Audiology - Communication Research
ISSN: 2317-6431
Academia Brasileira de Audiologia

Lopes, Aline Lamas; Lemos, Stela Maris Aguiar; Chagas, Cristiane Alvarenga; Araújo, Samantha Gomes; Santos, Juliana Nunes

Evidências científicas da reabilitação vestibular na atenção primária à saúde: uma revisão sistemática

Audiology - Communication Research, vol. 23, e2032, 2018
Academia Brasileira de Audiologia

DOI: 10.1590/2317-6431-2018-2032

Literature Review

https://doi.org/10.1590/2317-6431-2018-2032

Audiology Communication Research
ISSN 2317-6431

Scientific evidence of vestibular rehabilitation in primary health care: a systematic review

Evidências científicas da reabilitação vestibular na atenção primária à saúde: uma revisão sistemática

Aline Lamas Lopes[1], Stela Maris Aguiar Lemos[2], Cristiane Alvarenga Chagas[3], Samantha Gomes Araújo[2], Juliana Nunes Santos[1]

ABSTRACT

Purpose: Investigate in the literature the effectiveness of treatments used for vestibular rehabilitation (VR) in PHC. **Research strategy:** The search of publications on VR in PHC was carried out in electronic databases MEDLINE (access by PubMed), PEDro and Web of Science. **Selection criteria**: Controlled clinical trials were selected in English, Spanish and Portuguese. The methodological quality of the studies was evaluated using the PEDro scale. The analysis of the results was examined through a critical review of the contents. **Results:** Five studies were reviewed in their entirety, with the participants' age group being equal to or older than 18 years (n = 5). The Vertigo Symptom Scale and (60%) and Visual Analog Scale (40%) were the instruments used to evaluate the subjective perception of the symptomatology of vestibular dysfunction. The PEDro Scale revealed that two articles presented a good quality design for conducting the experimental study. The most used intervention proposal was the Yardley Exercises (60%). **Conclusion:** Controlled studies provide evidence of positive effects of VR on PHC, with improvements in postural control, functional capacity and quality of life of participants.

Keywords: Dizziness; Vertigo; Vestibular rehabilitation; Primary health care; Review

RESUMO

Objetivos: Investigar, na literatura, a efetividade de tratamentos usados para reabilitação vestibular (RV) na atenção primária à saúde. **Estratégia de pesquisa:** A busca de publicações sobre RV na APS foi realizada nas bases de dados eletrônicas MEDLINE (acesso pela PubMed), PEDro e Web of Science. **Critérios de seleção:** Foram selecionados ensaios clínicos controlados nas línguas inglesa, espanhola e portuguesa. A qualidade metodológica dos estudos foi avaliada pela escala PEDro. A análise dos resultados foi contemplada por meio de revisão crítica dos conteúdos**. Resultados:** Cinco estudos foram revisados na íntegra, sendo a faixa etária dos participantes igual ou superior a 18 anos (n=5). A *Vertigo Symptom Scale* (60%) e a Escala Visual Analógica (40%) foram os instrumentos empregados para avaliar a percepção subjetiva da sintomatologia da disfunção vestibular. A escala PEDro revelou que dois artigos apresentaram delineamento de boa qualidade para condução do estudo experimental. A proposta de intervenção mais utilizada foi baseada nos exercícios de Yardley (60%). **Conclusão:** Estudos controlados disponibilizam evidências de efeitos positivos da reabilitação vestibular na atenção primária à saúde, com melhoras no controle postural, capacidade funcional e qualidade de vida dos participantes.

Palavras-chave: Tontura; Vertigem; Reabilitação; Atenção primária à saúde; Revisão

Study carried out at Department of Speech Therapy, Federal University of Minas Gerais – UFMG – Belo Horizonte (MG), Brasil.
[1]Programa de Pós-graduação em Ciências Fonoaudiológicas, Faculdade de Medicina, Universidade Federal de Minas Gerais – UFMG – Belo Horizonte (MG), Brasil.
[2]Departamento de Fonoaudiologia, Faculdade de Medicina, Universidade Federal de Minas Gerais – UFMG – Belo Horizonte (MG), Brasil.
[3]Escola de Enfermagem, Universidade Federal de Minas Gerais – UFMG – Belo Horizonte (MG), Brasil.
Conflicts of interests: No.
Authors' contributions: All authors designed and planned the project. ALL collected and analyzed the data; JNS, SMAL organized the text and critically reviewed the manuscript content; CAC, SGA acted as evaluators in the selection, critical analysis of articles and PEDro scale.
Funding: None.
Corresponding author: Juliana Nunes Santos. E-mail: jununessantos@yahoo.com.br
Received: May 23, 2018. **Accepted:** October 09, 2018

INTRODUCTION

Dizziness is one of the most common and prevalent complaints in clinical practice and affects approximately 20% to 30% of the general population and is more prevalent in women[1,2]. Bittar et al.[3] established the prevalence of dizziness of 42% in a study performed in the city of São Paulo, showing a higher proportion than the one found in other studies. This complaint is frequent in the elderly population and its predominance increases significantly with the advancing age[1-4].

Approximately 85% of complaints of dizziness and vertigo are of vestibular origin, being peripheral or central. Other etiologies are associated with cardiovascular, psychic, visual, proprioceptive and neurological changes. It is estimated that there are more than 300 clinical conditions and about 2,000 etiological agents[2].

Statistical data showed that more or less 85% of dizziness are of peripheral origin, triggered by dysfunction of the vestibular system[3,5]. Peripheral vestibular dysfunctions correspond to vestibular disorders in which there is total or partial reduction of vestibular function and these alterations may affect from the inner ear to vestibular nerve, and up to its entrance into the brainstem, not including the vestibular nuclei in the IV floor of the ventricle[6].

In subjects with peripheral vestibular disorders, vertigo and dizziness complaints are manifested mainly through postural balance swings, gait disturbance, falls, reducing the stability limit and functional capacity[7,8]. Vertigo is the rotational sensation of spatial disorientation, while dizziness is the sensation of disruption of body balance[8].

The literature shows that the use of medication, surgical resources and vestibular rehabilitation[8] are the main forms of treatment of dizziness and vertigo. Within the speech therapy, we emphasize VR, a clinical method based on vestibular compensation and neuronal plasticity, aiming to improve spatial orientation and global balance, improving patients' quality of life[9]. VR is densely described in the literature, and its effectiveness is proven, and it can lead to complete healing in 30% of individuals and different degrees of improvement in 85% of them. It should be noted that VR has the advantage of not having side effects[10,11].

Disorders of the vestibular apparatus represent a public health problem, since they affect a significant part of the population, compromising the functional capacity, the postural balance and the quality of life of its patients[12].

Dizziness is among the most common reasons for consulting a primary care physician. Researchers have reported that almost 45% of outpatients with dizziness are seen and treated by general practitioners or family doctors, who do not always treat the etiology of dizziness[13].

Some studies have commented that only a minority of patients should be referred for testing and treatment with specialists, since these are expensive and not always lead to results with definitive and clear diagnosis for the treatment[14,15].

Recent research has been presenting the effectiveness of vestibular rehabilitation performed at PHC, in order to improve the resolution in the care pathway of the user with dizziness and vertigo[15,16].

The present study aimed to summarize the scientific evidence of VR in the PHC and the objective of this review was to investigate in the literature, the effectiveness of treatments used for vestibular rehabilitation in primary health care.

Research strategy

It is a systematic review of the literature, which had the following guiding question: "What is the scientific evidence of vestibular rehabilitation in primary health care?"

To systematize the set of publications on the subject, a survey was carried out in the electronic databases MEDLINE (accessed by PubMed), PEDro and Web of Science, during the months of December 2016 and January 2017.

The searches were done limited to the English, Spanish and Portuguese languages, with no delimitation regarding the date of publication.

Selection criteria

The following keywords were used as a search strategy in the databases: "vertigem (vertigo)" or "tontura (dizziness)" or "reabilitação vestibular (vestibular dizziness)" or "doenças vestibulares (vestibular diseases)" or "equilíbrio postural (postural balance)",combined with "atenção primária à saúde" or "atenção básica de saúde" or "atenção básica" or "atenção básica à saúde" or "atenção primária" or "cuidados de saúde primários" or "cuidados primários" or "cuidados primarios de saúde (primary health care)", combined with "ensaio clínico randomizado (randomized controlled trial)" or ensaio clínico (clinical trial)."

The publications that resulted from the initial selection strategy were checked by two independent evaluators searching for the following inclusion criteria: sample aged 18 years or over; subjects with peripheral vestibular dysfunction; controlled clinical study, randomized/not randomized; VR performed in PHC; intervention defined by exercises that aim to restore vestibular function and postural balance, through vestibular neuroplasticity. Reports and case series, editorials and literature reviews were excluded.

Data analysis

The studies reviewed in full were analyzed through a structured script, which included the following items: characteristics of the sample, evaluated outcomes, methodological design, characteristics, results and effects of the PHC intervention.

The primary outcomes were clinically relevant in PHC, characterized by subjective assessment of dizziness, tests to assess postural balance and gait and scales used to mention the impact of dizziness on activities of daily living and quality of life. The secondary outcomes chosen were described by scales that evaluated symptoms secondary to vestibular disorders, such as anxiety and depression, as well as the cost of VR in PHC.

The analysis of the methodological quality of the reviewed studies was measured according to the PEDro scale, which consists of eleven criteria regarding the internal validity and interpretation of the results of experimental studies in the rehabilitation area[17].The scale score is performed by assigning 1 point in the presence of indicators of the quality

of the presented evidence and zero point when absent such indicators, being the first criterion (selection of the sample) not punctuated. Thus, the higher the score, the more careful is the study design, evidencing a higher methodological quality and a higher probability of reproducing the presented data[17].

In three of the five studies reviewed in this study, the analysis of the clinical trials, with their respective notes, was available in the PEDro database . Thus, two independent researchers, respecting the evaluation criteria of the platform PEDro, analyzed two articles; and the concordance of these evaluations was analyzed by the Kappa index (k), presenting concordance higher than 95%.

To solve the disagreements between the researchers, during the selection and full text analysis of the articles, a third researcher was asked to verify the divergent questions. Thus, a critical review of the content was performed and compared with other studies that addressed scientific evidence about VR.

RESULTS

The initial keyword search resulted in 421 articles. By means of reading the abstracts, 18 articles with characteristics that could be reviewed were identified. However, when read in full, 13 studies did not meet the inclusion criteria, since 5 studies used samples without complaints or vestibular alterations, while in 7 articles the vestibular rehabilitation was not performed in the PHC as well as in one study VR was not based on habituation exercises with a focus on neuroplasticity. Therefore, 5 controlled clinical trials with VR intervention in PHC fulfilled the criteria for this review and were thus selected for critical content analysis (Figure 1).

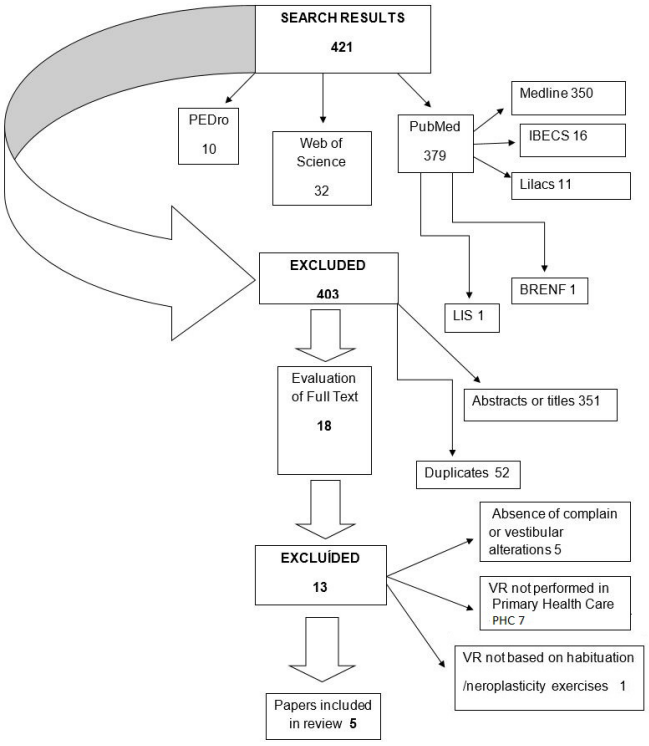

Figure 1. Flowchart of the revised articles
Subtitle: VR - vestibular rehabilitation; PHC - primary health care

Characteristics of samples

The sample size ranged from 57[18] to 337[19] subjects submitted to VR intervention, with control group in PHC. In one study, the sample was structured by middle-age and elderly individuals, aged 50 years and over[18], and in another[20], the sample was represented only by elderly people aged 65 or over.

The samples were composed of participants of both sexes, with a prevalence of women[18,20-22]. It is noted that in an article, the specification of the sample was not described by gender[19]. The most common complaints of vestibular dysfunction were dizziness, body imbalance and postural instability[18-22]. The topography of vestibular dysfunction was poorly reported and it was specified in only one of the studies[18]. There was no dietary control in any of the studies and only 2 studies the anti-vertigo medication was restricted during VR[19,21].

Evaluated deficits

Primary outcomes: The subjective perception of the symptomatology of vestibular dysfunction was evaluated by the majority of the studies, being the scale of self-perception of vertigo (*Vertigo Symptom Scale*)[19,21,22] and the Analog Visual Scale (EVA)[18] used for this purpose. Other outcomes with emphasis in the evaluations were the static and dynamic body balance[18,20]. Functional scales that analyze the impact of dizziness on activities of daily living and quality of life were applied in 4 studies, being the Dizziness Handicap Inventory (DHI) the most used instrument[19-22].

Secondary outcomes: The secondary to vestibular dysfunctions symptoms were evaluated in three studies ([19,21,22], through the Hospital Anxiety and Depression Scale (HADS), and only one study[19] analyzed the effectiveness of VR regarding financial costs in PHC. For this purpose, it was used an instrument that evaluates the total costs of health care related to dizziness per year of life.

Methodological design

All studies were experimental and, only in one research[20] the selection of subjects did not occur in a random manner. The effectiveness of VR was analyzed by comparing pre-intervention and post-intervention VR measures with the non-intervention group (control)[18-22], or with another intervention group other than VR [19]. All studies performed segment after the intervention period.

The methodological analysis by the PEDro scale (consulted by the platform)[17] revealed that 2 of the articles presented a good quality design for conducting the experimental study and consequently high scientific evidence.

Intervention protocols

The intervention proposals used were the Yardley exercises[19,21,22] and the protocol of Cawthorne and Cooksey[20]. The therapy sessions were performed in a group by most of the studies[18,20-22], administered weekly[19] or twice a week[18,19,21]. The total time of

application of the group exercises ranged from 30 to 40[18,19,22] and 50 minutes[20].

Most of the studies recommended, through guidelines and booklets, that the exercises should be performed at home, as a way to complement the therapy performed at the health center[19,21,22]. In one of Yardley's studies[19], the intervention groups also received guidelines containing behavioral cognitive techniques and instructions regarding the correct performance of the exercises in order to promote positive beliefs and greater adherence to treatment.

There was a comparison with a control group in all studies regarding the application of the VR protocol, formed by those who did not perform any type of exercise[18,20,22] and those who received only the routine care of PHC[19,21] ; and in a study[19], besides the control group, there was a comparison between two intervention groups; those who received telephone support or not.

Effects of intervention

In all studies, positive evidence of VR in PHC was observed.

In the study by Hånsson, Mansson and Håkansson[18], after three months, the intervention group remained with a significant improvement in unipodal support, in relation to the control group. In the majority of the studies that analyzed the follow-up after six months[22] and one year of intervention[19,20], it was verified that both groups (experimental and control) reached their previous functional levels and maintained the gains obtained in the period. In only one study[21] no statistically significant differences were found after a six-month follow-up.

Among the studies that used as an intervention the Yardley exercises[19,21,22], there was improvement of the experimental group, in relation to the control group, in all measures of primary outcome.

Only one study used the protocol of Cawthorne and Cooksey[20] and significant differences were observed in the static and dynamic balance, however, no differences were verified in the DHI and the minimization of falls. The study of Yardley[19], in which the groups were compared regarding telephone support, showed that both interventions were effective and profitable.

Regarding the symptomatology of dizziness, both in the study that used EVA[18], as in the studies that used the *Vertigo Symptom Scale*[19,21,22], significant improvements were observed after intervention. Of the 4 studies that used DHI[19-22], in 3[19,21,22], minimization of the impact of dizziness on the participants' quality of life was verified. None of the reviewed studies reported adverse effects related to VR intervention.

The synopsis of the controlled clinical trials on VR in PHC is presented in Chart 1.

Chart 1. Synopsis of controlled clinical trials on vestibular rehabilitation in primary health care

Study	Sample	Evaluated outcome	Type of study	Intervention	Efeitos Encontrados	PEDro
Yardley et al.[22]	age: Adults 18 years of age or older. Diagnosis: Vestibular dizziness. Inclusion: Complaint of dizziness, confirmed vestibular alteration by the physician. N= 143 (115 female and 28 male). Group: EG= 67 and CG= 76.	- DHI (Dizziness Handicap Inventory). -Vertigo Symptom Scale (self-perception of vertigo). - HADS (Hospital Anxiety and Depression Scale). -Short- Form 36 (physical functioning). - Romberg (timed swing). - Unterberger test.	Prospective, randomized, controlled trial. Follow up: 6 months	EG: VR protocol with Yardley exercises, relaxation and breathing exercises. Booklet with guidelines for performing exercises at home. .Session: In group, twice a week, lasting 30 to 40 minutes. CG: You did not receive any type of intervention for 6 weeks. After 6 months of follow-up, he received VR (same GE model).	- The EG improved in all measures, while the control group did not show improvement, resulting in a significant difference between the two groups in the physical indexes of balance and subjective indexes of anxiety symptoms. - The odds of improvement in treated patients for untreated patients were 3.1: 1 after six weeks (95% CI = 1.4-6.8) and 3.8: 1 after six months (95% CI = 1.6-8.7).	05
Hansson et al.[18]	Age: 50-87 years. Diagnosis: Dizziness of vestibular origin related to aging. Inclusion: Subjects 50 years of age or older, with dizziness caused by aging. n = 42 (30 females and 12 males) Groups EG= 23 e CG= 19.	- Static balance with open eyes (, Romberg in tandem position and unipodal support). - Dynamic balance: March at eight and stop walking when talking-tandem gear. - EVA / dizziness	Randomized randomized clinical trial. Follow up: 3 months.	EG: VR protocol with body balance exercises, eye movement and cephalic movement on unstable surfaces. CG: You did not receive any type of intervention. Session: In a group, twice a week, lasting 45 minutes (total = 6 weeks)	- Right unipodal support with closed eyes showed a significant improvement of EG in relation to CG after 6 weeks of intervention. - After 3 months, significant improvement in the unipodal tests in the EG, in relation to the CG. - In the other tests there was no difference between the groups. - - EG improved in 80% of tests and deteriorated by 5%, while CG improved by 30% and deteriorated by 55%.	04

Subtitle: EG- experimental group; CG- control group; VR- vestibular rehabilitation; N number of study participants; EVA- analogical visual scale; PHC- primary health care

Chart 1. Continued...

Study	Sample	Evaluated outcome	Type of study	Intervention	Efeitos Encontrados	PEDro
Yardley et al.[21]	Age: Adults 18 years of age or older. Diagnosis: Vestibular dizziness. Inclusion: Patients with chronic dizziness (= or> 2 years), with vestibular origin. N = 170 patients (121 females and 59 males) Groups: EG= 83 and CG= 87	- DHI (Dizziness Handicap Inventory). -Vertigo Symptom Scale (self-perception of vertigo). - HADS (Hospital Anxiety and Depression Scale). -Short- Form 36 (Physical functioning).	Prospective, randomized and controlled trial, uni-blinded. Follow up: 6 months .	EG: VR protocol with Yardley exercises. Session: Individual consultation lasting 30-40 minutes and booklet with guidelines for performing exercises at home, once a day. CG: routine care in PHC	After 3 months, there was improvement in all measures of the primary endpoint and the EG measurements were significantly higher than those of the EG. Improvement of anxiety and depression. In EG, 67% presented improvement of symptoms and complaints, whereas in CG, the improvement was 38%. At the 6-month follow-up, the groups did not differ (p, 0.05).	8
Hansson et al.[20]	Age: Adults 65 years and over. Diagnosis: Dizziness of vestibular origin related to aging. Groups n = 58 (39 females and 19 males). EG: 31 CG: 27	- Static balance with open eyes (Romberg, Romberg in tandem position and unipodal support). - Dynamic balance: March at eight and stop walking when talking-tandem gear - DHI (*Dizziness Handicap Inventory*).	Interventional test, with control group, without randomization. Follow up: 6,9 and 12 months.	EG: VR protocol with body balance exercises, eye movement and cephalic movement on unstable surfaces. CG: You did not receive any type of intervention. Session: In a group, twice a week, lasting 50 minutes, in a circuit format.	- VR did not reduce the risk of falls. -There was no difference in IHD between groups. - EG improved on five of the balance measures and deteriorated by one, while the CG worsened by four of the balance measures. - Statistical significant differences were found between the groups after 3 months, in static and dynamic equilibrium (P = 0.038 and 0.044).	04
Yardley et al.[19]	Age: Adults 18 years and older. Diagnosis: Dizziness of vestibular origin Inclusion: Patients with a history of congestive dizziness (duration> 5 years), of vestibular origin n = 337 Groups EG1= 112; EG2= 113 and CG=112	- QUALY (Total costs in health related to dizziness per life/year). -*Vertigo Symptom Scale* (Self-perception of vertigo). - DHI (*Dizziness Handicap Inventory*). - HADS: (*Hospital anxiety and depression scale*),	Test controlled, randomized, parallel and pragmatic study with blind group. Follow up: 3 and 12 months	EG1: Vr with booklet. - VR: Ocular and cephalic exercises during static and dynamic functional activities. - Booklet with detailed VR exercises and guidelines on behavioral cognitive techniques (motivation). EG2: VR with booklet and telephone support. - VR and booklet (identical to EG1) - Session: In group, at 1 week, lasting 30 minutes and following up by telephone at 2 and 3 weeks, lasting 15 minutes (total = 12 weeks). CG: Routine care in PHC .	- After 12 weeks, scores on the Vertigo Symptom Scale did not differ significantly between EG1, EG2 and CG. - In 1 year, the groups EG1 and EG2, improved significantly, compared to CG. - Analysis of the cost-effectiveness curves showed that both interventions (EG1 and EG2) were highly profitable.	07

Subtitle: EG- experimental group; CG- control group; VR- vestibular rehabilitation; N number of study participants; EVA- analogical visual scale; PHC- primary health care

DISCUSSION

Controlled studies with VR intervention in PHC are restricted in the literature. However, despite the scarcity in numbers, the articles selected in this review showed positive evidence of VR in postural control, functional capacity and quality of life of adult and elderly subjects with a diagnosis of peripheral vestibular disorders.

In a study[20], participants were not randomized, and in two surveys[18,22] there was no blinding in the randomization, no masking of the subjects, therapists and evaluators. However, it must be considered that the place of studies, primary health care, experiences unique situations in the health care of individuals. In PHC, the gateway to the Brazilian health system, a controlled trial, even without blindness in evaluations, should be considered since it strengthens and encourages innovative practices in this level of care.

Two studies[18,20] were performed only with the elderly, because it is a group with peculiar functional characteristics. The fact that the sample is more homogeneous, allows greater control of the biases of confusion that can be inferred in the analysis of the effectiveness of VR. Adequate identification of vestibulopathy is indispensable for implantation of the best type of treatment[6]. The literature agrees that VR exercises minimize sensory conflict in elderly people with dizziness and body imbalance. Age factor is not considered limiting for the final treatment response[2,5-7]. In addition, vestibular changes are more common in the elderly[2], the type of population that uses the PHC services the most[6].

The *Vertigo Symptom Scale* (VSE)[19-22] and the EVA[18] were the instruments used to evaluate patients' subjective perception regarding the degree of intensity of dizziness, instability and body imbalance, among the evaluated outcomes. Another subjective instrument used to measure the impact of dizziness on the quality of life was DHI[19-22]. Objective measures, such as balance tests, may reveal greater limitations in performance; however, subjective measures consider the individual's perception of the impact of symptoms that are difficult to quantify objectively, such as daily dizziness.

The intervention proposals used were the Yardley exercises[19,21,22] and the protocol of Cawthorne and Cooksey[20], which aim to promote visual stabilization of head movements, improve postural stability in situations in which sensory conflicts arise, minimize sensitivity to head movement, and improve static and dynamic body balance[4-6]. In the study that used the protocol of Cawthorne and Cooksey[20], there was improvement in the study group, in relation to the control group regarding static and dynamic balance, however, there were no differences in the HDI and in the reduction of the risk of falls. This result may be due to the absence of exercises of manipulation of the proprioceptive information with the visual, modification of base of sustentation and other sensorimotor components in the protocol of Cawthorne and Cooksey.

The total time of application of the group exercises ranged from thirty to forty[18,19,21] and fifty minutes[22], administered weekly[19], or twice a week[18,20,22], therefore, there were no significant differences between the studies regarding the frequency and duration of the sessions. In all the reviewed studies, the authors showed, after VR, reduction or remission of symptoms of dizziness or postural instability and gradual disappearance of static and dynamic body imbalance.

Postural control was assessed by means of static balance tests[18,20,22], dynamic[18,20] and functional scale[21,22]. Static balance tests are easy and quick to apply, but do not evaluate the functional aspects of body balance and mobility. The dynamic and functional tests, evaluate the performance of the individual in tasks based on daily and instrumental activities, as well as characteristics of balance, gait and mobility. Although the functional tests are useful in the delineation of the functional prognosis, they contribute little to determine weakness or muscle shortening or motor incoordination, important signals in the planning of a personalized treatment that can reflect in the effectiveness of the VR. In the studies analyzed, there was no comparison of the effectiveness of the personalized and group VR or under home guidance. However, the most used form was in group[18-20,22] providing home guidelines (*booklet*)[19,21]. Such strategies would be more appropriate in view of the high demand and costs of providing user services with dizziness in PHC. A study[19] evaluated the costs of VR in PHC comparing groups that, in addition to VR, and home guidelines (*booklet*), received/not received telephone support. The analysis of the cost-effectiveness curves showed that the group that received guidelines (*booklet*) was more profitable than the group that received telephone support.

The somatopsychic consequences of dizziness caused by vestibular disorders may include anxiety, anxiety, fear of leaving home by themselves, depersonalization, and depressed mood. Three studies[19,21,22] evaluated these consequences through HADS and showed a minimization of such symptoms after VR.

One study used behavioral cognitive techniques[19] and other breathing and relaxation exercises[22] to complement VR . Such procedures may maximize the effectiveness of treatment, since they stimulate motivation and may contribute to reduce the psychosomatic consequences caused by dizziness, such as anxiety, anguish, depressed mood, among others.

Three studies were conducted in England[19,21,22] and two, in Sweden[18,20], by professionals in the area of Physical Therapy[18,20], Nursing and Psychology[19,21,22], evidencing the need for controlled experimental studies on VR in PHC to be performed in Brazil and published. As speech therapists are aware of the benefits and effectiveness of VR, why not publish in this area, helping and improving knowledge referred to the care pathway of patients with dizziness in PHC?

This systematic review synthesized scientific studies on the effectiveness of treatments used for VR in PHC, favoring practice based on evidence.

CONCLUSION

Controlled studies provide evidence of positive effects of vestibular rehabilitation on primary health care, with improvements in postural control, functional capacity and quality of life of the users.

The research reinforces the acceptability of the use of simple and low cost protocols for the treatment of patients in PHC. However, the literature dealing with VR in PHC is scarce. It is suggested to carry out new studies with improved methodological designs to clarify some doubts about VR in this field, such as prognosis for certain diseases, comparison between protocols and evaluation instruments, and time needed to avoid recurrence of symptomatology.

REFERENCES

1. Neuhauser HK, Von Brevern M, Radtke A, Lezius F, Feldmann M, Ziese T, Lempert T. Epidemiology of vestibular vertigo: a neurotologic survey of the general population. Neurology. 2005;65(6):898-904. http://dx.doi.org/10.1212/01.wnl.0000175987.59991.3d. PMid:16186531.

2. Ganança MM, Munhoz MSL, Caovilla HH, Silva MLG, Ganança CF, Ganança FF. Vertigem. Rev Bras Med. 2005;62:325-8.

3. Bittar RSM, Oiticica J, Bottino MA, Ganança FF, Dimitrov R. Population epidemiological study on the prevalence of dizziness in the city of São Paulo. Braz J Otorhinolaryngol. 2013;79(6):8-11. http://dx.doi.org/10.5935/1808-8694.20130127. PMid:24474479.

4. Ganança FF, Ganança CF. Reabilitação vestibular: princípios e técnicas. In: Ganança MM, Caovilla HH, Munhoz MSL, Silva MLG. Estratégias terapêuticas em otoneurologia. São Paulo: Atheneu; 2001. p. 33-54.

5. Gazzola JM, Ganança FF, Perracini MR, Aratani MC, Dorigueto RS, Gomes CMC. O envelhecimento e o sistema vestibular. Fisioter Mov. 2005;18:39-48.

6. Bertol E, Rodriguez CA. Da tontura a vertigem: uma proposta para o manejo do paciente vertiginoso na atenção primária. Rev APS. 2008;11:62-73.

7. Gazzola JM, Ganança FF, Perracini MR, Aratani MC, Dorigueto RS, Gomes CMC. O envelhecimento e o sistema vestibular. Fisioter Mov. 2005;18:39-48.

8. Enticott JC, Vitkovic JJ, Reid B, O'Neill P, Paine M. Vestibular rehabilitation in individuals with inner-ear dysfunction: a pilot study. Audiol Neurootol. 2008;13(1):19-28. http://dx.doi.org/10.1159/000107434. PMid:17715466.

9. Soares SN, Gonçalves MADS, Teixeira CG, Romualdo PC, Santos JN. Influência da reabilitação vestibular na qualidade de vida de indivíduos labirintopatas. Rev CEFAC. 2014;16(3):732-8. http://dx.doi.org/10.1590/1982-0216201418211.

10. Chang WC, Yang YR, Hsu LC, Chern CM, Wang RY. Balance improvement in patients with benign paroxysmal position vertigo. Clin Rehabil. 2008;22(4):338-47. http://dx.doi.org/10.1177/0269215507082741. PMid:18390977.

11. Tsukamoto HF. Efetividade da Reabilitação Vestibular no tratamento de portadores de queixas vestibulares [Dissertação]. Londrina: Universidade Norte do Paraná; 2014.

12. Sloane PD. Dizziness in primary care. Results from the National Ambulatory Medical Care Survey. J Fam Pract. 1989;29(1):33-8. PMid:2738548.

13. Iwasaki S, Yamasoba T. Dizziness and imbalance in the elderly: age-related decline in the vestibular system. Aging Dis. 2015;6(1):38-47. http://dx.doi.org/10.14336/AD.2014.0128. PMid:25657851.

14. Franco TB, Magalhães HM. A integralidade na assistência à saúde. In: Merhy EE. O trabalho em saúde: olhando e experienciando o SUS no cotidiano. São Paulo: Hucitec; 2000. p. 125-33.

15. Peixoto MCC. A viabilidade e efetividade de um Programa de Reabilitação Vestibular na Atenção Primária à Saúde [dissertação]. Belo Horizonte: Faculdade de Medicina, Universidade Federal de Minas Gerais; 2015.

16. Martins TF. Prevalência e Tratamento da Tontura: Investigação do Impacto de Condições de Saúde e Hábitos de Vida na Redução dos Sintomas em Pacientes Submetidos a um Programa de Reabilitação Vestibular na Atenção Primária à Saúde [dissertação]. Belo Horizonte: Faculdade de Medicina, Universidade Federal de Minas Gerais; 2016.

17. PEDro: Physioterapy Evidence Database [online]. 2014 [citado em 2018 Maio 13]. Disponível em: http//www.pedro.org.au

18. Hånsson EE, Mansson NO, Håkansson A. Effects of specific rehabilitation for dizziness among patients in primary health care: a randomized controlled trial. Clin Rehabil. 2004;18(5):558-65. http://dx.doi.org/10.1191/0269215504cr771oa. PMid:15293490.

19. Yardley L, Barker F, Muller I, Turner D, Kirby S, Mullee M, Morris A, Little P. Clinical and cost effectiveness of booklet based vestibular rehabilitation for chronic dizziness in primary care: single blind, parallel group, pragmatic, randomised controlled trial. BMJ. 2012;344:2237-51. http://dx.doi.org/10.1136/bmj.e2237. PMid:22674920.

20. Hånsson EE, Månsson NO, Ringsberg KA, Håkansson A. Falls among dizzy patients in primary healthcare: an intervention study with control group. Int J Rehabil Res. 2008;31(1):51-7. http://dx.doi.org/10.1097/MRR.0b013e3282f28e2c. PMid:18277204.

21. Yardley L, Donovan-Hall M, Smith HE, Walsh BM, Mullee M, Bronstein AM. Effectiveness of primary care-based vestibular rehabilitation for chronic dizziness. Ann Intern Med. 2004;141(8):598-605. http://dx.doi.org/10.7326/0003-4819-141-8-200410190-00007. PMid:15492339.

22. Yardley L, Beech S, Zander L, Evans T, Weinman J. A randomised controlled trial of exercise therapy for dizziness and vertigo in primary care. Br J Gen Pract. 1998;48(429):1136-40. PMid:9667087.