accordingly.

In our study, 83.4% of the pre-pandemic occupational accidents did not cause any lost workday(s), 9.9% of the cases had 1-5 days of loss; and 83.8% of the occupational accidents that occurred during the pandemic period did not cause any lost workday(s). It was determined that 11.9% of those during the pandemic caused 1-5 working days of loss. No statistically significant difference was found between the lost workday(s) and the pre-pandemic and pandemic in the occupational accident cases included in the study. In addition, it was detected that the total lost workday(s) caused by occupational accidents pre-pandemic was 159 days, and the total lost workday(s) caused by occupational accidents during the pandemic was 169 days. A limited number of studies have been found in the health sector in this regard. In a study conducted in Brazil between January 2017 and July 2019, it was found that 71.2% of the health professionals who were exposed to occupational accidents were unharmed and did not lose any workdays. In the same study, it was determined that 73 injured employees lost a total of 183 working days, the average number of days off for employees who had an accident was 8.71 days, and only one employee had 15 days or more off days (dos Santos Santiago Ribeiro & de Cassia de Marchi Barcellos Dalri, 2021). It has been stated that it is important for health policymakers and administrators of healthcare institutions to create strategies for improving the working conditions of healthcare professionals and increase their commitment to universal precautions in order to prevent occupational accidents (Bekele et al., 2015).

Limitations of the study

The dataset of this research was obtained from one single hospital, and was limited to the accidents that has been reported. Another limitation of the study is that the pre-pandemic and during-pandemic periods are limited to 21 months when making comparisons. Also, there is not enough information regarding the workload of the health workers and other exposures that they might have had pre- and during pandemic. For this reason, the biggest limitation of our study is that variables other than the pandemic that would affect the occupational accident processes cannot be evaluated.

CONCLUSION

It was observed that occupational accidents were mostly seen in nurses during the pandemic, while they were mostly seen in cleaning staff before the pandemic. Moreover, no difference between the types of occupational accidents pre-pandemic and during the pandemic was detected. Health policymakers and hospital administrators should determine strategies to decrease occupational accidents among health workers. It is recommended to determine the occupational health and safety policies at national and institutional level and to form it as a document that is reachable by every worker, to ensure that there is sufficient number of protective equipment in institutions and that workers are trained to use them, to regularly report occupational accidents, and to carry out improvement studies. In addition, it may be beneficial to develop control mechanisms to ensure that the system is operated effectively and in compliance with legal regulations, to allocate sufficient resources for process improvement and to focus on scientific studies on this field more.

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Conflict of Interest

The author declare no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Author Contributions

Plan, design: YA, DA, SG; **Material, methods and data collection:** YA, SG; **Data analysis and comments:** YA, DA, SG; **Writing and corrections:** YA, DA, SG.

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Ethical considerations

This study was approved by the Committee of Bandırma Onyedi Eylül University Health Sciences Non-Interventional Research Ethics (Date: 09.05.2022 Issue No: 2022-5/51). Institutional permission was obtained. At all stages of the study, research and publication ethics and the Declaration of Helsinki were followed.

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