

FREQUENCY OF VESTIBULAR DISORDER IN MILITARY FIREFIGHTERS FROM ALAGOAS

Frequência de Alteração Vestibular em Bombeiros Militares de Alagoas

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ABSTRACT

Purposes: to investigate the frequency of vestibular disorders in firefighters working in Alagoas and their complaints. **Methods:** we performed otoneurologic interviews and audiological evaluation, discarding the sample subjects with abnormal results. The valid sample was underwent the maneuver Dix-Hallpike and vectoelectronystagmography. We used the Chi-square test and Fisher Exact test for statistical analysis, with significance level of 5% ($p = 0.050$). **Results:** the sample consisted by 26 male (86.7%) and 4 female subjects (13.3%) with aged between 24 and 35 years. Of these, were found 43.4% results normal and 56.6% showed abnormalities in the caloric test, with a higher incidence of peripheral vestibular dysfunction followed by unilateral peripheral vestibular deficit dysfunction. There were no statistically significant differences in the presence of vestibular disorders or in the classification of these pathologies. Was perceived effective difference for dizziness between genders, with females more likely to present it. There was no statistically significant difference regarding dizziness between the age groups, with a tendency for older subjects present it more. There was no statistically significant relationship between vestibular disorder and complaints of dizziness, auditory manifestations or history of disease. **Conclusions:** there was a higher incidence of peripheral vestibular dysfunction followed by unilateral peripheral vestibular deficit dysfunction, without statistically significant difference between them. The examined firefighters complained of dizziness, auditory manifestations and pathological history, but without statistically significant relationship with vestibular disorders.

KEYWORDS: Firefighters; Electronystagmography; Dizziness

■ INTRODUCTION

One of the primary causes of serious and fatal work accidents results from falling, given the risks involved in different jobs and services¹. According to the National Fire Protection Association (NFPA), 78,150 accidents involving firefighters were recorded in the United States in 2009, overexertion and falls being the two main causes².

In order to address aspects related to occupational safety and health in jobs involving height (working on utility poles, constructing and dismantling structures and industrial plants, among others), on March 27, 2012 the Official Federal Gazette published Regulatory Guideline no. 35 (NR 35) – Work at Height, a directive of the Secretariat for Work Inspection (federal department subordinate to the Ministry of Work and Employment – MTE) that establishes minimum requirements and protection measures for work involving risk of falls from heights of more than two meters¹.

Given that a number of operational activities undertaken by the military Firefighter Corps³, such as rescue from heights, tree cutting, rescue in wells, animal capture and other activities performed in different environments, take place at heights greater than or equal to those established by the aforementioned guideline, it is therefore important to adopt it in order to ensure the safety of these professionals.

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Among the rules instituted by NR 35 is the responsibility of the employer to assess employee health before authorizing them to engage in activities at height. This includes using proper diagnostic procedures to assess the primary factors that predispose to falls from heights, such as the physical, clinical and psychosocial condition of the workers. Conditions that can cause falls from height include epilepsy, cardiovascular disorders, balance problems, unstable posture, vertigo, dizziness and vestibular alterations¹.

Vestibular dysfunction can be peripheral, involving the bony labyrinth and/or the vestibulocochlear or central nerve, affecting nuclei, pathways and Central Nervous System (CNS) interrelationships⁴. Authors underscore that assessment of otoneurological profile, consisting of audiometry, imitanciometry, digital nystagmometry, among others, in addition to anamnesis, is a useful resource for diagnosing these disorders, since it involves a set of procedures that allow semiological exploration of the systems responsible for maintaining balance and their connections with the CNS, thereby determining abnormalities in vestibular functions, the lesion side, its intensity as well as providing a prognosis of disease evolution. The findings complement the clinical history, otorhinolaryngological assessment and other possible examinations⁴⁻⁶.

The literature contains a number of studies on firefighters involving pathologies such as cancer, cardiovascular and respiratory disorders, lesions, osteoarthritis in the hip and knee, mental disturbances, hearing loss, noise pollution, among others⁷⁻⁹. However, there were no studies that considered vestibular alterations.

Thus, the aim of the present study was to investigate the frequency of vestibular alterations in a group of military firefighters in Alagoas state, Brazil, in order to determine the primary vestibular dysfunctions exhibited by the study subjects and associate them to their complaints.

■ METHODS

Cross-sectional study conducted at the Professor Marco Antônio Motta Gomes Audiology Laboratory of the Alagoas State University of Health Sciences (UNCISAL) between March and May 2013, and approved by the UNCISAL Research Ethics Committee (protocol no. 1971). All individuals were informed about the study procedures and gave their informed consent (in accordance with Resolution MS/CNS/CNEP no. 196/96, of 10 October, 1996).

The sample contained the 66 military firefighters admitted to the Military Firefighter Corps of Alagoas (CBMAL) in 2010, the group most involved in tasks at heights over two meters. However, subjects with obstruction of the external acoustic meatus, hearing loss according to the classification described in Decree no. 19 of the MTE¹⁰, military personnel residing in the hinterland of Alagoas state or any other state and/or those who declined to take part were excluded from the study.

In order to obtain data on previous and current health status, as well as vestibular and auditory symptoms, the patients underwent a brief otoneurological anamnesis, routinely used in vestibular assessment at the Professor Marco Antônio Motta Gomes Audiology Laboratory (UNCISAL) (Figure 1).

OTONEUROLOGICAL ANAMNESIS

I. Identification:

____/____/____

Name: _____ Gender: _____
 Birthdate: _____ Age: _____
 Schooling: _____ Occupation: _____
 Address: _____ Phone: _____

II. Complaint / reason for visit:

III. Previous history of present complaint:

Characteristics of dizziness:

1. How long has dizziness: _____ Probable cause: _____
 2. Beginning: sudden constant in crises
 3. Intensity: mild moderate strong
 4. Occurrence: sporadic frequent very frequent everyday weekly monthly
 5. Duration: seconds minutes hours days

Duration of episodes: _____ Last episode: _____

Triggering factors:

1. Head movements	6. Fast movements: up <input type="checkbox"/> down <input type="checkbox"/>
2. Sit	7. Vehicles
3. Lower yourself	8. Tumultuous environments
4. Raise	9. Eating (what)
5. Turn in bed <input type="checkbox"/> Lie down <input type="checkbox"/>	10. Emotional

Observation: _____

Neurovegetative symptoms:

1. Nausea <input type="checkbox"/> Vomit <input type="checkbox"/>	5. Sense of "knucklehead"
2. Imbalance	6. Sudoresis/tachycardia/tachypnea/heat/chills/faints
3. Falls	7. Anxiety/fear/ intense discomfort/phobia
4. Sensation of floating/Blurred vision	8. Headache

Observation: _____

Auditory manifestations:

1. Hypoacusia
2. Ear fullness
3. Tinnitus
4. Otological infection

Observation: _____

Disease history:

1. Visual disorders	5. Cardiovascular disorders
2. Sleep disorders	6. Head trauma
3. Metabolic disorders	7. Neurological disorders
4. Cervical disorders	8. Psychiatric disorders

Habits:

1. Smoking	4. Controlled drugs
2. Alcoholism	5. Intake: caffeine/soft drink/fatty foods/candies
3. Emotional: quiet/stressed/worried	6. Score for dizziness: 0 _____ 10

Figure 1 - Brief otoneurological anamnesis used in vestibular assessment at the Professor Marco Antônio Motta Gomes Audiology Laboratory of the Universidade Estadual de Ciências da Saúde de Alagoas

A Mikatos mini otoscope equipped with sterilized specula was used to inspect the external acoustic meatus, ensuring that it contained no earwax or foreign body, in addition to verifying the integrity of the tympanic membrane.

Pure-tone threshold audiometry was performed in an acoustic cabin with the help of an Interacoustic AC33 audiometer and pulsatile pure tone stimulus. Thresholds were determined using the descending technique, with 10 dB intervals and response confirmation by the ascending technique, with 5 dB intervals. Frequencies from 250Hz to 8000Hz (air conducted) and 500Hz to 4000Hz (bone conducted) were assessed. The latter was performed only with air thresholds above 25 dB at frequencies between 500Hz and 4000Hz. The acoustic cabin followed ANSI 3.1 recommendations (1991).

Imitanciometry was carried out to identify middle ear alterations through assessment of the degree of mobility or complacency (admittance) of the ossicular-tympanic system, as well as measure the stapedial reflex to obtain the lowest pure tone intensity capable of contracting the stapedius muscle. Only the contralateral stapedial reflex was assessed bilaterally, using the Interacoustics AT 235 imitancimeter.

Audiological findings (otoscopy, audiometry and imitanciometry) were used only as inclusion criteria, given that we sought to identify the presence of purely vestibular alterations.

The Dix-Hallpike test was used to determine the presence of vertigo and positional nystagmus. Next, eye movements were calibrated, observed and recorded to assess spontaneous nystagmus with eyes open and closed and semi-spontaneous nystagmus for the four cardinal points, as well as oculomotor tests (pendulartracking and optokinetic-nystagmus) and caloric tests¹¹. The examination was conducted in a semi-dark room, with the patient's eyes closed during the caloric tests.

Subjects were instructed to abstain from alcoholic beverages for 72 hours before the test, suspend the use of stimulants such as coffee, chocolate, tea and soft drinks for 24 hours, and not use medication such as anti-vertigo and anti-allergy drugs or tranquilizers in order to avoid interfering in the results of vestibulo-oculomotor tests. They were also asked to fast 3 hours before the test and eat light meals during the preceding day¹¹.

Vestibulo-ocular records were obtained with electrodes and the results analyzed using computerized Electronystagmography (Contronic Sistemas Automáticos Ltda.). The Contronic E107AR air caloric stimulator programmed for temperatures of 50°C and 24°C, was used as stimulation in the caloric test¹².

The following relative and absolute values were considered to be altered in the caloric test: predominant labyrinth (PL) greater than 19%; directional preponderance (DP) of more than 17%; sum of slow component angular velocity (SCAV) in cold and hot tests of the right or left ear greater than 5°/s (unilateral hyporeflexia); sum of SCAV values in the four tests less than 12°/s (bilateral hyporeflexia); sum of SCAV values in cold and hot tests of the right or left ear greater than 62°/s (unilateral hyperreflexia); sum of SCAV values in the four tests greater than 122°/s (bilateral hyperreflexia)¹².

The following variables were analyzed in this study: age, gender, dizziness, auditory complaints and/or history of disease, in addition to the presence and type of vestibular alteration.

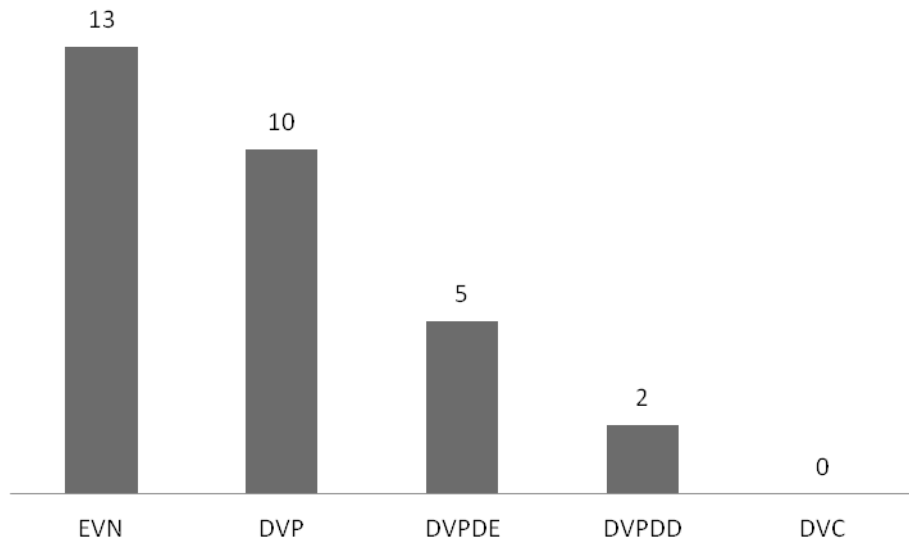
The BioEstat 5.3 program was used for statistical analysis, and the chi-squared and Fisher's Exact test to assess the association between vestibular examination findings and age group, sex, dizziness, auditory complaints and disease history, at a 5% significance level ($p=0.050$). The results are presented as absolute numbers and percentages in tabular form.

■ RESULTS

Only thirty of the 66 firefighters underwent otoneurological assessment, given that 5 were excluded for hearing loss, as detected by tonal audiometry, while the remainder did not live in Maceió or declined to take part in the study.

Thus, the sample was composed of 30 individuals, 4 (13.3%) women and 26 (86.7%) men, aged between 24 and 35 years (mean of 28.7 years).

The distribution and frequency of vestibular alterations exhibited by the 30 military firefighters are shown in Figure 2. Vestibular alterations in the sample were not statistically significant ($p=0.5839$), and there was also no statistically significant difference in the classification of these alterations ($p=0.0560$).



Legend: EVN - normal vestibular tests;
 PVD - Peripheral Vestibular Dysfunction;
 DVPDE - Left Deficitary Peripheral Vestibular Dysfunction;
 DVPDD - Right Deficitary Peripheral Vestibular Dysfunction;
 DVC - Central Vestibular Dysfunction.

Figure 2 – Distribution and frequency of vestibular disorder exhibited by the military firefighters from Alagoas state

Table 1 presents the caloric test findings in relative and absolute values.

Table 2 underscores the occurrence of vestibular alterations by gender and age ranges, showing a non-significant difference with respect to gender and age.

Table 1 – Caloric test findings in military firefighters from Alagoas state

Results	N	Frequency
. Normoreflexia	13	43,4%
. Directional preponderance	8	26,6%
. Predominant labyrinth	7	23,3%
. Hyperreflexia	2	6,7%
. Hyporeflexia	0	0%
. Areflexia	0	0%

Legend: N = number to each result.

Table 2 - Occurrence of vestibular disorder by gender and age ranges in military firefighters from Alagoas state

Data	Vestibular Disorder		p-value*
	Present	Absent	
Gender			
. Male	16	10	0,2903
. Female	1	3	
Age (Years)			
. 20-25	3	2	0,2225
. 26-30	12	6	
. 31- 35	2	5	

* Fisher's exact test for gender and Chi-Square test for age group: statistically significant at p <0.0500.

Figure 3 demonstrates the association between vestibular alterations and the presence or absence of dizziness, auditory complaints and/or disease history reported by patients in anamnesis. The

results were not significant for dizziness (p=0.4268), auditory manifestations (p=0.1376) or disease history (p=1.0000) related to vestibular alterations.

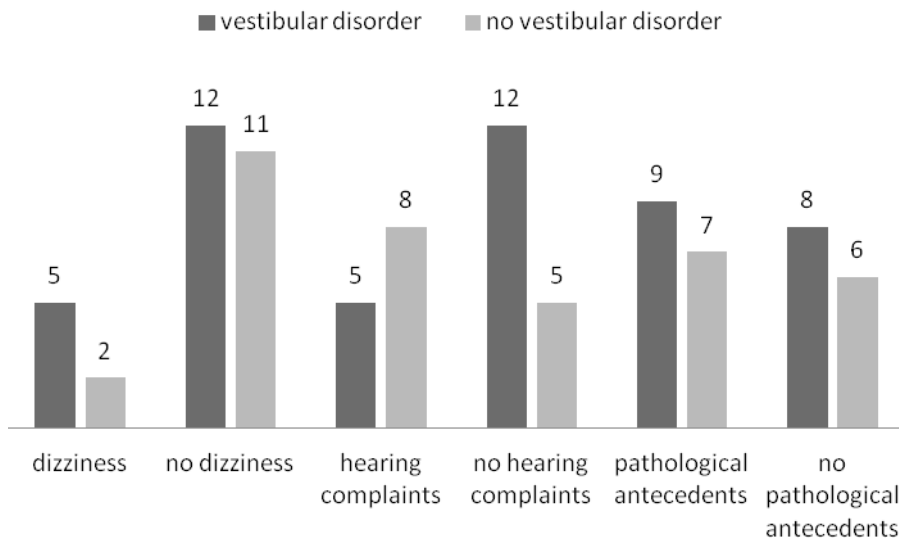


Figure 3 – Association between vestibular disorders and the presence or absence of dizziness, auditory complaints and/or disease history reported by military firefighters from Alagoas state in anamnesis

Table 3 exhibits gender and age data associated to dizziness in the group of military firefighters, demonstrating no statistically significant difference in the sample. The likely cause of dizziness was hormone interference, astigmatism, hypercholesterolemia and seasickness (in Brazil firefighters perform

water rescues); the remaining three subjects did not specify the possible causes of their dizziness.

Neurovegetative symptoms associated to episodes of dizziness are described in Table 4, with individuals allowed to report more than one symptom.

Table 3 - Gender and age data associated to dizziness in military firefighters from Alagoas state

Data	Dizziness		p-value*
	Present	Absent	
Gender			
. Male	4	22	0,0307
. Female	3	1	
Age (Years)			
. 20-25	1	4	0,9274
. 26-30	4	14	
. 31- 35	2	5	

* Fisher's exact test for gender and Chi-Square test for age group: statistically significant at $p < 0.0500$.

Table 4 – Neurovegetative symptoms associated to episodes of dizziness in military firefighters from Alagoas state

Neurovegetative Symptoms	N	Frequency
. Sudoresis	5	16,7%
. Nausea and / or Vomit	3	10,0%
. Sensation of Floating and / or Blurred Vision	3	10,0%
. Intense Discomfort	3	10,0%
. Headache	2	6,7%
. Anxiety	2	6,7%
. Fear	2	6,7%
. Tachycardia	2	6,7%
. Tachypnea	2	6,7%
. Imbalance	1	3,3%
. Sense of "Knucklehead"	1	3,3%
. Heat	1	3,3%
. Chills	1	3,3%
. Sense of "Head Dipped in Water"	1	3,3%

Legend: N = number of references to each neurovegetative symptom.

Thirteen firefighters related hearing complaints, although no alterations were found in auditory acuity, as determined by pure tone audiometry. These auditory manifestations are described in Table 5. Each subject could list more than one manifestation.

Table 6 contains the disease history reported in anamnesis.

Table 5 – Auditory manifestations in military firefighters from Alagoas state

Auditory manifestations	N	Frequency
. Ear fullness	7	23,3%
. Otological infection	5	16,6%
. Hypoacusia	4	13,3%
. Tinnitus	3	10,0%
. Earache	1	3,3%

Legend: N = number of references to each auditory manifestations.

Table 6 – Disease history reported in anamnesis by military firefighters from Alagoas state

Disease history	N	Frequency
. Visual Disorders	9	30,0%
. Sleep Disorders	7	23,3%
. Metabolic Disorders	3	10,0%
. Cervical Disorders	3	10,0%
. Cardiovascular Disorders	1	3,3%
. Hormonal Disorders	1	3,3%
. Head Trauma	1	3,3%
. Neurological Disorders	0	0,0%
. Psychiatric Disorders	0	0,0%

Legend: N = number of references to each pathological history.

■ DISCUSSION

Regulatory Guideline no. 35 (NR 35), Work at Height, was instituted due to the need for promoting safety and health in activities involving working at height¹. It is known that military firefighters³ work at heights above those established by this guideline on a daily basis, exposing them to the risk of falls. Considering that NR 35 proposes assessments that include the primary factors predisposing individuals to falls from heights¹, the aim of this study was to investigate the frequency of vestibular alterations in a group of military firefighters in Alagoas state, determining the main dysfunctions and complaints by assessing their otoneurological profile⁴⁻⁶.

The sample was composed predominantly of men (86.7%), given that the profession is male dominated. This finding is corroborated by several other studies involving firefighters⁷⁻⁹.

Thirteen of the 30 subjects (43.4%) submitted to the battery of tests obtained normal results, while the other firefighters (56.6%) exhibited some type of vestibular alteration detected only during vectoelectrostagnography, since all the findings obtained in the Dix-Hallpike maneuver were normal. There was greater occurrence of peripheral vestibular dysfunction, followed by unilateral deficitary peripheral vestibular dysfunction and no central

alteration. Although most of the individuals displayed vestibular alteration, this finding was not statistically significant ($p=0.5839$).

No similar research with firefighters was found in the literature; however, considering the age group under study, we located a retrospective study conducted in São Paulo to determine the syndromic distribution of vestibular dysfunctions in patients at a private otorhinolaryngology clinic and correlate it to other data, including age group¹³. From 20 to 39 years, researchers also found greater prevalence of peripheral alterations in their subjects (34%), followed by normal results (32%), corroborating the present study. It is important to underscore that the majority of patients with vestibular syndromes were from this same age group, and not the elderly group, as was expected. The authors associated this finding to the increasingly stressful pace of modern life, which has a more negative effect on the adult population. Thus, considering that the firefighters experience stressful situations, they may be more prone to falling sick¹⁴ and developing vestibular alterations.

Dizziness is the feeling of disturbed body balance resulting from a conflict in integrating vestibular, visual and proprioceptive information. Nearly all dizziness is a consequence of primary or secondary dysfunctions in the vestibulo-ocular system. It is

one of the most common symptoms in both sexes worldwide, occurring in 10% of the population and more frequent in adults and the elderly (more than 40% of adults report its occurrence at some time in their lives)⁴. Women report it twice as often as men, either as the only symptom or associated to auditory alterations and neurovegetative disturbances¹⁵.

In the present study 7 individuals (23.3%) reported dizziness at some time in their lives, corroborating other authors who also found low dizziness indices in their samples^{9,16}. A study involving 72 firefighters in order to identify discomfort caused by noise and complaints related to auditory health in this population revealed that only 9.7% complained of dizziness, 85.7% of whom described the frequency as "sometimes" and 14.3% as "always"⁹. In this study there was no statistical significance between dizziness and vestibular alterations ($p=0.4268$).

It was found that 15.4% of the men and 75% of the women reported at least one episode of dizziness, corroborating the literature, which reports it as a common complaint in women^{13,15-19}. Statistical analysis shows a significant difference for dizziness between men and women ($p=0.0307$), the latter more prone to this condition.

A number of authors associate this fact to the interference of female sex hormones in vestibular function^{17,20}. A study conducted with young women to compare the results of vestibular testing during the pre- and post-menstrual periods concluded that female sex hormones physically altered the vestibulum, with changes in endolymphatic pressure and blood viscosity, possibly resulting in altered balance and/or hearing²⁰.

A directly proportional increase was found between dizziness and age, with a greater tendency in older individuals, but with no statistically significant difference ($p=0.9274$). The larger number of complaints in the older group may be associated to the hypothesis that a natural deterioration process occurs in this system over time²¹. One study¹⁹ showed that the number of complaints of dizziness increases with age, as follows: 14% in the 18-39 year age group, 28% in the 40-59 year group and 37% in those 60 years of age or older.

Authors confirm that dizziness is predominantly vestibular and rare in cases of ocular, psychic or neurological origin¹⁵. The firefighters were asked about the possible causes of their dizziness. One individual reported an association with hormonal interference (menstrual cycle), one with a visual problem (astigmatism), one with metabolic disturbance (hypercholesterolemia) and one with seasickness (kinetosis). The three remaining subjects did not specify the possible cause of their dizziness. Thus, most of the individuals were aware

of the possible origin of their disorder, establishing associations compatible with the primary causes reported in the literature¹⁵.

Altered balance may be accompanied by neurovegetative symptoms due to functional continuity between auditory and vestibular systems and the vestibular interrelation with the nucleus of the vagus nerve²². A study conducted with 20 patients using hearing aids found that 15 (75%) complained of dizziness, 33% of whom exhibited neurovegetative symptoms²³. According to literature data^{22,23}, symptoms associated to dizziness, described in table 3, are common in subjects displaying this disorder.

The literature reports that vestibular alterations manifest themselves exclusively as dizziness or accompanied by tinnitus, hypoacusia, sensation of ear fullness and neurovegetative symptoms^{17,22}. However, this study was not statistically significant in relation to auditory complaints and vestibular alterations ($p=0.1376$).

With respect to disease history, only 9 of the 16 individuals that reported health problems displayed vestibular alterations, and 8 of the 14 firefighters who related no previous pathology exhibited vestibular dysfunction. The relation between history of disease and vestibular alterations was not statistically significant ($p=1.0000$). This finding corroborates with a study²² showing that patients with vestibular functions may not exhibit any apparent cause related to clinical, personal or family history, requiring complementary laboratory examinations to elucidate the etiology.

The caloric test can show whether there is functional compromise in one or two labyrinths, in addition to contributing to formulating suitable therapeutic strategies for each case, although it is not aimed at identifying the etiology of vestibular disturbances²⁴. It is important to underscore that the alterations observed in this study were identified only during this test, confirming what the authors reported in their investigation, since thermal stimulation was the most sensitive test, revealing vestibular dysfunctions in patients with specific complaints and without any abnormalities in other stages of vestibular assessment²⁵.

In relation to caloric test findings, normoreflexia was observed in 43.4% of the subjects, while the alterations identified were distributed according to Table 1. Hyperreflexia frequency was lower and unilateral in the two cases presented, and no hyporeflexia or areflexia was found. The literature^{13,24,25} contains conflicting caloric test results, given that a number of authors conducted their research before publication of the guideline suggested for standardizing temperature and cutoff values in Brazil¹². This

hinders comparison of results, and it is important that the aforementioned reference be followed in future studies in order to achieve methodological uniformity and consequently, more accurate correlations. Nevertheless, some publications showed that normoreflexia was more frequent than the sum of the remaining relative and absolute values^{24,25}, in contrast to what was found in the present study, which is attributable to the established cutoff values.

According to earlier studies^{7-9,26}, firefighters are at greater risk of cardiovascular disease, pulmonary disorders, cancer and noise-induced hearing loss. Specific occupational health and safety programs for firefighters have received special attention in recent years, due to the growing recognition of the potential long-term health risk to this population. In addition to facing severe physical and psychological demands, they are also exposed to physical (noise and heat) and chemical risks (gases and solvents) that may have adverse consequences^{26,27}. Given that the harmonic functioning of the systems involved in balance generates compensatory body movements to maintain head and body stability, avoiding falls⁴, identification and treatment of vestibular alterations in these professionals are needed to prevent accidents. It is therefore important that occupational medical care for firefighters also monitor this health risk, which can range from slight to fatal injuries.

A limitation of this study is the restricted number of participants. Future investigations could involve a larger number of firefighters from different functions

in order to obtain a clearer picture of the otoneurological profile and prevalence of vestibular alterations in this professional category in Alagoas. It is important to underscore that this is a pioneer study on vestibular dysfunctions in this population.

■ CONCLUSION

No statistically significant relation was found between the study group and vestibular alterations. However, vestibular alterations were found in most firefighters, with greater occurrence of peripheral vestibular dysfunction followed by unilateral deficitary peripheral vestibular dysfunction, with no statistically significant difference between them. The firefighters exhibited dizziness, auditory manifestations and disease history, with no statistically significant relation between these findings and the vestibular alterations identified.

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RESUMO

Objetivos: investigar a frequência de alterações vestibulares em bombeiros de Alagoas e suas queixas. **Métodos:** realizaram-se anamnese e avaliação audiológica, desclassificando da amostra os sujeitos com perda auditiva. Em seguida foi realizada a manobra de Dix-Hallpike e vectoeletronistagmografia. Aplicou-se o Teste Qui-Quadrado e Exato de Fisher para análise estatística, com significância de 5% ($p=0,050$). **Resultados:** compuseram a amostra 26 sujeitos do gênero masculino (86,7%) e 4 feminino (13,3%), com idade variando entre 24 e 35 anos. Destes, 13 sujeitos (43,4%) apresentaram exame vestibular normal, enquanto os demais (56,6%) apresentaram alteração na prova calórica, com maior ocorrência de disfunção vestibular periférica seguida de disfunção vestibular periférica deficitária unilateral. Não houve diferença estatisticamente significativa quanto à presença de alteração vestibular nem quanto à classificação dessas alterações. Comprovou-se significativa diferença para queixa de tontura entre os gêneros, sendo o feminino mais propenso a apresentá-la. Não houve diferença estatisticamente significativa quanto à queixa de tontura entre as faixas etárias avaliadas, havendo, entretanto, uma tendência maior para os indivíduos de idade mais elevada a apresentarem. Não houve relação estatisticamente significativa entre disfunção vestibular e queixas de tontura, manifestações auditivas nem antecedentes patológicos. **Conclusões:** não foi encontrada uma relação estatisticamente relevante entre o grupo estudado e a alteração vestibular. Todavia, entre os bombeiros que apresentaram alteração, houve maior ocorrência de disfunção vestibular periférica seguida de disfunção vestibular periférica deficitária unilateral, sem diferença estatisticamente significativa entre elas. Os bombeiros apresentaram queixas de tontura, manifestações auditivas e antecedentes patológicos sem relação estatisticamente significativa com as disfunções vestibulares identificadas.

DESCRIPTORIOS: Bombeiros; Eletronistagmografia; Tontura

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