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EVALUATION OF THE EFFECTS OF INSULIN RESISTANCE ON OBESITY AND RELATED PARAMETERS

Aybike Gizem Kayacan[1], Mehtap Ünlü Sögüt[1], Neslihan Sürmeli[2], Elanur Yılmaz[3]

[1]Ondokuz Mayıs University, Faculty of Health Sciences, Department of Nutrition and Dietetics, Samsun

[2]Yuzuncu Yil University, Vocational Health High School, Van

[3]Buyuk Anadolu Hospital, Samsun

[*] *Corresponding author; aybike.kayacan@omu.edu.tr*

Abstract: *Obesity, especially abdominal obesity, is one of the most important underlying risk factors for metabolic syndrome and increases the risk of developing various pathological conditions like Type 2 diabetes mellitus, dyslipidaemia, hypertension and non alcoholic fatty liver disease. Insulin resistance means that the ability of insulin to stimulate glucose utilization is reduced, it is an integral feature of the metabolic syndrome and an important predictor of Type 2 Diabetes Mellitus development. It is well known that obesity is associated with diabetes mellitus, and the main basis of this link is thought to be the ability of obesity to stimulate insulin resistance. In this study, we aimed to evaluate the relationship between insulin resistance and obesity, related biochemical parameters, body analysis data. In this retrospective case control study, the insulin resistance status of 120 volunteers was determined by calculating the Homeostatic Model Assessment-Insulin Resistance formula. Biochemical values and body analysis results of individuals with and without insulin resistance were compared. Insulin resistance was detected in 56 (%46.7) of the subjects participating in the study. Insulin resistance was significantly related with weight, body mass index, body fat mass ($p<0.05$). However, there was no correlation between insulin resistance and body fat percentage, abdominal fat percentage and abdominal fat mass ($p>0.05$). Fasting plasma glucose, insulin, triglyceride and alanine aminotransferase levels were found to be higher in individuals with insulin resistance ($p<0.05$). There was no significant relationship between insulin resistance and HbA1c percentages, cholesterol, AST and Vitamin B12 levels ($p>0.05$). In conclusion, considering the risks of diseases caused by insulin resistance, findings of this study emphasizes the importance of detecting insulin resistance.. Determining the presence of insulin resistance can help prevent a variety of diseases by regulating nutrition.*

Keywords: insulin resistance, obesity

1. Introduction

It is known that in recent years, the worldwide prevalence of obesity and metabolic complications have increased significantly. World Health Organization data show that in 2016, 1.9 billion adults over the age of 18 are overweight; of which 650 million are obese [1]. Obesity, especially abdominal obesity, is one of the underlying risk factors for the metabolic syndrome (MetS) [2]. Obesity increases the risk of developing various pathological conditions such as insulin resistance, type 2 diabetes mellitus (DM), dyslipidaemia, hypertension and non alcoholic fatty liver disease (NAFLD). It is also associated with metabolic changes such as increased fat mass, hypertension, elevated triglyceride and blood glucose levels and low HDL-cholesterol levels [3].

Insulin resistance means that the ability of insulin to stimulate glucose utilization is reduced. While pancreatic β-cells increase insulin production and secretion as a compensatory mechanism (hyperinsulinemia), glucose tolerance remains normal [4]. At the same time, insulin resistance is an integral feature of the metabolic syndrome and is an important predictor of DM development [5]. It is well known that obesity is associated with DM, and the main basis of this link is the ability of obesity to stimulate insulin resistance [6].

It is known that insulin resistance is associated with many diseases like MetS, DM, and obesity and is an important factor that triggers many other metabolic changes. Within this information, we aimed to evaluate the association of insulin resistance with obesity and other possible metabolic abnormalities in adult subjects.

2. Material and Method

Study was planned as a retrospective case control study and 120 volunteers, who were 18 years old and did not have bariatric surgery, who applied to the Nutrition and Diet Policlinic of Samsun Buyuk Anadolu Hospital between 01.11.2016-01.04.2017 were included. At the beginning of the study, approval was obtained from Ondokuz Mayıs University Clinical Research Ethics Committee with approval number B.30.2.ODM.0.20.02/1432.

Body analysis data that was evaluated in the study were; weight, body mass index (BMI), body fat mass, body fat percentage, abdominal fat mass, abdominal fat percentage. BMI was calculated by dividing weight to height's square. According to World Health Organization (WHO) criteria, obesity was defined by BMI ≥30 kg/m^2 and excessive weight defined by BMI≤30 kg/m2 BMI≥25 kg/m2 [7]. Body composition was obtained from bioelectrical impedance analysis (TARTI, TANITA BC-418) results. Clinical and metabolic data include fasting blood glucose (FBG), HbA1C, insulin, triglyceride, cholesterol, alanine aminotransferase (ALT), aspartate aminotransferase (AST) and Vitamin B12. Insulin resistance was defined by having HOMA-IR index over 2.5 which was calculated by the formula of fasting insulin (μU/ml) × fasting glucose (mg/dL) / 405 [8].

The data were analyzed using the 24.0 version of the Statistical Package for Social Sciences (SPSS) package program. After determining the number of people who applied to the Nutrition and Diet Polyclinic between the given dates, the sample size was calculated as 120 with %95 power and %5 error margin. The results are presented as the mean; unpaired Student-t test and chi-

square test were used to compare the continuous and categorical variables in insulin resistant and non-insulin subjects. Pearson correlation was used for correlation analysis. A value of $p<0.05$ was considered statistically significant.

3. Results

Table 1 summarizes the main characteristics of the individuals evaluated in the study.

Table 1. Body analysis data of individuals participating in the study

	Minimum	Maximum	Mean ± SD
Age	18	78	38.7 ± 12.7
Weight (kg)	43.3	159.6	87.4 ± 19.4
Height (m)	1.4	1.8	1.64 ± .09
BMI (kg/m^2)	17.6	63.9	32.6 ± 7.7
Body Fat Percentage(%)	13.7	59.5	35.2 ± 9.4
Body Fat Mass (kg)	7.1	91.8	31.8 ± 13.5
Abdominal Fat Percentage (%)	6.7	61.3	33.4 ±8.6
Abdominal Fat Mass (kg)	1.5	34.1	15.9 ± 6.1

82 women (%68.3) and 38 men (%31.7) individuals aged between 18 and 78 years (38.7±12.7) were evaluated in the study. Mean BMI values were found in the obese range (32.6 kg/m^2). When assessed in detail, it was determined that 16 individuals (13.3) were normal weight (BMI≤24.99 kg/m^2), 32 (%26.7) were overweight (BMI 25-29.99 kg/m^2) and 72 (%60) were obese (BMI≥30 kg/m^2).

The data on the biochemical parameters of the individuals evaluated in the study are summarized in Table 2.

Table 2. Conclusions on biochemical parameters of individuals participating in the study

	Unit	Reference Range	Mean ± SD
Fasting Blood Glucose	mg/dL	74-109	107.2 ± 22.2
Insulin	µU/mL	2.6-24.9	11.1 ± 7.0
Tryglycerides	mg/dL	0-200	138.4 ± 97.1
Cholesterol	mg/dL	0-200	186.2 ± 58.1
AST	U/L	0-32	21.5 ± 13.1
ALT	U/L	0-33	25.2 ± 18.3
Vitamin B12	pg/mL	191-663	368.4 ± 190.7

Insulin resistance was detected in 56 (%46.7) of the subjects participating in the study. Thirty-five of these individuals were female (%62.5) and 21 were male (%37.5). When evaluated in detail, it is seen that all of the biochemical findings are among the reference values.

In Table 3, evaluation of body-analysis data of individuals with and without insulin resistance is given.

Table 3. Evaluation of individual's insulin resistance status and body analysis values

	Insulin Resistance (+) Group (HOMA-IR>2.5, n=56)	**Non-Insulin Resistance Group (HOMA-IR<2.5, n=56)**	**p-value**
Age	37.8 ± 14.6	39.5 ± 10.7	.380
Weight (kg)	93.5 ± 6.7	82.0 ± 9.9	.003*
Height (m)	1.6 ± 0.1	1.6 ± 0.0	.458
BMI (kg/m^2)	34.4 ± 7.0	31.0 ± 8.0	.002*
Body Fat Percentage(%)	36.3 ± 8.2	34.3 ± 10.4	,263
Body Fat Mass (kg)	34.4 ± 12.9	29.4 ± 13.7	.017*
Abdominal Fat Percentage (%)	34.6 ± 6.7	32.3 ± 9.9	.144
Abdominal Fat Mass (kg)	17.1 ± 5.6	14.9 ± 6.4	.055

***p <0.05**

Body weight and body fat mass averages were found significantly higher in those with insulin resistance. Individuals with insulin resistance were found to have a higher BMI ($p<0.05$). No significant correlation was found between insulin resistance and body fat percentage, abdominal fat mass and abdominal fat percentage ($p>0.05$).

Table 4 provides an assessment of the biochemical characteristics of individuals with and without insulin resistance.

Table 4. Evaluation of individual's insulin resistance status and biochemical properties

	Unit	**Insulin Resistance (+) (n=56)**	**Insulin Resistance (–) (n=64)**	**p-value**
Fasting Blood Glucose	mg/dL	113.1	102.1	.039*
HbA1c	%	6.0	5.7	.259
İnsulin	µU/mL	16.6	6.2	.001*
Triglycerides	mg/dL	163.5	116.5	.039*
Cholesterol	mg/dL	191.5	181.6	.367

AST	U/L	23.6	19.6	.584
ALT	U/L	30.7	20.4	.026*
Vitamin B12	pg/mL	377.8	360.1	.837

***p <0.05**

When biochemical findings were examined, fasting plasma glucose, HbA1c, insulin, triglyceride and ALT were significantly higher in insulin resistance group ($p<0.05$). There was no significant difference between the two groups in terms of cholesterol, AST, B12 vitamin ($p>0.05$).

4. Discussion

It is emphasized that patients diagnosed with insulin resistance have a higher propensity risk of development of MetS, DM and cardiovascular diseases. In the light of this information, considering the health effects of insulin resistance, the aim of this study was to evaluate the relationship between insulin resistance and obesity, related biochemical parameters and body analysis data.

The main cause of insulin resistance, which plays an important role in the pathogenesis of DM, is obesity [9]. World Health Organization data reveals that %66.8 of Turkey's population is overweight or obese[1]. The prevalence of insulin resistance in Turkey was reported to be %26.2 [10]. Bilge et al found that the incidence of insulin resistance in the obese population was significantly higher than in the non-obese population, which is consistent with our results [11]. A study on women with polycystic ovarian syndrome suggests that BMI is higher in women with insulin resistance [12]. The relationship between adiposity and insulin resistance is also shown in a study by Carmina et al. [13]. In a study with adolescents and adults, the HOMA-IR score correlated positively with BMI, total fat mass, and abdominal fat mass [14]. While %60 of the participants in our study were obese, insulin resistance was detected in %56.9 of these individuals. Insulin resistance was associated with BMI, body fat mass and abdominal fat mass ($p<0.05$).

Intracellular lipid metabolism in pancreatic beta cells is involved in regulation of insulin secretion. Changes in intracellular lipid homeostasis may account for insulin resistance-related conditions [15]. In a study where participants were divided into seven groups according to their triglyceride, HDL-cholesterol, LDL-cholesterol levels, the HOMA-IR value was found to be higher in groups with high triglyceride levels. [16]. In a study of healthy adults, it has been shown that insulin resistance is associated with hypertriglyceridemia [17]. However, the results of studies on triglyceride levels and insulin resistance are contradictory. Our study results show that triglyceride levels are associated with insulin resistance ($p<0.05$).

ALT level; independent of the direct criteria of adiposity, insulin sensitivity and secretion, may be effective in predicting future diabetes (prediabetes) [18]. In a study by Maximos et al., NAFLD patients with elevated ALT levels have been shown to have elevated serum insulin levels [19]. Moreover, in another study with young adults, ALT levels were associated with insulin resistance [20]. The results obtained according to our study showed that ALT is associated with insulin resistance ($p<0.05$) and is consistent with the literature.

The results of studies investigating vitamin B12 and insulin resistance vary. In a study of adolescents showing prediabetic and insulin resistance characteristics, it was reported that one third of participants had low or borderline B12 Vitamin levels [21]. In a study conducted in women with polycystic over syndrome, low B12 Vitamin levels have been shown to be associated with insulin

resistance [22]. In a study conducted by Baltaci et al., It was demonstrated that B12 Vitamin levels were not associated with insulin resistance [23]. The results of our study showed that vitamin B12 levels were not associated with insulin resistance ($p>0.05$)

5. Conclusions

Lifestyle changes (such as healthy diet, weight loss, exercise) are the main treatment modality for treating both insulin resistance and obesity. Medical treatment options may be considered when lifestyle modification is not available. The fact that insulin resistance is seen at all ages in our study is an important result when considering the risks of disease and emphasizes the importance of detecting insulin resistance. Determining the presence of insulin resistance can help prevent a variety of diseases by regulating nutrition. In connection with the subject, studies conducted to establish relationships with wider populations and change patient groups can be suggested.

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EVALUATION OF TEAR FLUID AND OCULAR DOMINANCE IN PATIENTS WITH REFRACTIVE ERROR

Songul DOGANAY[1], Derya GUZEL[1], Ibrahim OZDEMIR[2], Isa YUVACI[3]

[1]Department of Physiology. Sakarya University. School of Medicine. Sakarya – Turkey
[2]Department of Ophthalmology. Yenikent Hospital. Sakarya – Turkey
[3]Department of Ophthalmology. Sakarya Training & Research Hospital. Sakarya – Turkey

Corresponding Author: songuldoganay@sakarya.edu.tr

Abstract

Tear fluid has a critical role for the function of the refraction index of the light and the quality of the image. The purpose of this study is to compare tear fluid and ocular dominance in patients with refractive errors. One hundred three patients with mean age of 35.63±14.95 who was referred to ophthalmology service for refraction examination were enrolled to the study. The handedness and ocular dominance were determined by the Edinburgh hand preference questionnaire and other tests. Visual acuity was tested by ophthalmological methods and Schirmer test was administered in patients.

Our study was included seventy-three female and thirty male patients. Right hand-dominance was found as 94.1% and right eye dominance as 66.0%. Myopia was higher in both right (-0.74±1.16D) and left eye (-0.68±1.01D) dominance. There were statically negative correlation between hypermetropia degree and tear volume in the left eye (p= 0.015; r = -0.240) there is a negative non-statically correlation for the right eye (p=0.060; r= -0.186). There was no correlation either between the myopia degree and tear fluid, eye dominance, tear fluid.

The existence of a negative correlation between the amounts of hypermetropia with tear fluid, suggesting that the evaluation of tear fluid should be considered in clinical significance.

Keywords: *Ocular dominance, tear fluid, hypermetropia*

1. Introductıon

Cerebral lateralization is defined as an anatomical or functional difference between the two hemispheres of the brain [1]. Another explanation of lateralization is the use of half of any anatomical structure or in a functional situation on the human body more than the other half. It comes in existence in organs which are in the paired for instance legs, hands and eyes [2]. In all human population, left-handedness of individuals is found in between 5% to 25.9%. Its prevalence varies from culture to culture

and from region to region for unknown reasons [3]. Ocular dominance was first described by Rosenbach, and he showed that equal vision can be provide each of eyes in isolation [4]. He applied a sighting test on patients which is very simple: Subjects should focus at a distant target with one of their index finger while their both eyes open. The finger is seemed doubled during it is figured outside Panum's area. Generally, the most people had rather the image of one eye to another. Alternate occlusion defines the dominant eye: if the index finger is aligned with the target, it means that viewed by the dominant eye and the findex finger is seemed offset to one side while viewing with the other eye [5]. Then Miles drew attention to the relation between dominant eye and hand preference, meanwhile he pointed out that harmony between the two may not always exist [6]. In humans, when hand preferences are examined, it is seen that the distribution of the left-hand preference in the society is one-tenth. The relationship between hand preference and dominant eye did not reach full clarity. The left eye is dominant in one-third of the people who prefer the left hand [7].

Tear fluid has a critical prescription for the function of the eye surface. It is that covers and protects the eye, as well as it is the largest refractive surface of the visual system. It also affects the quality of the image by changing its homogeneity. Therefore, the amount and content of the tear film is a vital component of clear vision [8]. Since the tear film includes dynamic structure of proteins, lipids, and mucins riding on the epithelium's hydrophobic surface, it is very complex. Stable vision depends on the tear film stability. Dry eye diseases cause some oscillation during vision while reading or using video display, and it is not reduced until remarkable ocular surface damage comes in existence. Even though there is a questionable relationship between ocular dominance and fixation preference, assessing ocular dominance or fixation preference may have importance role for variety of ophthalmic diseases treatment such as refractive error or amblyopia [9].

A small number of studies have examined the difference between myopia and hypermetropia. Generally, the right eye has been preferred for analysis in many of these studies. According to analysis there is no significant consideration of potential effects of ocular dominance in development of refractive error [10, 11]. However, the visual cortices are more predisposed to choose visual input by the dominant eye than nondominant eye as in hand and cerebral hemisphere dominance. For this reason, ocular growth and refraction may provide some information about the ocular dominance that has to reflect the differential operation of the two visual paths [10, 12].

In the literature, many studies have compared the dominant and non-dominant eye using some parameters such as refractive error (isometropia and anisometropia, spherical and astigmatism), visual acuity, and intraocular pressure [13-15]. However, there are no studies that investigate the relationship between refractive error, handedness, and eye dominance with the tear. Hence, this study was planned to compare refractive error with the tear fluid volume, dominant eye, and handedness.

2. Material and Method

2.1. Participants

Our perspective and clinical study was approved by Local Ethics Committee. The study was performed in the Department of Ophthalmology of Yenikent Hospital and Sakarya Training & Research Hospital. Participants who had congenital, functional, or anatomic eye pathology and infectious and inflammatory disorders were excluded. 103 participants who had refractive pathologies and aged

between 18 to 65 years were included to the study. After being informed, their consents were obtained, and then the study protocol was applied.

2.2. Determination of Handedness

The hand preference of the patients was determined by the Edinburgh hand preference questionnaire [16]. In this questionnaire, patients were asked which hand they used to do things like writing, painting, ball and rock throwing, holding scissors, brushing teeth, holding a knife while cutting bread, holding a spoon, holding a hammer, holding a match and the answers as “always right”, “usually right”, “both hands”, “usually left”, and “always left” are given with +10, +5, 0, -5, -10 points. The value between +100 and -100 is called the Geschwind score (GS)[17]. If this score is negative, it is lefty; if it is positive, it is righty. "GS +80 and over" were considered as strong right-handedness.

2.3. Determination of Ocular Dominance

Dominant eye determined with looking at a keyhole, dark bottle, telescope, rifle, and microscope. It was the preferred eye when viewed in one eye and was not influenced by education or orientation [7]. While we determined the dominance of the eyes, the patients were seated with their arms released to their sides perpendicular to the chair. Thus, the hand was not affected the preference. They looked into a dark box on the table and asked them to say what they saw. The eyes they used when they first looked into the box were considered as the dominant eye of the patients.

2.4. Application of Schirmer Test

Standard Schirmer test paper was placed between the bottom cover and the eye on 1/3 outside of the eye. Paper was removed after five minutes. The result was measured by a millimetric scale.

2.5. Statistical Analysis

All analyses were performed with commercial software (SPSS ver. 22.0; SPSS, Chicago, IL) and the numerical data were presented as the mean ±SD and the categorical data were expressed as frequence and percentages. The relationship between refractive error and Schirmer value *(mm)* was evaluated using the Pearson’s correlation test. A level of “$p<0.05$” indicated statistical significance.

3. Results

3.1. Characteristics of patients

73 female (70.9% of participants) and 30 male (29.1% of participants) patients enrolled the study. Mean age was 35.63±14.95 years. While 97 (94.1%) patients were using their right hand, 6 (5.9%) were using their left hand. Right ocular dominance was present in 68 (66%) and left ocular dominance in 35 patients (34%).

As refractive error, group patients with myopia and hypermetropia were enrolled. Myopia was encountered the most (61.2 %). The dominant eye ratios according to the refractive errors are summarized in Table 1.

Dominant eye of the right-handed patients is found as 66.0% right eye as well as dominant eye of left-handed patients as 66.7% right eye.

Table 1: Characteristics of patients

Patients: (n=103)	**n**	**Percent**
Sex		
Male	30	29.1%
Female	73	70.9%
Hand dominance		
Right-handed	97	94.1%
Left-handed	6	5.9%
Ocular Dominance		
Right-eye	68	66.0%
Left-eye	35	34.0%
Refractivity Error		
Hypermetropia	40	38.8%
Myopia	63	61.2%

3.2. The Ocular Dominance and Refractive Error

As it is summarized in Table 2, myopia was higher in both right (*-0.74±1.16D)* and left eye *(-0.68±1.01D)* dominance. There was no significant difference according to ocular dominance.

Table 2: The ocular dominance according to refractive error

Refractive Error	**Ocular Dominance %**		**Right Eye Ocular Dominance (D) mean±SD**		**Left Eye Ocular Dominance (D) mean±SD**	
	Right Eye	Left Eye	Right Eye	Left Eye	Right Eye	Left Eye
Hyper-metropia	41.2	34.3	0.36±0.61	0.35±0.61	0.21±0.48	0.19±0.38
Myopia	58.8	65.7	0.74±1.16	0.68±1.01	1.19±1.38	1.14±1.38

SD: Standard Deviation

3.3. Comparison of ocular dominance and refractor error according to tear fluid

There was a significant positive correlation of Schirmer values for both eyes (right and left eye; p=0.000). There was a statically negative correlation between hypermetropia degree and tear volume in the left eye (p= 0.015; r = -0,240) while there is a negative non-statically correlation for the right eye (p=0.060; r= -0.186). Meanwhile, there was no correlation between the myopia degree and tear fluid volume. Nonetheless, there was no statistical correlation between dominant eye and tear fluid volume. (Table 3)

Table 3. Comparison of ocular dominance and refractor error according to tear fluid

Characteristics (n=103)	**Right Schirmer (mm) Mean ±SD**	**Left Schirmer (mm) Mean ±SD**
Right Schirmer (mm)	**	**
Left Schirmer (Mm)	**	**
Right Myopia (D)	18.39 ±8.13	17.20±8.70
Left Myopia (D)	19.36±8.21	17.45±8.60
Right Hypermetropia (D)	17.74±8.49	15.42±9.17
Left Hypermetropia (D)	18.81±8.98	16.48±9.77*
Right– Ocular Dominance (N)	18.70±8.63	16.13±9.07
Left – Ocular Dominance N	19.94±8.47	19.42±8.60

Tested with Pearson correlation-test by correlation.

** Significant at p≤ 0.05*

*** Significant at p≤0.001*

4. Discussion

This study; the relationship between tear fluid, handedness, and ocular dominance has been investigated in patients with refractive error. Our results provided a negative association between hypermetropia and tear fluid. The results indicated that there no statistically significant effect of the tear fluid and handedness and ocular dominance.

Evaluation of the dominant eye is very important in clinical practice. Especially in patients with presbyopia, contact lens, and glasses, as well as during refractive surgery or before cataract surgeries; the dominant eye should be determined [18]. According to our results in excessive refractive error in the dominant eye, when the dominant eye is used for near or far fixation, it is conceivable that fixating with the dominant eye exerts an accommodative overload on that eye compared to the non-fixating contralateral eye. “Does the dominant eye have better visual acuity than non-dominant eye?” The question was asked in previous studies and it was shown that this is not the case. There are also some studies supporting our results concerned that there is no relation between refractive error and dominant eye [18, 19]. In our study, the dominant eye of both right-handed and left-handed patients was the right eye. It has been showed that in the previous studies while the right eye dominance is around 80%, and the left eye dominance is around 10% [20]. Our results were consistent with the previous studies [21] However, some results about handedness and eye dominance are controversial. Miles et al. [22] have drawn attention to the relationship between the dominant eye and handedness, and they have indicated

that hand preference and eye dominance does not always display concordance. The reason is disclosed while evaluating eye domination; the motor movement can be influencing them. Although the relationship between hand preference and the dominant eye does not reach full clarity, researchers on this subject continue intensively[23].

In our study, myopia was higher in both right and left eye dominance. Mansour et al. [24] have tried to investigate the relationship between in hand dominance and refractive differences between eyes, and they showed that even so the right eyes were slightly more myopic than left eyes, a significant correlation could not been established between hand dominance and differences between eyes. According to two-year follow-up of myopia study; they noted that ocular dominance did not effect on myopia development [10]. This is due to the fact that there is not much refraction difference between the two eyes. Furthermore, in our study, it may be difficult to determine the relationship between the patient population and the advanced stage myopic patient. According to our results it was seen that the right eye dominance is more frequently seen and they are significantly more myopic in our study population.

Recent investigations about the focus on the dynamics of the tear exposed the important role in the optical quality of the eye and our results about the comparison of tear fluid and other parameters are as follows. There was no statistical correlation between tear fluid and ocular dominance or myopia. However, tear volume was higher in patients with lower hypermetropia degrees. Although we cannot capture strong relations in our results, studies on the importance of visual quality are ongoing. One factor contributing to instability in the optical quality of the eye that has recently been receiving increasing attention is the tear film. Deterioration of the tear film homogeneity and reduction of the amount can increase the sensitivity to the cornea and exposure of the underlying irregular pre-corneal surface. Due to the irregular pre-corneal surface; patients could have either normal deviation from the corneal bubble or the long axis of the eye[25]. For this reason, it is indisputable that the optical quality is optimal if almost all structures are in the physiological range. Investigations proved that tear disorders caused ocular surface drying, corneal ulceration and perforation, and increased incidence of infectious diseases[26]. They even stressed the potential for vision defects and blindness. Several clinical studies have suggested that increased deviations in the tear film disruption may cause to decrease the retinal image quality. A study about artificial tears in 30 patients with dry eye syndrome indicated that using artificial teardrop in visual acuity caused a significant increase in optical quality. As it is seen from this result and finding, while optical aberrations decreases, optical quality of the image improves with installation of artificial tears in dry eyes [27]. Another study [28] compared the tear film variability between normal and dry eyes and concluded that tear film changes were different. Koh et al.[29] showed ocular aberrations analysis and dynamic variability. These changes may be attributed to the increasing irregular tear film.

As a consequence, any local changes and irregularity in the tear film thickness can affect the refraction index of the light and the quality of the image that is affecting the refractive system. According to our results, the reason for the correlation with the tear in hypermetropic patients; the hypermetropia may be caused by a small eyeball or a poor eye age change in the lens system in these patients. Hypermetropia is characterized by anatomical and functional disorders such as the shortness of the eye sphere or weakness of the lens system. Therefore, the tear volume can be taken into account when refractive defects are evaluated in these patients.

5. Conclusion

Our study evaluated the relationship between hand/ocular dominance and tear fluid in patients with refractive error. According to our results there was no statistical correlation between dominant eye and tear fluid and there was an inverse relationship between tear volume and hypermetropia. The existence of a negative correlation between the amounts of hypermetropia with tear fluid is suggesting that the correction of hypermetropia may have clinical significance.

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ASSESSMENT OF FIRST AID APPLICATIONS FOR INSECT BITES AND STINGS THAT PRESENT ON WEB PAGES ACCORDING TO THE LATEST GUIDELINES

Tuğba Sınmaz*[1], Neriman Akansel[2]

[1] Bandirma Onyedi Eylul University, Faculty of Health Sciences, Department of Nursing, Bandırma /TURKEY

[2] Uludag University Faculty of Health Sciences, Department of Surgical Nursing, Bursa/ TURKEY

* Corresponding author; tsinmaz@bandirma.edu.tr

Abstract: *Correct action in first aid is one of the most important steps in life saving. It is natural that come face with several situations that necessitate first aid applications in daily life. One of them is bite injury also. Especially, internet is a frequently applying source about health issues. Plenty of web pages are available related to health issues and many of them have quite low reliable content. Objective of this study is to evaluate the content of web pages prepared on first aid for insect bite/sting. Terms "first aid for insect bites"," insect bites", "first aid" were searched via Google Chrome web browser in this descriptive study. Fifty web pages including first aid for bites and stings of bee, jellyfish, spider, tick and snake were investigated by researchers with using a check list improved by them. International guidelines on first aid applications were used in the formation of the check list. It has shown that the information on the web pages included in this study is limited in the context of evidence-based concept and recommendations from the latest guidelines. Traditional applications have been taking place in some of web pages. It has been shown that information about first aid for bites/stings from web pages is quite lacking and inadequate. Attention should be paid on the extent of information about first aid on the internet is that much that can be life and health threatening. Therefore, surveillance of web pages and first aid applications that require basic knowledge to be taught with interactive methods are recommended.*

Key words: *First aid, guidelines, insect bites/stings, internet, web pages*

1. Introduction

Today, internet is the first option to access information related to health issues rapidly and effectively as well as in many other issues. Internet is an important reference guide to get information on health because of internet has superiority such as to be obtained information continuously without regarding to time and place, being economic and performing thousands of web pages and posts to the user with a basic search [1,2].

According to *Pew Internet & American Life Project Health Online (2013)'s report*, 72% of internet users search subjects related to health in the United States [3, 4]. As for Turkey, *Research of*

Household Information Technologies Use (2016) by *Turkish Statistical Institute* has stated that 65.5% of daily searches on the internet are made with the aim of getting information on health [5].

It has been stated that most of the individuals that make internet search on health issues (82.5%) try to reach information typing a key word in search engine and the most used search engine (77%) is *Google* [3,6]**.** *The Guardian* (2015) has declared that every one of the 20 searches are related to the health, similarly [7].

In the consideration of the ratios, internet provides unlimited information flow to the individuals. In addition, internet provides more options for individuals to determine on health issues and makes them more effective managing their own health [8]. However, ones who gather contents of web pages, to be the information updated, accurate and the information sources are not controlled by valid scientific institutions, naturally [2,9]. Web pages that cannot meet some criteria have been guiding patients in a wrong way as well as result with severe damage [10,11]. There are reports also available on application of the incorrect information that stated in web pages by patients and resulted with death in the literature [12].

It has been specified that people applied self-medication unconsciously with first aid information they got from the internet due to the Stonefish *(Synanceia),* one of the common seen and the most poisonous fish in the world, bite toxicity in Japan. As a result, emergency room has admitted increasing number of complication, especially burns [13].

First aid which applies quickly and accurately, has positive effects on the outcome such as preventing worse conditions for the injured people and saving their life after coming face with an accident or a life threatening condition [14-16]. Therefore, individuals should apply first aid appropriately and it is understood that accurate and reliable information should be generalised.

According to *World Health Organisation* data (WHO 2007), every year 14 million insect bites and stings are seen in the world, especially in the developing countries. It was reported that 5.4 million people were bitten by snakes. 81.000 to 138.000 people of them died from poison, as three times of this number people had amputation and lived permanent disability worldwide, yearly [17]. Caliskan 2009, was reported 33 incidents were happen between the years of 2007-2008 in Canakkale even though no statistical data exists on snake and scorpion bites in Turkey [18]. According to *Turkish Minister of Health* data (2018), it has been reported that 10.562 tick bite incidents have been seen between the years of 2002-2017 and 501 (4.74%) of them have resulted with death [19].

Insect bites and stings are common all over the world and the region where the most frequently seen in is tropical regions [20]. Poisonous species of creatures such as bee, snake, jellyfish, spider, and tick are a potential threat for humans [21]. Applications for insect bites and stings that will make on injury site before hospital can affect the process in a positive or negative way [22]. It has been stated there is a positive correlation between quick access to the information when individuals needed immediate action in bite and sting cases and effective treatment. It cannot be disregarded that internet is crucial to access accurate information in such situations [23].

When web pages that have first aid for insect bites content were analysed, a Turkish study has not been found. Studies are available that evaluate information quality about treatment of meniscus tear, atopic dermatitis, back pain, and cancer on Turkish web pages [1,2,10,24].

Objective of this study is to evaluate accuracy and validity of information about first aid for bites/stings (bee, spider, jellyfish, tick, and snake) on Turkish web pages.

2. Material and Method

This research was designed as a descriptive study. Research data was collected between the dates of January-February, 2018.

First 50 web pages included in this study that have first aid applications content on frequently seen bites/stings (bee, jellyfish, spider, tick, and snake) and the search was made with "first aid for insect bites" ," insect bites", " first aid" key words in *Google Chrome* [25] search engine. Their reliability and currency were investigated by a control list including 29 items improved by researchers according to international guidelines [26-29].

The web pages were evaluated with the consideration of recommendation match between web pages and guidelines and frequency of recommendation on web pages apart from guidelines. IBM SPSS Statistics 23 package program was used for data input and analysis. Findings were given as numbers and percentages.

3. Results

It has been shown that from 50 web pages included in this research, 46% of them are institutional and 36% are personal. Any references are not specified for 18% of them. Eighty percent (80%) of the web pages evaluated had com. extension followed by; net (14%), org (4%) and gov. (2%) extension. It has been shown that 46% of web pages updated between the years of 2013-2017, 32% of them updated between the dates of 2007-2012 as for, 22% of them have no update date. It has been determined that most of the web pages weren't prepared according to current guidelines and that recommendations are traditional, not useful and not to have scientific background for some web pages.

According to findings of this study it was determined that most of the web pages did not include important points on first aid related to stings and bites. Useful information such as elevating the affected extremity (98%), washing the affected side by soap and water (88%), not using vinegar and bicarbonate (94%) were not included for bee stings. Not to use fresh water for jelly fish stings (78%) and ineffective methods such as urinating on affected area were not emphasized (100%). Valuable first aid applications for spider and tick bites and such as using cold packs; not use gasoline or any kind of oil on bitten area by tick; not to make cut on affected side after snake bites (46%) were not available on web pages. Assessment of web pages according to current guidelines has been given in table 1.

Different and some wrong recommendations on first aid applications in bites/stings are presented in table 2. It has been found that recommendations not matching guidelines such as; sucking an ice for bee stings (%31,6), washing the site with fresh water and soap and suck the bite site for jellyfish bites (%50), tightening the bite site with a cloth, scarf and tie for spider bites (55.6%), cold application for snake bites (%50), dropping oil on the tick for tick bites (%50) are available on the web pages.

Table 1. Evaluating the first aid information on web sites related to bite-and-stings according to current guidelines

Current guidelines related to first aid on bee stings	**Available n (%)**	**Not available n (%)**
To stop venom secretion, the bee's needle should be removed as soon as possible by scraping it from the edges	43 (%86)	7 (%14)
Cold application should be used to reduce pain.	41 (%82)	9 (%18)
To prevent swelling of the bite area, arm and foot hangers or lifting of the affected side can be used	1 (%2)	49 (%98)
Affected region of the body should not be moved	37 (%74)	13 (%26)
The affected area should be washed with soap and water.	6 (%12)	44 (%88)
Vinegar and bicarbonate are ineffective and should be avoided	3 (%6)	47 (%94)
Current guidelines related to first aid on jellyfish bites		
Application of sea water, baking soda, vinegar or local heat can used for deactivation of nematocysts	8 (%16)	42 (%84)
For most jellyfish, removing the tentacles and rinse in sea water is recommended. Fresh water can cause more irritation.	11 (%22)	39 (%78)
Bitten region of the body should be immersed in hot water for about 20-30 minutes until the pain is relieved.	25 (%50)	25 (%50)
Pressure bandages should not be used.	1 (%2)	49 (%98)
Any tacky stick can be picked up with fingers or scratched with a flat object like a credit card. The first aider should wear gloves.	22 (%44)	28 (%56)
The affected area should not be rubbed.	23 (%46)	27 (%54)
The affected area should not be moved.	25 (%50)	25 (% 50)
Urination on the jellyfish is ineffective and not recommended.	0 (%0)	100 (%100)

Current guidelines related to first aid on spider bites	Available n (%)	Not available n (%)
Cleaning the wound with water and a mild soap and apply antibiotic ointment.	7 (%14)	43 (%86)
Applying cold compress. Using cloth moistened with cold water or filled with ice are effective in reducing pain and swelling	11 (%22)	39 (%78)
The bitten area should be elevated if it is on the extremity.	2 (%4)	48 (%96)
Current guidelines related to first aid on snake bites		
Sucking and cutting the wound is not recommended because it is ineffective and harmful	27 (%54)	23 (%46)
Tourniquet application is not recommended because it is ineffective and can cause delay in healing	18 (%36)	32 (%64)
Injured limb should be immobilized or fixed by applying a non-elastic bandage	31 (%62)	19 (%38)
The pressure bandage is not recommended due to risk of wrong application. It may also cause to move extremity unnecessarily and cause the poison to spread.	8 (%16)	42 (%84)
Ice application is not recommended on affected side	5 (%10)	45 (%90)
Cleaning up the wound with water and a mild soap	27 (%54)	23 (%56)
Removing any jewelry or items that can cause pressure on the area near the injury (rings, bracelets, watches, etc.).	25 (%50)	25 (%50)
Current guidelines related to first aid on tick bites		
Gasoline, oil and other organic solvents should not be used to strangle the tick and avoid using matches to burn the tick.	3 (%6)	47 (%94)
To remove the tick, using a good pair of tweezers or forceps as close as possible to the skin, pulling gradually but firmly is recommended.	14 (%28)	36 (%72)
User manual should be followed if produced device is used to remove ticks	0 (%0)	100 (%100)
The bitten area should be thoroughly disinfected with alcohol or any other skin antiseptic solution.	10 (%20)	40 (%80)
Cold application can be used to reduce pain and swelling.	1 (%2)	49 (%98)

Table 2. Distribution of data containing different information than current guidelines related to first aid practices on stings and bites on Web Pages

Web pages related to first aid bee stings	n (%)	Web pages related to first aid snake bites	n (%)
Sucking an ice	18 (%31,6)	Applying Cold	16 (%30,2)
Apply ammonia-sourced water-carbonate	9 (%15,8)	Bleeding	8 (%15,1)
Applying his/her own saliva	3 (%5,3)	Applying tourniquet	8 (%15,1)
Applying dried onion itself or its' juice	3 (%5,3)	Sucking the bitten area	4 (%7,5)
Applying tourniquet on affected area	3 (%5,3)	Keeping the bitten area below the heart level	3 (%5,7)
Making the stunged area bleed	2 (%3,5)	Killing the snake and transferring it to health center	3 (%5,7)
Applying cabbage leaf's juice on the affected area	2 (%3,5)	Cauterization should not be used	2 (%3,8)
Applying lemon juice on the affected area	2 (%3,5)	Keeping the affected area higher than heart level	2 (%3,8)
Applying crushed parsley and basil on the affected area	2 (%3,5)	Mud should not be used	1 (%1,9)
Urinating on the bitten area	2 (%3,5)	Electric shock should not be used	1 (%1,9)
Rinsing mouth with salty water	1 (%1,8)	Applying mersol on the affected area	1 (%1,9)
Applying chewed tobacco on affected area	1 (%1,8)	Not trying to kill the snake.	1 (%1,9)
Dripping honey wax on affected area	1 (%1,8)		
Applying yeast	1 (%1,8)		
Keeping th affecetd limb at the heart level	1 (%1,8)		
Applying beet	1 (%1,8)		
Spreading salt	1 (%1,8)		
Applying yoghurt	1 (%1,8)		

Web pages related to first aid tick bites	n (%)
Dripping oil on it (kerosene etc.)	3 (%50)
The extracted tick is placed in a container with bleach and taken to the health center together with the patient	1 (%16,7)

Web pages related to first aid spider bites	n (%)	Web pages related to first aid jellyfish bites	n (%)
Applying,cloth,scarf or tie on affected side tightly	5 (%55,6)	Washing the affected area with soap and water	1 (%50)
Using ammonia on bitten side	1 (%11,1)	Sucking the bitten area	1 (%50)
Using the melted food which wrapped in soda and a wet cloth.	1 (%11,1)		

4. Discussion

It has been found in this study that incorrect and non-scientific information is available on Turkish web pages related to first aid for insect (bee, jellyfish, spider, snake, tick) bites. Many of people face with bites/stings and some of them fatal every year worldwide [17,19]. When first aid applications made accurately and effectively, could be life-saving. Therefore, it is important for patients/injured ones to taken accurate care before hospital. Accurate first aid applications necessitate accurate knowledge and equipment. When previous studies are investigated, it is understood that most of individuals use internet intensely to access information in every subject and one of them is health. Herewith, it is important for patients to taken accurate care before hospital. Keys of accurate care are certain and appropriate education and knowledge. As previous studies have shown, individuals use internet intensely to access information in every subject as well as health [3,4,5].

Bee stings are very common in summer times. One the most frightening results of bee stings is anaphylactic shock. The inflammation due to bee stings is related to number of stings and individual's sensitivity [30]. Sudden deaths were reported due to bee stings in studies in Turkey [31]. A study has shown that just 36% of parents possess the knowledge that the stinger should be pulled out as soon as possible [32]. It has been shown that 63.5% of primary school teachers have incorrect knowledge related to bee stings in Turkey [33]. Evidence-based first aid recommendations on the web pages for bee stings ratio is ranges between 2%-86% in this study. It has been stated that any of the recommendations such as elevation of the bee sting site to prevent swelling (98%), the importance of washing the bite site with water and soap (88%) and not to be effective of traditionally using vinegar water and bicarbonate (94%) are not available on all the web pages. First aid information for bee stings is very limited on the reviewed web pages and non-scientific recommendations are available on them (n=18). Vinegar water and bicarbonate application (15.8%), putting own saliva, essence of dried onion or lemon water that specially defined as ineffective by guidelines are recommendations that taken place on web pages. It has been thought that these applications are not useful and appropriate because they can cause infections.

Jellyfish are common worldwide and some species of them can be fatal. It can cause from mild allergic reactions to sudden cardiac arrest with regard to intense contact with nematoxin spreading from its tentacles and emptying capsule number [3,4]. Some poisonous jellyfish species exist and there is no data on injury and death related to jellyfish stings in Turkey. In addition, 40 people have been stung by jellyfish in Australia every year. It has been reported that a 6-year-old child has died due to jellyfish sting toxicity in 2007 [35]. *National Science Foundation* has reported that 20-40 of people die due to jellyfish stings yearly in the Philippines [36]. It has been revealed that 31.5% of Chinese army personnel know guidelines' recommendation to wash the bite site with sea water to deactivate nematoxin [37]. Evidence-based first aid recommendations on the web pages for jellyfish stings ratio is ranges between 0%-50% in this study. It has been stated that any recommendations such as bandage shouldn't be applied (98%), the importance of bite site should be washed with vinegar water and sea water to deactivate nematoxin (84%) and the information that not to be useful to urinate on jellyfish (100%) are not available on web pages. First aid information for jellyfish stings is very limited on the reviewed web pages and non-scientific recommendations are available on them (n=2). Recommendations that contain potential harm with infection for the patient such as nematoxin expansion will be increased by washing the site with fresh water and specially defined wash with soap (50%) and to suck the site (50%) are available on the web pages.

Spider bites are common enough in summer times, especially on August. 34.000 spider species are exist in the world as well as just a few of them are poisonous for humans. Toxicity increases with the exposure of high amount of venom and being a kid [38, 39]. 82 spider bite incidents have been reported between 1995-2004 in Turkey [40]. Mert and Bilgin (2006) have stated that people admitted to emergency room due to toxicity and 10.5% of them were spider bite incidents in Mersin [41]. First aid information for spider bites is very limited on the reviewed web pages and non-scientific recommendations are available on them (n=3). Evidence-based first aid recommendations on the web pages for spider bites ratio is ranges between 4%-22% in this study. It has been stated that any of the recommendations such as antibiotic cream application on the bite site after cleaning with water and a soap (86%), cold application to alleviate pain and swelling (78%) and elevation of the bite site to prevent swelling (96%) are not available on all web pages. First aid information for spider bites is very limited on the reviewed web pages and non-scientific recommendations are available on them (n=3). Recommendations that contain potential harm with infection for the patient such as tightening the bite site with a cloth, scarf and tie (55.6%) and ammonium and baking soda application on the bite site (11,1%) are available on the web pages.

Snake bites are important public health problems worldwide because of they have mortality and morbidity. Regarding to WHO studies, 35.000-50.000 people (most of in India) die due to snake bites yearly [42]. 550 snake bite incidents have been reported between 1995-2004 in Turkey by *National Poison Information Center* (NPIC) [40]. It has been specified that 13.6% of incidents admitted to emergency room because of animal bites and stings are snake bites by a study in Turkey 2012 [43]. In an another study, it has been stated that people prefer traditional alternative methods instead of going to hospital after snake bite which is one of the preventable death causes [44]. It should be remembered besides severe outcome as death, permanent disabilities because of amputation can occur after snake bites [17]. It has been determined that just 17% of students know accurate first aid for snake bites in a study with university students in Turkey [45]. A similar study that searched first aid recommendations for snake bites has found 54.1% of the pages include recommendations not matching with guidelines [22]. Evidence-based first aid recommendations on the web pages for snake bites ratio is ranges between 10%-62% in this study. It has been found that recommendations such as bandage shouldn't be applied (84%) because, incorrect bandage pressure can be resulted with the unnecessary movement of extremity and expansion of the poison, tourniquet application is not effective and can prolong healing time (64%), and cold application shouldn't be made at the bite site (90%) are not available on all the web pages. First aid information for snake bites is very limited on the reviewed web pages and non-scientific recommendations are available on them (n=12). Tourniquet application (15.1%) and cold application (30.2%) that specially defined as ineffective by guidelines are recommendations that taken place on web pages. Recommendations that are inconvenient and contain potential harm with infection for the patient such as to bleed the site (15.1%) and to suck the site (7.5%) are available on the web pages.

Global warming, environmental and ecological variables supply appropriate living space for ticks to increase in Turkey and all over the world. Crimean-Congo hemorrhagic fever that is a fatal condition increases as well [46]. According *to Turkish Minister of Health* 2018 data, it has been reported that 10.562 tick bite incidents have been seen between the years of 2002-2017 and 501 (4.74%) of them have resulted with death. Different studies have identified that various knowledge levels of the parents about how pull out a tick. The ratio of parents that possess accurate knowledge was found 95.8% in Tekin and Suskans' study (2010) as for, 35.8% in Singer et al. (2004) [33, 47].

Evidence-based first aid recommendations on the web pages for tick bites ratio is ranges between 0%-28% in this study. It has been stated that any of the recommendations such as cold application to alleviate pain and swelling (98%), avoided to use organic solvents such as gasoline and petroleum to suffocate the tick and using match to burn it (94%) are not available on web pages. First aid information for tick bites is very limited on the reviewed web pages and non-scientific recommendations are available on them (n=2). Dropping oil on the tick (50%) that specially defined as ineffective by guidelines is a recommendation that taken place on web pages.

Most of web pages include lacking and inadequate information on this subject. The most commonly seen incorrect knowledge about bites and stings is application of herbal or chemical agents on the site topically.

As a result, information on the internet that be used by many of people as a medical information resource needs to controlled by valid scientific institutions. These may be effective ways that people should be conscious about web pages use to prevent incorrect information results and to direct people accessing accurate information with keeping in mind that first aid information changes and updates continuously.

Limitations

This study was carried out with the most frequently used search engine "*Google Chrome"* in Turkey so that, the outcome of this study cannot be generalised all web pages.

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EXAMINATION OF RELATIONSHIP BETWEEN BURNOUT AND STYLES OF COPING WITH STRESS AT NURSES

Betül Kemaloğlu [1*], Mine Ekinci[1]

[1]Atatürk University, Nursing Faculty, Department of Mental Health and Psychiatric Nursing, Erzurum, Turkey

[*] Corresponding author; kemaloglubetul25@gmail.com

Abstract: *This investigation had been done as descriptive for examination of relationship between burnout and coping with stress methods at the nurses who work in Atatürk University Yakutiye Research Hospital in Erzurum. Data of investigation had been collected October 2008 to March 2009. Sample had not been chosen for the research, all of the universe had been taken as sample. The investigation had been completed with 105 nurses who work at the hospital and want to join this research. Question Form, Maslach Burnout Inventory and Coping With the Stress Scale (CWS) which are improved by researcher had been used to collect data. T test, Pearson correlation test, variance analysis, Mann Whitney U test, Kruskal- Wallis test had been used to appraise of data. Nurses' average of point at the MBI is 34.2±11.0, nurses' average of point at the CWS is 70.1±6.31. Difference between opinion of nurses about wages and emotional depletions average of points which is subsection of MBI had been found meaningful in statistical (p= 0.01). Difference between put knowledge of nurses in to practice and average of point of personal success with emotional depletion which are subsection of MBI had been found meaningful in statistical (p=0.01). Difference between working position and average of points of abstention which is subsection of CWS had been found meaningful in statistical (p=0.01). Difference between working year and average of points of abstention, difference between opinion of nurses about wages and average of points of abstention had been meaningful in statistical (p=0.05). Relationship between personal success which is subsection of MBI and abstention which is subsection of CWS had been found meaningful in statistical (p=0.05). As a result nurses are more exposed to stress at working environment and this situation had lead to burnout at the nurses. That had been determined.*

Key words: *Burnout, stress, coping with stress, nursing.*

1.Introduction

Contemporary modern societies with developed and complicated organizations have many factors which can lead people to have more stress in their professional and social life. People leading life under these circumstances unavoidably encounter stress, which is the fact of the time. Stress does

not only causes huge problems on workers' physical and mental health, but also it results in many organizational matters such as decrease in organizational effectiveness and efficiency, high labor turnover, absenteeism, fall in the quality and amount of offered service. Exhaustion is the advanced and chronic form of stress [1, 2].

Nurses being familiar with stress states and coping with it would alleviate the factors contributing to burnout. Therefore, it is important for nurses to recognize self-related and work environment related stress. Some personal strategies have a significant and necessary share in coping with stress. In coping with stress personally, the techniques such as physical exercises, breathing exercise, meditation, relaxation, nutrition and diet, getting social support, participating in social, cultural, and sports activities, massage, prayer and worship, and time management can be useful [3, 4, 5].

The concept of coping can be explained as the ways of fighting against the difficulties people encounter during the lifespan. The model for coping with stress introduced by Folkman and Lazarus includes two types of appraisal:

1. Primary appraisal: Person focuses on whether s/he faces any danger and the potential results of the present circumstance.

2. Secondary appraisal: It is regarded as a serial cognition about person's resources and positions in dealing effectively with that state. In this case, the individual assesses the present resources and circumstances in order to determine what should be done to overcome or prevent harms, and advance the prospects for benefit [6, 7, 8].

The common definition of burnout perceived as the reaction against stress in work place by scientists interprets it as the result of stress, the individual feeling that s/he cannot causing any alteration or difference through his/her activities at his/her tasks and in surrounding circumstances, and surrendering to the present circumstances. The concept of burnout leading to individual and organizational problems such as job loss, exhaustion, depression, problems in human relationships, and rise in mistakes is scientifically analyzed in researches through three aspects which are Emotional Exhaustion, Depersonalization, and feeling of Dissatisfaction with Personal Accomplishment [9].

The effectiveness of coping ways to reduce perceived stress and to manage the effects of stress is critical. The coping ways, which are problem-focused one that tends to change the source of problem causing stress, and emotion-focused one that tends to understand the reason of problem and the emotions felt meanwhile, can be used [10].

2.Material and Method

The present research was descriptively conducted in order to analyze the relationship between burnout and the styles of coping with stress at working nurses. The research was done in Yakutiye Research Hospital in Atatürk University between November 2008 and March 2009. The population of research is comprised of the clinic nurses working during the research period of time, and open to communication and collaboration (N:187). It was aimed to reach the whole research universe. Yet, the research was completed with 105 nurses. The information form prepared by the researchers in line with the literature, Styles of Coping with Stress Scale (SCSS), and Maslach Burnout Inventory (MBI) were employed in gathering the data. The original form of SCSS was developed by Amirkhan (1990). Its validity and reliability study was done by Şahin & Durak (1995) in Turkey. The scale is employed in

providing feedback regarding the methods of coping with stressful situations, and predicting the psychological health [11].

The scale measures the individuals encountering certain circumstances. It has three sub-dimensions that are problem-solving, seeking social support, and avoidance. The scale has 33 questions in total. There are 11 questions for each sub-dimension, and responses consist of three options which are never (0), little (1), and highly (2). Minimum 11 points and maximum 33 points can be obtained from each sub-dimension. MBI was developed by Maslach (1981), and its validity and reliability study was done by Çam (1992). The scale is totally comprised of 22 items being emotional exhaustion (9 items), personal accomplishment (8 items), and depersonalization (5 items) [12].

Average, percentage, Student t-test, and Kruskal-Wallis test The data was evaluated through SPSS 12.0 statistical package program. One sample Kolmogorov-Smirnov test was used in examining whether the numerical variables have a normal distribution. Average, percentage, Student t-test, and Kruskal Wallis test were used to analyze the data. $p<.05$ is accepted as statistically significant.

3.Results

The assessment of descriptive characteristics of nurses in the study indicates that 36.2% of nurses is at the age between 23-27 and %55.2 of nurses is married. 45.8% of married ones have two or more children, and 82.9% of that group has no health problem. Regarding the nurses' professional characteristics, 38.1% of them graduated from a medical vocational high school. It is found that 31.4% of them have worked for 0-4 years, and 33.3% for 15 years or more (Table 1).

Table 1. Distribution of Nurses' Socio-Demographic Characteristics (n=105)

Characteristics	Number	%
Age		
18-22	13	12.4
23-27	38	36.2
28-32	28	26.6
33 and more	26	24.8
Marital Status		
Single	58	55.2
Married	47	44.8
Number of Children (n=59)		
No Child	11	18.6
1 Child	21	35.6
2 Children or more	27	45.8
Chronic Health Problem		
Yes	18	17.1
No	87	82.9
Education		
Medical Vocational High School	40	38.1
Associate Degree	21	20.0
Medical Vocational School	14	13.3

of Higher Education		
Nursery School of Higher Education	30	28.6
Duration of working		
0-4 Years	33	31.4
5-9 Years	18	17.1
10-14 Years	19	18.2
15 Years or more	35	33.3
State of Choosing the Job		
Willingly	74	70,5
Unwillingly	31	29.5
Position		
Service Nurse	88	83.8
Service Head Nurse	17	16.2

The mean of total scores the nurses got at the burnout scale is 34.2±11.0; the means of total scores they got at the sub-dimensions are 16.7±7.1 for emotional exhaustion, 5.6±3.4 for depersonalization, and 11.8±4.2 for personal accomplishment. The mean of total scores the nurses have at SCSS is 70.1±6.31, and those at the sub-dimensions of SCSS are discovered as 27.5±4.1 for problem-solving, 23.2±3.8 for seeking social support, 19.1±3.9 for avoidance (Table 2).

Table 2. Distribution of Means of Total Scores the Nurses Have at the Scales of Burnout, and Styles of Coping with Stress, and Their Sub-Dimensions

Burnout Scale and Its Sub-Dimensions	Minimum and Maximum Values of the Scale	Min.-Max. Values	X±SS
Burnout Scale in Total	**0−88**	**13−60**	**34.2±11.0**
Emotional Exhaustion	0−36	2−34	16.7±7.1
Depersonalization	0−20	0−16	5.6±3.4
Personal Accomplishment	0−32	3−25	11.8±4.2
Styles of Coping with Stress Scale in Total	**33−99**	**57−86**	**70.1±6.31**
Problem-Solving	11−33	14-33	27.5±4.1
Seeking Social Support	11−33	11−33	23.2±3.8
Avoidance	11−33	13−33	19.1±3.9

The association between the scores of nurses in the sub-dimensions of burnout scale, and in the styles of coping with stress scale is shown on Table 3. There is a negative significant

correlation between problem solving and personal accomplishment (p<0.01). A negative significant correlation was discovered between personal accomplishment and seeking social support (p<0.01). A positive significant correlation was found between personal accomplishment and avoidance.

Table 3. Association between The Burnout Level and Styles of Coping with Stress of Nurses

Sub-Dimensions of Maslach Burnout Inventory	Sub-Dimensions in Styles of Coping with Stress Scale			
	Problem Solving	ial Support Seeking	Avoidance	TOTAL
	r	r	r	r
Emotional Exhaustion	.062	.126	.091	**.183**
Depersonalization	.057	-.020	-.067	**-.023**
Personal Accomplishment	-.280**	-.254**	.210*	**-.188**
TOTAL	**-.042**	**-.026**	**.130**	**.049**

** The correlation is significant at level of 0.01.

* The correlation is significant at level of 0.05.

4.Discussion

The results of present study aiming to reveal nurses' state of experiencing burnout and their ways of coping with that state were discussed within the framework of related literature. The descriptive characteristics of nurses indicate that 36.2% of nurses are at the age between 23 and 27 and %55.2 of nurses is married. 45.8% of married ones have two or more children. According to the study results, no statistically significant difference is found between the working years of nurses and the sub-dimensions of Maslach Burnout Inventory. In the study conducted by Sinat, DT was found high at those below 41 years old, low at those of 41 years old and above. Any statistically significant difference was detected between the age groups in terms of the assessment of D score. KB scores were high amongst the nurses between 20-30 years of age, low in those above 41 years of age [13]. The relationship between the educational level and burnout is not obvious. The people with a higher educational level desire to achieve more things, and their expectations are greater. They may be extremely idealist and have greater aims. The conflict between the reality and their ideals may result in disappointment and burnout.

Sayıl and his friends stated in their research that 51.1% of subjects chose the profession willingly, 30.3% chose by their relatives' suggestion, and 17.6% chose it randomly and unintentionally. The group of 48.5% choosing the job by their relatives' suggestion or unintentionally are in emotional exhaustion [14]. The findings of that study support the present study. Those wanting to change their profession experience emotional exhaustion and depersonalization more. It is deemed that it may spring from them disliking their job, their unintentional choice of job, and the compulsion to keep doing their job. Performing job willingly may affect the achievement positively, increase the quality of patient care, and also

prevent burnout by increasing the job satisfaction.

In terms of the relationship between the burnout and styles of coping with stress of nurses, a statistically significant correlation was detected between personal accomplishment and problem-solving at the level of p=0.01; personal accomplishment and seeking social support at the level of p=0.01; and personal accomplishment and avoidance at the level of p=0.05, which are the sub-dimension of MBI and that of SCSS respectively.

In this study, it was discovered that the nurses working between 10-14 years and service nurses, who graduated from a medical vocational high school, employ negative strategies of coping; the nurses finding their salary inadequate and having no opportunity to practice his/her knowledge experience emotional exhaustion. Regarding these results, those suggestions can be specified: Things to Do at the Administrative Level: Reducing long hours of working, resolving the low salary problem, increasing vacation and social activity opportunities, overcoming the lack of staff, clear and exact definition of duties, setting regularly in-group meetings, providing continuing education opportunities, expanding the sources for award, performing hard tasks in rotation, doing constantly total quality works.

Thinks to Do Personally: Learning the difficulties and risks of job before taking up the job, recognizing the indicators of burnout would enable people to identify early the state they are in, and to try to find solutions.

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IS COMPUTER INTERPRETATION OF "NORMAL ECG" RELIABLE?

Özge TURGAY YILDIRIM*[1]; Mustafa Emin ÇANAKÇI[2]

[1]Eskisehir State Hospital, Cardiology Department, Eskisehir, Turkey
[2]Provincial Directorate of Health, Emergency Department, Eskisehir, Turkey
*Corresponding author; ozgeturgay@gmail.com

Abstract: *Electrocardiographs (ECG) taken on an emergency clinic should be evaluated by emergency physician within 10 minutes. However, since the number of emergency physicians is not sufficient, physicians have to look at these ECGs during other patient examinations, which causes interruptions. Today, most ECG devices have computer-based analysis systems. Our aim is to determine how reliable the computer interpretations are to determine if patients with "Normal ECG" also need immediate attention.*

Key words**:** *Electrocardiography, Computer interpretation, emergency department*

1.Introduction

Cardiovascular diseases are the leading cause of mortality and morbidity worldwide [1]. According to World Health Organization, 30% of all deaths are originated from cardiovascular system disorders [1,2]. Electrocardiography (ECG) interpretation is an important part of the emergency and cardiology examination. According to the American Heart Association guidelines, the ECG of a patient with cardiac complaints in an emergency department should be taken and assessed as an emergency physician within 10 minutes [3]. Due to the low number of physicians in the emergency departments, separation of a doctor only for the evaluation of the ECGs will not be time and cost-effective. However, due to this fact, the physician had to evaluate the ECGs during other patients' examinations, which causes interruption of the patient examination, loss of attention. This situation may cause wrong diagnosis, treatment and even medical malpractice.

The first computer program for ECG analysis was developed in 1961 [4]. From this time, ECG analysis systems have continued to develop and most ECG devices now have ECG analysis algorithms in it and automatically give results to the physicians [5]. These algorithms report the results as "Normal ECG" or report any abnormalities that they have found at the ECG of the patients. There is a limited number of studies comparing ECG devices to physician evaluations [6-8]. The aim of this study is to determine whether the ECGs reported by the device as "normal ECG" are correct and determine the negative predictive value and sensitivity of these ECG analysis.

2.Methods

For this retrospective study all triage ECGs taken between 01.03.2018 to 31.03.2018 were evaluated. Patients under 18 years of age were excluded from the study. The ECGs were taken by using

Nihon Kohden – ECG1250K Cardiofax S Electrocardiograph and interpreted by device's analysis program. All ECGs were interpreted by the cardiology physician. The ECGs that the device interpreted as normal were separated from the abnormal ones and evaluated by the cardiologist. If the ECG device's normal interpretation differ from the cardiologist, these ECGs are then evaluated by the emergency specialist. The emergency specialist decided if these ECGs are clinically important or not. Then the diagnosis, laboratory results, follow up and treatment of these patients were investigated from hospital medical records.

Data are presented as mean ± standard deviation (SD) and as proportions for categorical variables. Confidence Intervals (CIs) were calculated using Wilson's method of CI on a proportion. The Negative Predictive Value (NPV) and sensitivity of the device's normal ECG interpretation were determined. The data were analyzed using SPSS 20.0 (IBM SPSS Ver. 20.0, IBM Corp, Armonk NY, USA).

The study was approved by the local ethics committee.

3.Results

From 01/03/2018 to 31/03/2018 at the emergency department a total of 1250 patient needed ECG interpretation so for this study 1250 patients were evaluated. 25 patients were excluded because they were under 18 years old. At the end 1225 patients were included for this study. Mean age of the patients was 53.1 ± 18.7 and 50.4% (n=618) of the population was male. 72.2% (n=884) of the ECGs were interpreted as abnormal and 27.8% (n=341) were interpreted as "normal ECG" by the ECG device. From the ECGs which the computer interpreted as normal, 5.3% (n=18) of them were assessed by cardiologist as "not normal". These 18 ECGs were also assessed by emergency specialist as abnormal. According to these results negative predictive value (NPV) of automated ECG device interpretation was 94.7% with the 95% CI= (92.3%, 97.1%) and sensitivity was 98.0% with the 95% CI= (97.1%, 98.9%). Interpretations of the cardiologist and emergency specialist of the ECGs and follow-up of the patients mentioned were shown in Table 1. Four of the patients' ECGs were interpreted as "early repolarization" and medical records showed that 3 of these patients were discharged from the emergency department after the examination and one of them was followed at the clinic and his examination and cardiac marker results were normal so he also discharged from emergency department. Other 14 patients had ST and T wave changes. All of these patients were followed at the emergency department and 13 of them discharged from the emergency department after their cardiac marker results showed no abnormality. One on the patients was hospitalized not for cardiac problems but due to ischemic cerebrovascular event.

Table 1. The cardiologist's and emergency specialist's interpretations of ECGs and follow-up results of these patients.

	Gender	Age	Cardiologist interpretation	Emergency Specialist Interpretation	Hospital Follow Up	Result
ECG1	Male	54	Early repolarization	Early repolarization	Not needed	Discharged from ED
ECG2	Male	78	D3 derivation 0,5mm ST elevation, no	Nonspecific ST changes	CK-MB and troponin results	Discharged from ED

			reciprocal change		were within limits	
ECG3	Male	52	Prominent T waves	Early repolarization	CK-MB and troponin results were within limits	Discharged from ED
ECG4	Male	71	Minimal ST depression in D2-3 derivations	Minimal ST depression in D2-3 derivations	CK-MB and troponin results were within limits	Discharged from ED
ECG5	Male	49	Minimal ST depression in anterior leads	Nonspecific ST changes	CK-MB and troponin results were within limits	Discharged from ED
ECG6	Male	67	Nonspecific ST changes	Nonspecific ST changes	CK-MB and troponin results were within limits	Discharged from ED
ECG7	Male	25	Early repolarization	Early repolarization	CK-MB and troponin results were within limits	Discharged from ED
ECG8	Male	66	Minimal ST depression in inferior leads	Minimal ST depression in inferior leads	CK-MB and troponin results were within limits	Discharged from ED
ECG9	Male	49	T wave negativity in inferior derivations	Nonspecific ST changes	CK-MB and troponin results were within limits	Discharged from ED
ECG10	Male	36	T wave negativity in D3 derivation	Nonspecific ST changes	CK-MB and troponin results were within limits	Discharged from ED

ECG11	Female	81	Minimal ST depression in anterior and inferior leads	Nonspecific ST changes and U waves	CK-MB and troponin results were within limits	Discharged from ED
ECG12	Female	22	Early repolarization	Early repolarization	Not needed	Discharged from ED
ECG13	Female	31	Biphasic T waves in anterior leads	Nonspecific ST changes	CK-MB and troponin results were within limits	Discharged from ED
ECG14	Female	54	Minimal ST depression in anterior and inferior leads	Nonspecific ST changes	CK-MB and troponin results were within limits	Discharged from ED
ECG15	Female	22	Early repolarization	Early repolarization	Not needed	Discharged from ED
ECG16	Female	70	Prominent T waves in anterior leads	Nonspecific ST changes	CK-MB and troponin results were within limits	Discharged from ED
ECG17	Female	75	Nonspecific ST changes	Nonspecific ST changes	The patient was hospitalized by neurology department due to cerebrovascular infarction	Hospitalized by neurology department
ECG18	Female	51	T wave negativity in anterior leads	Nonspecific ST changes	CK-MB and troponin results were within limits	Discharged from ED

Abbreviations: CK-MB, creatinine kinase-myocardial band; ECG, electrocardiography; ED, emergency department

According to these results negative predictive value (NPV) of automated ECG device interpretation was 94.7% with the 95% CI= (92.3%, 97.1%) and sensitivity was 98.0% with the 95% CI= (97.1%, 98.9%).

4.Discussion

Patient density and low number of doctors are major problems in the emergency departments. A small number of doctors have to deal with the intensity of the patients and determine the priority patients immediately. Cardiovascular diseases are one of the leading causes of mortality. Early detection of cardiovascular diseases reduces mortality and morbidity significantly. Therefore, these patients need to be identified early in the emergency departments. The American Heart Association guidelines state that a patient with complaints of chest pain should be prioritized in emergency departments and ECG should be taken and assessed by a physician within 10 minutes [3]. One way to ensure this proposal is to separate a doctor specifically for this job. However, this would not be possible because of the low number of emergency physicians. Normally, in the triage area, the ECG of the patient who comes with cardiac complaints is taken by the staff in charge then this ECG is taken to a doctor to evaluate if there is an emergency situation. But mostly there is no free doctor for this job so the physician has to interrupt the examination of the current patient. But the doctor will be distracted by this situation which may cause misdiagnosis or mistreatment in the long term.

Computer programs capable of ECG analysis has been in use since 1961 [4]. With the analysis systems in today's ECG devices, the ECG analysis results are given at the moment of EKG taking. Abnormal ECGs should be assessed urgently by the emergency physician. Our aim with this study was to investigate whether the ECG devices' evaluation of "Normal" were indeed normal. The result of our study showed that the negative predictive value of the ECG device was 94.7% and the sensitivity was 98.0%. A few similar studies have been done before. Hughes et al. [6] evaluated 855 patients and 26% of the ECGs were interpreted as normal by the ECG device. The negative predictive value was found to be 99% for this study. Whereas in another study conducted on pediatric patients (total number of ECGs was 294 and number of normal ECGs was 114) the detection rate of the normal ECG was 100% [7]. In these studies, all ECG changes other than normal ECG was evaluated as abnormal including minor ECG changes, non-specific ST-segment changes, etc. A high rate was also found in our study. Also none of the 18 ECGs' which were evaluated as normal by the device but evaluated as abnormal by the doctors were hospitalized in terms of cardiologic diseases. One patient was hospitalized by neurology because of a cerebrovascular event and her follow-up showed no cardiac pathology. Other 17 patients were discharged to the emergency department.

When we evaluate the results of our study and the studies done before us, it seems that it may not be necessary to evaluate the ECGs immediately if the ECG device's analysis result showed no pathologic result. In this way the emergency physician's evaluation and examination will not be interrupted for these patients. We do not suggest that the devices' analysis programs may replace the doctors but they may save time for the emergency doctors.

Major limitation of the study was the sample size. This study should be repeated with a larger study group on a longer period of time. We aim to evaluate only the "normal ECG" s but this study would be better if abnormal ECGs were also evaluated and specificity and positive predictive values were also obtained.

5.Conclusions

In conclusion the negative predictive value and sensitivity of our study suggests that ECG device's evaluation of "Normal ECG" seems to be reliable and these patients may not need immediate evaluation of the emergency physician. Our study used one ECG device type so this study should be repeated with larger number of patients and different ECG device types and computer programs.

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A CASE OF ACUTE MESENTERIC ARTERY ISCHEMIA INDUCED BY ALCOHOLISM

[1]Ayşe ÖZDEMİR, [2]Dalyan ÖZDEMİR

[1] Department of Biochemistry, Uşak Training and Research Hospital, Uşak University, Uşak , Turkey

[2] Department of General Surgery, uşak Medikal Park Hospital, Uşak, Turkey

Corresponding author; E-mail: ayse.ozdemir@usak.edu.tr

Abstract: *Acute Mesenteric Ischemia, known as one of the vascular diseases of the intestine, is one of the significant causes of acute abdominal pain that is not considered initially but has a high mortality rate [50-70%] in acute abdominal cases. A 55-year-old male patient was presented to the emergency room of our hospital with abdominal pain starting at night and was admitted to the surgery service. His radiological examination results were normal, however, widespread gangrenous areas were detected in terminal ileum during the surgery. Necrotic bowel segment was resected. Accompanying pathological conditions were not detected in etiology of the patient. However, the patient had been using alcohol regularly for 20 years, which was an interesting characteristic of the patient.*

Keywords*: Mesenteric artery, ischemia, alcohol*

Introduction

Acute Mesenteric Ischemia (AMI) is a disorder known as the "disease of the elderly" and, although it is uncommon, it is difficult to make a diagnosis for it without any clinical suspicion [1]. 2/3 of the cases are acute thromboembolic occlusion of the superior mesenteric artery, while 1/3 of them are non-occlusive mesenteric ischemia and venous mesenteric thrombosis [2]. AMI which is generally associated with cardiovascular system diseases [CVS: ischemic heart disease, hypertension, congestive heart failure, arrhythmia etc.], diabetes mellitus [DM], chronic obstructive pulmonary disease [COPD] and other additional diseases [such as kidney disease, liver disease, coagulopathies, cerebral vascular diseases] is a 50-70% mortal disease due to the masking by accompanying pathological conditions, lack of any specific clinical symptoms, delayed diagnosis and delayed surgical intervention [1,3,4]. This paper presents a case without any pathological condition and with accompanying alcoholism.

Case Presentation

Our case was a 55-year-old male patient who was admitted to the hospital with the complaint of severe abdominal pain starting at night. The medical history of the patient included no condition other than

using alcohol regularly for the past 20 years. Physical examination showed extensive tenderness in the abdomen, defense and rebound in the whole abdomen and hyperactive bowel sounds. In the radiological examination of the patient, whole abdominal ultrasonography and upper and lower abdominal tomography scans were normal and abdominal free fluid was not detected. Loss of density compatible with diffuse liver steatosis as well as calcifications in aorta and its branches were monitored. In biochemical and haematological examinations, leukocyte count was detected as 20.60 K/uL [reference range: 4-11 K/uL], haemoglobin as 17.7% [reference range: 11.5-18%] MCH as 32.40 Pg [reference range: 27-32 Pg], thrombocyte as 348.00 10^9/L [reference range: 140-150 10^9/L], urea as 41 mg/dl [reference range:13-43 mg/dl], creatinine as 1.16 mg/dl [reference range: 0.6-1.2 mg/dl], direct bilirubin as 0.29 mg/dl [reference range: 0.0-0.5 mg/dl], total bilirubin as 0.93 mg/dl [reference range: 0.3-1.2 mg/dl] and C-reactive protein as [CRP] 14.2 mg/dl [reference range: 0-6 mg/dl]. Furthermore, serum CPT and GGT values were found to be high [56.20 U/L and 72 U/l; reference ranges 0-40 and 0-55 U/L respectively]. Since acute abdominal manifestations were diagnosed through physical examination, laparotomy was performed and approximately 300 cc gangrene fluid was detected. In the exploration of terminal ileum, gangrene and false membranes were present at the segment starting 10 cm proximal up to about 80 cm proximal of the ileocaecal valve [Figures 1].

Figure 1. Necrotic ileal intestinal segment.

Gangrenous segment was resected. During the preparation for anastomosis, the nutrition of an approximately 20 cm segment of the small bowel was impaired in the proximal end. The resection was expanded to include this segment. The continuity was maintained with end-to-end anastomosis. 2x100 ml Human Albumin was administered to the patient with 2.35 g/dl albumin. 1.16 mg creatinine value of the patient was detected to be 0.93 mg/dl on the day of discharge. Urea level increased up to 60 mg/dl post-operatively and decreased to normal levels on the 5th day. Direct and total bilirubin increased very little on the first day of post-operation and was within normal levels during and following operation. Changes in CRP were interesting; it was 14.2 mg/dl during admission and went up to 152 mg/dl a day later. It fell back to 44.9 mg/dl on the 2nd day of post-operation. As the patient developed no complications on the 5th day of post-operation, he was discharged with advice and instructions. Small bowel and terminal ileum with acute ischemic necrosis was monitored in the pathology report of the patient.

Discussion

Some scientists point out that the age of developing Acute Mesenteric Ischemia is 65 and above, however, they have not been able to indicate its incidence due to lack of available data. They also state in a study that mortality rates of patients increased even when they underwent surgery, as a result of the reduction of mesenteric blood flow after the initial 24 hours and the onset of symptoms [1,2]. Furthermore, various publications suggest that there is a “golden time” of 7-8 hours throughout the initiation of pain and arterial obstruction and that normal physical examination findings show that mesenteric artery occlusion must be considered in the presence of abdominal pain [5].

Doppler Ultrasonography was reported to have no value in the diagnosis of non-occlusive mesenteric ischemia and to not make a thorough diagnosis of ischemia even in the presence of severe arterial stenosis. However, computed tomography of the abdomen is considered to be useful in intestinal ischemia associated with non-occlusive mesenteric ischemia [5]. We believe that mortality was prevented in our case by the performance of surgery within 24 hours following the onset of symptoms. In Acute Mesenteric Ischemia cases, a specific biochemical diagnosis method that can give clinicians a

clue into detecting prognosis is not available yet. Leukocytosis level is generally between 12.000-20.000/mm^3; about 50% of the patients have metabolic acidosis which is a late symptom indicating the bowel infarction, and about 25% of them have hyperamylasemia [3,6]. Intestinal necrosis, pre-renal azotemia, hypoxemia and bacteremia are accompanied by increase in serum lactate, phosphate and alkaline phosphatase levels [5]. In an experimental study on rabbits which were infected with acute mesenteric ischemia, serum creatinine and inorganic phosphorus levels were detected to increase starting from the 2nd hour and remain high for 24 hours. In the same study, it was considered that creatinine kinase level could be more precise and a sign of poor prognosis could be present. Moreover, it is not clearly known whether the changes in biochemical values such as inorganic phosphorus and creatinine kinase were an early diagnosis factor or a prognostic factor [7]. Ischemia in organs usually leads to decreased bioactive agents and ATP, to apoptosis and necrosis, and eventually to functional loss of organs and acceleration of the reperfusion of blood flow. Thus, endothelial cell damage increases and also an inflammatory response occurs. Due to the deficiency of complements such as IgM and CRP [C-reactive protein] identified for ischemic reperfusion, complement supplementation is sought [8]. In many cases, leukocyte count, blood urea nitrogen [BUN], creatinine, liver enzyme and amylase levels were found high; in cases resulting in mortality, preoperative leukocytosis, high liver enzyme level and high BUN-creatinine level were statistically insignificant. However, bilirubin level was found significant in more than half of the cases examined for mortality. There are differences between publications in terms of the relationship of biochemical data and mortality findings. In some publications, the presence of leukocytosis is usually deemed a risky factor in terms of mortality, while sGOT [Aspartate transaminase / Glutamic oxaloacetic transaminase] and BUN values are regarded significant in terms of mortality in elderly patients [4]. In our case, a significant leukocytosis was present and bilirubin levels were normal. During admission of the patient, liver enzyme levels increased slightly, however, these values showed a significant increase on the 5th day of post-operation. A significant increase was not observed in creatinine values.

The changes in CRP were interesting; it was 14.2 mg/dl during the admission and went up to 152 mg/dl a day later. According to our clinical experience, the long duration between the initiation of complaints and the application to the hospital in acute abdominal or inflammatory cases may cause a significant increase in this value. However, the initiation of our patient's abdominal pain and his application to the hospital were within one day, and it was an interesting finding . Since we usually miss the initial phase in such inflammatory cases or do not have the chance to check the CRP at the beginning of clinical findings, we have not had the opportunity to evaluate it compared to other cases. This can be explained through a study on rats assessing mesenteric ischemia, where intestinal ischemia caused an accumulation of CRP, C_3 and Ig M within the 1st hour and in the 3rd hour following reperfusion [8].

Acute Mesenteric Artery Ischemia is known to mostly occur concomitantly with COPD, DM and CVS diseases [1, 3, 4]. In a study, however, JAK-2 V617F gene mutation positivity and associated Hepatitis-B compatible with myeloproliferative diseases were detected [9]. In another study including 18 cases operated due to Acute Mesenteric Ischemia, alcohol association was observed in the youngest case [10]. In a study on dogs, mesenteric ischemia developed in the group given ethanol alcohol through a catheter, while no change was observed in the control group [11]. A case study reports that the use of a drug named propranolol caused acute mesenteric ischemia in a patient with hyperthyroidism [12]. It is known that alcohol consumption has many adverse effects such as atherosclerosis, myocardial infarction and stroke. Although mesenteric ischemia directly associated with alcohol consumption has not been

reported, alcohol is known to have a direct toxic effect on small intestinal mucosa, decrease the intestinal permeability against toxic substances, lead to the thrombotic occlusion of arterioles by suppressing fibrinolysis and induce ischemia by mesenteric vasoconstriction. The same study reports that an 80-year-old patient using alcohol chronically developed alcohol-associated colonic ischemia during his treatment and was taken to an urgent operation [13]. A study reports that non-alcoholic steatohepatitis may predispose to prothrombotic [14].

Our case is a 55-year-old patient with chronic alcohol use. The lack of any predisposing factor in his etiology and his young age suggest that his long-term use of alcohol may have caused the mesenteric artery ischemia. If the diagnosis was delayed any longer, the 55-year-old patient could have lost the chance for treatment. Alcoholism perhaps may take part in Padua Prediction Score predicts risk of venous thromboembolism in acutely ill hospitalized medical patients [15]. In conclusion, given the increasing use of alcohol in our country and all over the world, acute mesenteric ischemia should be considered in patients with acute abdominal pain and alcohol use history, thus mortality can be reduced by performing early surgical intervention. Acute mesenteric ischemia can be seen as a predisposing factor in alcoholism.

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A NURSE IS AN IMPORTANT FACTOR IN INCREASING ORGAN DONATION

ŽeljkoVlaisavljević[1], Dejan Živanović[2]

[1]Clinical Centre of Serbia Clinic for Gastroenterolgy and hepatology
[2]Clinical hospital center "Dr DragišaMišović", Beograd, Department of Hemodialysis

Corresponding author: ZeljkoVlaisavljevic kcszeljko@gmail.com

Abstract*: Initially, it should be noted that transplantation is the last method treatment. Expert and legal team is needed for such a complex procedure because it is a legal legal process. The question is, is the role of a nurse crucial in transplantation? The attitude of health workers about organ donation can either facilitate or hinder the process of organ donation.*
Many studies have shown that their role is significant. They can act as coordinators between the treatment team, but also between donors and their families, but also the recipient of the organ.
People have different attitudes reference to organ donation. The degree of readiness to be registered as organ donors have been associated with a wide range of humanitarian and the charity of the feelings includes a plurality of factors. These factors are a complete willingness to donate the organ, but also the dilemma of various abuses, empathy and fear what will happen to these after their death. The nurse must also be included in the transplantation law, because the training of nurses for intensive care is extremely important in the organ donation process. In many countries, nurses are not members of the team for transplantation because it is considered that they lack the required level of knowledge. Education about the transplantation of organs should be included in the mandatory training and all the nurses have to finish it, in Serbia. Developing a more positive attitude of nurses towards organ transplantation, improving knowledge and changing beliefs should increase the total number of organ donations.
Keywords*: transplantation, procurement of organs, nurse, education, knowledge, attitudes.*

1.Introduction

Transplantation is a treatment method that is applied when all other therapeutic resources are exhausted.Such a complex procedure requires an expert team first of all in the procurement of organs, which must be law and legal to transplantation and subsequently further postoperative treatment.Did the nurse-fledged member of the team, contributing to the promotion of a large number of organ donations. Are the factors: knowledge, attitude or daily prakasa nurses from the impact of that?

The factors identify that positively influence decisions regarding organ donation can be used as direct interventions. The attitude of healthcare workers towards organ donation can either facilitate or hinder the process of organ donation.

To assess nurses' knowledge, attitude and practice towards their role in the organ donation process from brain-dead patients and factors influencing it, what is crucial? Most studies assessed the attitude of a single discipline, such as medicine or nursing or other hospital workers. Successful organ donation depends on multiple factors, such as legislation, which helps to develop the process, and agencies that further put the guidelines into practice. Numerous studies have documented evidence of the significant role of nurses, new and transparent rules and regulations, and requirements of the communities. Nurses can act as coordinators between the treatment team, requesting team, patients and their families, and organ recipients. The study shows that attitudes toward organ donation and the degree of willingness to register as an organ donor are associated with a wide range of variables, including humanitarian and charitable feelings, previously performed voluntary actions, secular and religious beliefs, altruism, empathy, fear, and willingness to communicate donation intentions with family, as well as anxiety about body integrity and death, this provides strong incentive for people who realize that registration as a nondonor will decrease their chance of receiving an organ when needed. Further, knowledge about the donation wishes of the deceased is important for obtaining consent from a family In most of the ethical issues related to organ transplantation in nursing practice were experienced because recipients, their families, and donors could not foresee the various problems that might occur after transplantation. A nurse also has a multi-layered role with a patient's family, and support for relatives of the deceased patient. Nurses frequently provide care tomore than just the patient, by also offering support to relatives. It has been acknowledged that formal training about organ donation can successfully influence student nurses' attitudes, encourage communication and registration behaviours and help improve knowledge about donor eligibility and brain death. It has also been shown that there is a paucity of knowledge about how to initiate discussion about organ donation [1]. Nurse and How the medical team has the most important guidance for promoting donor-related activities: The representation of donor bodies includes three principles Dimensions: preserving the will of a potential donor And he wants, guarding his will and desires Potential donor cousins and advocating social justice end law. Nurse the decision-making regarding organ donation was assessed and includes statements from the deceased. When the intention of the deceased was not known, consent to donation was presumed according to current legislation. The nurse must be integrated into the transplantation law. Education and training of intensive care nurses have achieved the highest and immediate impact on organ donation [2]. Knowledge and beliefs regarding organ transplantation are some of the most important factors influencing individual donation. The results of the survey in Korea have shown the participation in the organ donation process affected knowledge more than attitude [3]. In Sebia culture, religion and education are the factors, which significantly influence the formation of attitudes on organ bequest and transplantation [4]. In many countries, nurses are not members of the transplant team because they are considered to lack the required level of knowledge. Nurses have a major role to play in tackling organ role cannot be adequately performed if nurses are not fully educated about donation and transplant. Nurses have a major role to play in tackling organ and tissue shortages, such a role cannot be adequately performed if nurses are not fully educated about donation and transplant [5]. Education must be included in compulsory training and completed by all nurses. Developing more positive attitudes with nurses towards organ transplantation, by improving

knowledge and altering beliefs should increase the total number of organ donations. Research in ChinaI quote: "shows nurses are an important group who generate opinion in the patient population, and their negative attitudes can have a significant negative impact on society's attitudes toward organ donation" [6]. It should be pointed out that when a negative attitude does exist, this affects a significant aspect such as belief in diagnosis of brain death or criteria for inclusion on the waiting list. In Brazil, organ donation is positively accepted, and the attitude is affected by socio-personal variables [7]. The education and personal motivation for nurses are it's important for participation in a professional team for coordination of organ donation and transplantation, Turkey focus on special training for all health care professionals, because these individuals play an important role in guiding public attitudes and behavior in this area[8].

We can certainly say that education is crucial for the acquired level of knowledge, and that everyday practice contributes to the formation of the bet, and we can say that nurses must be continuously educated and equally involved in the organization of the transplantions Procurement-transplantation-postranplantation process.Nurses with an in-depth knowledge of donation understand its clinical and technical aspects as well as the moral and legal considerations. Nurses could contribute to this action by their personal example. A professional code of ethics, attitudes and values are part of ethical knowledge.

2.Conclusion

Healthcare professionals have a crucial role in organ donation and transplantation processes. Nurses have a major role to play in tackling organ and tissue shortages.

Factors knowledge, attitude, everyday practice and confidence in the law are key factors in improving the rate of increase in connection with the supply of organs and donations.

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