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DISABILITY AND GAIT DISTURBANCES IN OLDER ADULTS: A SYSTEMATIC REVIEW

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Abstract

Background: there are different alterations that produce changes in the progress of the elderly which, cause effects on the march producing a physical deterioration and establishing a relative fear of having falls. There is a high percentage, of about 93% of the geriatric population, of pathologies and alterations in the feet, percentage that is increasing with the progressive increase of the age. Because of these changes and the increase in the number of postural alterations, there is a progressive decrease in walking speed. The main objective of our review was to analyze the different technical aids that are used by older adults, including as an aid to wander footwear. **Methods:** A Narrative review was carried out, whose search was conducted for studies published in different languages, by examining the Pubmed; Enfispo, CINAHL; and Google Scholar databases. The inclusion criteria were studies related to alterations of the walking of older adults who use technical aids to improve walking, in patients over 60 and studies published in English or Spanish. **Results:** Of the potential 861 articles identified, 13 studies were included in the review for qualitative synthesis after the analysis. The imbalances have to be monitored and studied by professionals to be able to change technical assistance if necessary and that the patient does no suffer a worsening in your ambulation and quality of life. **Conclusions:** Due to the varied gait alterations, the treatment of these should be multidisciplinary. The importance of the Podiatrist's work in maintaining a walking and walking as physiologically as possible.

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Introduction

Since we learn to wander fully upright and, independently, at the beginning of our childhood and, throughout life, there is an evolution and great changes in our way of walking, until we reach the so-called third age, where different alterations physical, emotional and functional make the way to wander change, to change to worse, altering our quality of life and our well-being.

There are different alterations that produce changes in the progress of the elderly as they are, the loss of auditory, visual, vibratory, proprioceptive sensitivity, etc., diseases that compromise balance, loss of muscle mass, loss of endurance and strength muscle, decreased flexibility and, postural changes or alignment alterations body (1).

These alterations produced by age cause effects on people's gait. TO advanced ages there is a physical deterioration and a relative fear of having falls Because of these changes and the increase in the number of postural alterations, produces a progressive decrease in walking speed (2–4)supone la presentación de gran cantidad de dolencias de orden biopsicosocial, encuadradas en la disciplina Enfermedades Psicosomáticas. El presente estudio trató de identificar si la Enfermedad de Alzheimer EA del receptor de los cuidados añade riesgos de dolencias psicosomáticas en el cuidador. HIPÓTESIS La EA del receptor de cuidados supone un factor de riesgo psicosomático añadido para el familiar cuidador de las personas afectas de patologías crónica descapacitantes. OBJETIVOS GENERAL Estudio de las enfermedades psicosomáticas en familiares cuidadores de enfermos de Alzheimer. ESPECÍFICOS 1,- Estudio de las enfermedades psicosomáticas en una población de cuidadores de enfermos crónicos discapacitados. 2,- Análisis de las enfermedades psicosomáticas detectas en una muestra de familiares cuidadores de enfermos de Alzheimer EA y en otra de familias cuidadores de enfermos crónicos y otras patologías discapacitantes (No-EA.

Age is the most associated factor with falls and, the elderly may also have a less muscle control which causes the impact with the ground, when walking, increases and, by instability that it causes, the base of support is increased when walking and standing, acquiring a more inclined posture, increasing the separation between the feet and doing that, when taking a step, decrease the height of the feet, completely changing the way you walk of these people, having alterations and pathologies characteristic of this situation functional (5).

There, in relation to the feet, existing deformities and pain in the feet make there is a strong relationship between ambulation and falls. Said foot pain can be a determining factor in the changes of the gait cycle and, therefore, in the alteration of the march.

After having suffered a fall, the person begins to be afraid of the possibility of fall again, this fear of falling again along with the possible depression and basic disability, are determining factors to produce new falls. These elderly who have suffered subsequent but recent falls decrease their physical activity and social, which leads to develop a disability of the elderly (6).

There is a high percentage, of about 93% of the geriatric population, of pathologies and alterations in the feet, percentage that is increasing with the progressive increase of the age. These alterations of the feet cause functional limitation and instability in gait (7). Due to the increase in the prevalence of foot pathologies, it is important to include podiatric examination within the general assessment of geriatric patients (8).

It is very important to help and return having a good ambulation, so that there is not a progressive deterioration of physical function and not causing a loss of normal gait, recurrent falls and chronic instability, trying to restore the best possible level of physical independence of the patient (9,10).

This comprehensive podiatric evaluation is also important to improve balance dynamic and static of the patient, correcting the body posture and working the muscles, doing a work of prevention of falls and with the consequent improvement of the quality of life of the elderly.

After the assessment of the causes of falls and, together with physical therapies and podiatric, technical aids can be used if necessary, to improve the quality of lifetime. The main objective of our review was to analyze the different technical aids that they are used by older adults, including as an aid to wander footwear.

Materials and Methods

Design

A review was carried out to evaluate specific technical aids in older patients for ambulation.

Search strategy

Studies were selected based on PRISMA 2009 (11) and four databases searched; Pubmed, CINAHL, Enfispo and Google Scholar without time limits. The last search was in March 2019. Search terms were used, together with the operator "OR" and "AND": walk, ambulation, fall, elder, seniors, footwear, technical aids, foot, disability, function.

Inclusion criteria

Studies that are related to the use of technical aids for ambulation.

- Types of participants: patients aged>60 years
- Types of studies: studies related to adult gait disturbances, seniors who use technical aids to improve ambulation and, studies published in English or Spanish.

Exclusion criteria

- Type of studies: no free access to full text studies

Results

A potential 861 studies were identified from which 269 were duplicates across the different databases. The remaining 592 were screened against inclusion / exclusion criteria using the titles, abstracts and key words. A total of 526 studies were discarded as they did not meet the inclusion criteria. After quality appraisal 49 studies were excluded, resulting in 17 studies being included. Finally, after a detailed reading, 13 studies were included in the review for qualitative synthesis. Figure 1 shows the PRISMA flow diagram for studies included in the review.

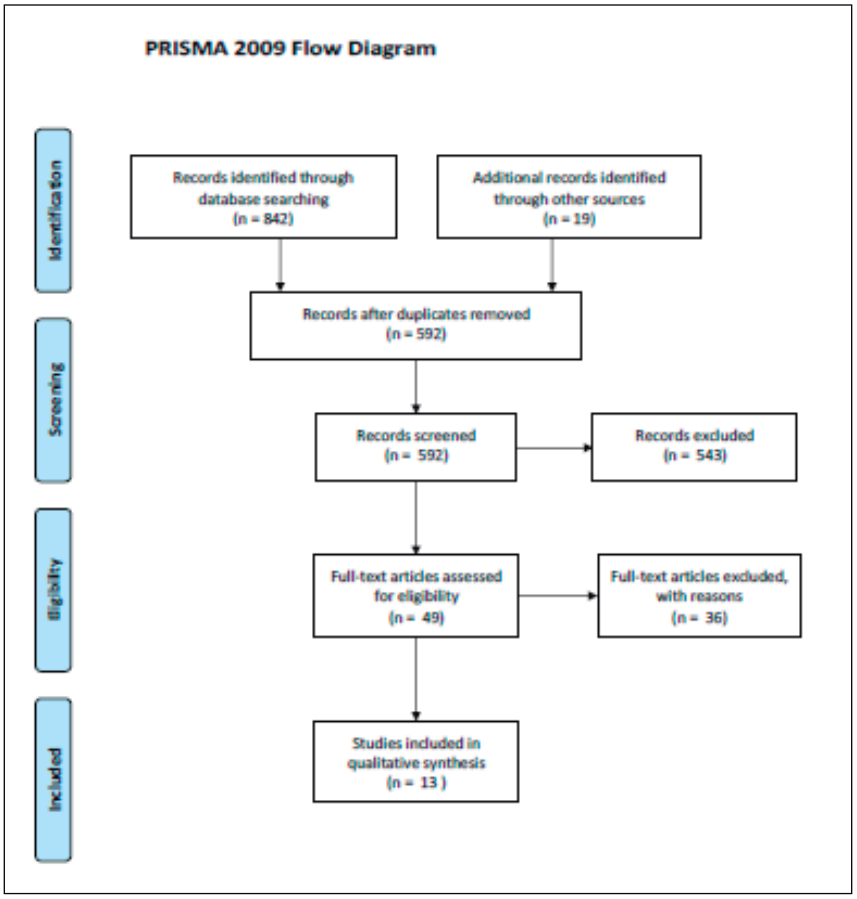

Figure 1. PRISMA flow diagram (11) for studies included in the review.

After reviewing the existing studies in the bibliography, we describe the different elements that help ambulation, from the most basic, such as footwear, until the description of the different technical aids that are most used, for the treatment in gait improvement and recovery after a traumatic process such as a fall or a surgical operation and, for the improvement of the quality of life of the elderly.

Footwear

Footwear is an element that helps walking and protects the feet. This footwear, not used properly, can be a major cause of falls, cause of appearance or worsening of the foot and the musculoskeletal system and, cause of alterations of the March (12,13).

It must have a thick and flexible sole, with non-slip properties. Also have a heel no more than two centimeters high and, square or wedge-shaped, at throughout the sole. The toe should be rounded or almost square shape and a wide shovel and tall. The closure should preferably be with laces, to give a good fit to the footwear with respect to the foot, or in its case, if there are motor problems, it can be a velcro closure.

This footwear must be the same length as the normal adult footwear, without being narrow, having a width according to the width of the individual's metatarsal area, and the toe should be square or rounded, with a thick sole, neither too flexible nor too rigid, as light as possible. This shoe must be made of flexible materials that fit to the bony prominences of the foot, with a high closure to the instep and, with a high tongue and padded It has to be closed by the heel area, with a stable base for the support of the ankle and, with buttresses, always anatomical to avoid friction (14).

Together with the use of orthopodology treatment, the adaptation of the footwear to said treatment. A good fit is required between the footwear and the plantar support to be used Footwear must have different characteristics, such as being fully closed, the heel has to be low and wide with a comfortable sole, have an adjustable fastening with laces or velcro, have a high shovel and made with flexible materials and must provide stability and comfort to the individual (12,13).

Types of footwear that we can find (5)

Physiological footwear: footwear that respects all the general morphology of the feet.

Corrective footwear: footwear made with specific lasts that correct deformities specific.

Orthopedic footwear: custom made footwear, which adapts as much as possible to the deformity and specific morphology of the feet. It has a function of pain reduction and increased physical performance.

Among the types of footwear, the most recommended is "geriatric" footwear, used in people with severe deformities in the feet. Wearing the right shoes improves quality of life of the elderly.

Technical help

All technical aids allow for the improvement of movement and mobility of the individual, partly improving the quality of life of those who use these aids. It is very important that each patient learn to use their own technical aids, with the help of professionals and, they have to have a learning process (1).

The objectives of these technical aids are to provide a greater support base during the gait, expand the individual's base of support and, improve the position of the center of gravity in static and dynamic.

Within these postural objectives, there are other more specific objectives at the physical level as, the reeducation of balance, musculature, proprioceptivity and position General body of the patient (3).

All these objectives, both general and specific, have the primary objective of give a greater sense of security to people who use it. This makes the individual, once accustomed to its use, lose the fear of having some fall and even, after a period of re-education, you could stop using such aids and have a totally physiological and adequate ambulation.

These aids modify the forces, both in power and direction, which support the musculoskeletal system when the person is standing or walking. The use of these aids It produces a discharge of the joints, as they increase the support points and it they distribute the loads, so they also reduce the weight on the lower extremities; and, they also reduce the effort that must be made in the propulsion phase on the march.

Stable gait aids

Walkers, fixed or of walk: they are devices of four legs that help to extend the base of support and

support of the individual, increase the balance and greatly reduce the risk of falls

There are three types of walkers, ordered from highest to lowest stability at the time of the wandering are, four-legged walker (fixed or articulated), two-legged walker and two wheels and four-wheel walker.

Modified poles: also called multipodal, provide greater stability to the individual and, at the same time, provide a discharge to one of the limbs. This item it provides greater stability, but there is a risk of changing the body posture of the individual and modify its center of gravity.

Unstable gait aids

Common cane, hand or conventional: it is the most used type of cane. They serve to maintain balance by expanding the support base of the individual. They also help download one of the lower extremities.

English cane: they help to facilitate the march, increasing the stability when extending the base of lift and / or reduce the load of one or both limbs, when using one or two canes respectively.

Canadian type crutches or cane: this help allows direct support on the trunk, aided by the arm, providing great stability and balance and, at the same time, is possible to leave your hands free when standing.

Wheelchair

This technical assistance facilitates mobility for individuals who cannot move on their own with other devices. They allow mobility in an effective way, avoid injuries and enhance the independence of the individual who cannot wander without help.

These technical aids are very important for the elderly for their mobility and the possibility to be able to move normally, but, the level of independence must be taken into account initial of the elder before prescribing a technical help since it can produce a limitation in carrying out their daily life activities (8,15).

All these technical aids for ambulation can also alter normal gait, as for the loss of bilateral balance because of the use of a cane or for the loss of I scuff when using a walker. These imbalances have to be monitored and studied by professionals to be able to change technical assistance if necessary and that the patient does no suffer a worsening in your ambulation and quality of life.

Discussion

According to some authors such as Lavedán et al. (2015), 25 percent of the elderly suffer over a year, at least one falls per year, with the consequent requirement of Professional healthcare

Regarding what Vázquez-Navarrete et al. (2016), in his work, we are agreement that work must be carried out in which the direct relationship is studied of podiatric pathologies with other disorders, diseases or geriatric syndromes and its importance as, diabetes mellitus, rheumatoid arthritis, etc., chronic diseases and systemic that may be risk factors for podiatric pathologies.

With regard to footwear we can say that the general population does not have the information Basic necessary to know what is the right footwear for your feet and your ambulation. According to López et al., 2008, in their work, people over sixty use an inappropriate footwear in a high percentage and, to a greater extent, women with respect to the men.

With regard to footwear and technical aids, it is important to prescribe technical aids, such as the cane or walker, plantar supports or orthopedic footwear, for the improvement of various alterations and above all, for the improvement of the quality of life of the patients.

Conclusions

Due to the varied gait alterations, the treatment of these should be multidisciplinary. The importance of the Podiatrist's work in maintaining a walking and walking as physiologically as possible, through functional treatments, such as exercise programs, with the use of plantar supports and any treatment orthopodology and chiropodology and, with joint use, if necessary, help ambulation techniques.

Highlight

It is important to prescribe technical aids for the improvement of various alterations and above all, for the improvement of the quality of life of the patients.

The treatment of gait disturbances must be multidisciplinary, due to the great variety of these.

These imbalances have to be monitored and studied by professionals to be able to change technical assistance if necessary

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