QUALITY OF LIFE AND WORK PERFORMANCE IN PERIPHERAL ARTERY DISEASE OF THE LOWER EXTREMITIES

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Summary

Background: Systemic obstructive vascular disease directly influence on patients' quality of life and work performance. Aim of the review was to assess the quality of life and work performance in patients with peripheral artery disease of the lower extremities (PADLE).

Methods: The study was conducted by searching in MEDLINE and EBSCO databases using the following words: peripheral artery disease, quality of life, and work or walking performance. From 1990 to 2021 years, 334 papers in the databases were screened, after excluding ineligibles publications, overall 18 papers remained for the assessment.

Findings: It was observed that quality of life was impaired in patients with PADLE. The worst impairments were observed in older women who are alone in family, not taking medications, living in low-income family, having concomitant type two diabetes mellitus or systemic atherosclerosis, in smokers, less active patients and also who undergone leg amputation due to critical limb ischemia. Furthermore, work performance has been impaired in patients with peripheral artery disease of the lower extremities especially in those who did not perform regular daily exercises and did not follow treatment regimen.

Interpretation: Impairments on quality of life and work performance are high in patients with peripheral artery disease of the lower extremities. Rehabilitation programs are needed to deal with these issues.

Introduction

Peripheral artery disease of the lower extremities (PADLE) are common pathologic condition, which affects not only elderly population contingent but also young people who have risk factors for this disease such as dyslipidemia, chronic kidney disease, hypertension, high blood sugar level, and smoking. Having three or four risk factors may increase the PADLE 10 times (Eraso 2014). Peripheral artery disease of the lower extremities is characterized by decreased blood flow and inadequate oxygen supply to the lower extremities due to atherosclerotic narrowing arteries. Consequently, legs are experienced with oxygen insufficiency as a result symptoms of the disease are occurred such as pain in the legs, claudication, skin redness etc.

Peripheral artery disease of the lower extremities is one of the main consequences of the systemic atherosclerosis. This condition leads not only to reduce the quality of life but also to deteriorate of patients' general condition and even lost lower extremities. Furthermore, PADLE is considered one of the risk factors for the development of cardiovascular and cerebrovascular disease together with being main cause of amputation of the legs. In more cases, peripheral artery disease of the lower extremities might be asymptomatic before evolving clinical signs and symptoms of the claudication and severe limb ischemia.

If we look at the epidemiology of the problem, we can observe scares data regarding the burden of the disease. Peripheral artery disease of the lower extremities affects more than eight million people in the United States of America and more than two hundred million people in the world (Go 2013). Prevalence of the PADLE are ranged in European countries. Prevalence of the peripheral artery disease of the lower extremities was increased by 28.7% in low - medium income countries and by 13.1% in high-income countries within Europe (Domínguez-Olmedo 2019). These numbers show that the condition is one of the concerns that need to be dealt.

The objective of the current research is better understand of the burden of PADLE and estimate quality of life patients who have this condition. Although, quality of life depends on timely treatment, patients' compliance to the treatment, economical state and social status of the patients,

less is known regarding the quality of life of patients with peripheral artery disease of the lower extremities and work performance lost. The purpose of the current study was to investigate the quality of life and loss of work performance in patients with peripheral artery disease of the lower extremities.

Methods

Date source

We collected data online by searching in MEDLINE and EBSCO databases in relevance local, international and association portals with using the following words: peripheral artery disease, quality of life, and work or walking performance. No language restrictions were applied for the searching. We searched from 1990 to 2021 papers based on the above-mentioned platforms. Inclusion criteria structured as per the PICOS criteria and applied to titles, abstracts and texts. All included papers selected based on CRISMA flow chart.

Results

Data collection

We identified 334 papers in MEDILE, EBSCO databases. Then we removed 38 duplicate records, 72 ineligible records. After initial identification, we screened all records and excluded 112 records because of not corresponding our objectives. Following that, all reports and records assessed for eligibility. 69 records did not meet our inclusion criteria due to not having all words at the screened papers. 25 records were excluded because of they had all searched words only in the body part but not in abstracts of the screened papers. Overall, we included 18 papers in the review (1 Figure).

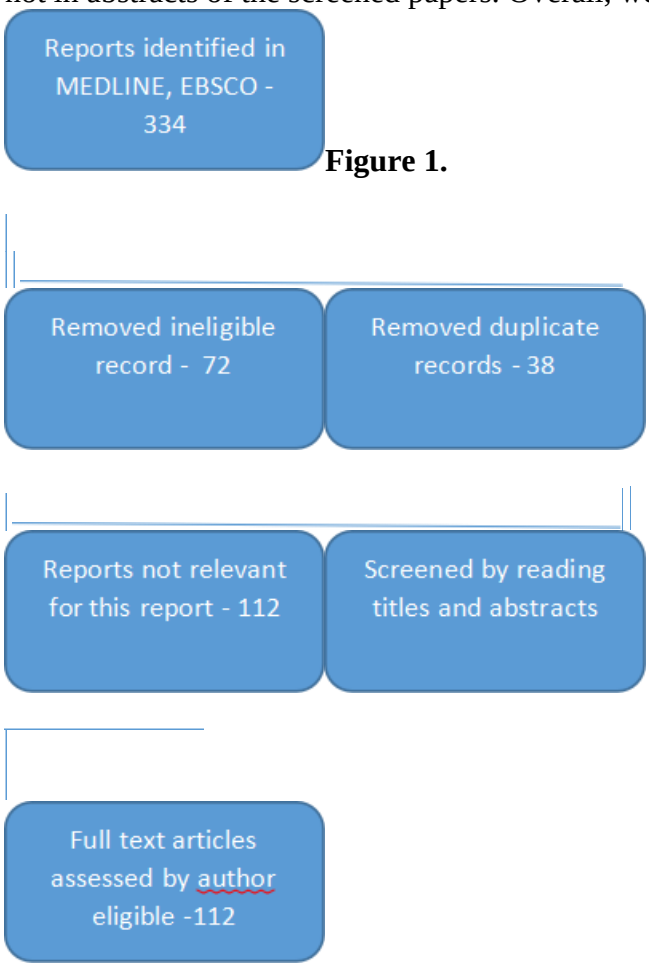

Figure 1.

Papers included in the study - 18

Quality of life

We identified that quality of life are poor in patients with peripheral artery disease of the lower extremities. In all included papers WHOQOL-Bref version for quality of life analysis used for the assessment of the quality of life. Quality of life was depended on the several factors such as age, gender, marital status, beliefs, incomes, sociologic factors, concomitant diseases (Domínguez-Olmedo 2019, Marrett 2013). Patients tended to be more deteriorated quality of life if they are older age especially who are older than sixty-five. In family who were single tended to be, more impaired quality of life (Aragão 2018). Among economic factors, patients who lived insufficient and low-income family and more stressed family were declined quality of life. Among beliefs, patients who tended to be more engaged in religion were less impaired quality of life (Aber 2018). When we assessed gender characteristics, women more likely to be decreased quality of life especially who encountered with early menopause (Aragão 2018). Men were less likely to deteriorate quality of life than women were especially who regularly drank alcoholic drinks.

When we assessed risk factors, type two diabetes mellitus (Domínguez-Olmedo 2019, Oka 2005), total atherosclerosis and smoking were more likely to influence quality of life in patients with peripheral artery disease of the lower extremities. Following this came unhealthy eating habits to deteriorate quality of life. High blood pressure and less physical activity came after that in terms of decreasing quality of life (Aber 2018). Additional traumas also could affect to the quality of life in patients with peripheral artery disease of the lower extremities. Patients who needed to undergo the amputation had the worst quality of life (Ratliff 2019). They tended to be more depressed and loss of interest in life. Especially, patients who were single feelings like those were more likely to appear after losing lower extremities due to critical limb ischemia (Ratliff 2019).

Among concomitant conditions, cerebrovascular disease such as ischemic stroke, transient ischemic attacks, chronic ischemia of the brain and cardiovascular diseases such as myocardial infarction, unstable angina, chronic heart failure and coronary artery diseases had significantly affected to quality of life in patients with peripheral artery disease of the lower extremities and they tended to be more deteriorated quality of life than those who had not these conditions (Aber 2018, Patel 2014). Chronic obstructive pulmonary disease and chronic lung diseases also affected to the quality of life in patients with PADLE. Even though, gastrointestinal disease such as gastritis, colitis, gastroesophageal reflux disease were influenced less, concomitant liver diseases such as cirrhosis, portal hypertension strongly influenced to the quality of life in patients with peripheral artery disease of the lower extremities (Patel 2014).

Regularly exercise-training modules had affected positively on quality of life in patients with both symptomatic and asymptomatic patients with peripheral artery disease of the lower extremities. Molly N Schieber et al. demonstrated that intensive 6 months physical training improved quality of life in these patients (Schieber 2020). Furthermore, bicycle exercise training also elevated quality of life and improved mood of the patients (Collins 2019).

Work performance

Loss of work performance are common in patients with peripheral artery disease of the lower extremities. Especially who are suffering from intermittent claudication due to the pain in the legs. Impairment of the work performance were less likely in those who had regularly been taken antiplatelet agents (Marrett 2013). Regularly bicycle exercise training impacted positively in work performance and walking performance in patients with peripheral artery disease of the lower extremities especially in those who were symptomatic and suffered from pain in the legs (Haga

2019). Furthermore, six months of supervised exercise therapy improved work performance and increased walking distance together with improvement quality of life in those who were suffering from intermittent claudication (Schieber 2020).

Tracie C Collins et al demonstrated that African-American population are two times more likely to have peripheral artery disease of the lower extremities than other ethnical individuals (Collins 2019). Moreover, they showed that structured community based exercise therapy are crucial to improve walking and work performance in patients with peripheral artery disease of the lower extremities (Collins 2019). In addition to this, intermittent claudication could affect to the work, power and exercise and recovery times in patients with PADLE. As Stephen F Figoni et al stated that intensive training would impact positively on work performance, power activity and exercise capacity and negatively associated with recovery time for each intensive physical exercise in patients with peripheral artery disease of the lower extremities (Figoni 2010).

Discussion

Increasing number of patients with peripheral artery disease of the lower extremities are concern not only particular in one region or country but also throughout the world (Marrett 2013). This is the real picture of one of the modern medicine that affects on many people to decrease quality of life and deteriorate work or walking performance. As a result, it has been influencing not only affected people's life but also other family members of those who were suffering from this condition.

The findings of the current investigation showed that women gender who are single in family, more advanced aged, not taking medications, living in low-income family, having concomitant type two diabetes mellitus, systemic atherosclerosis, smokers, less active participants with PADLE and who lost legs due to amputation had lower scores quality of life. In addition, following factors such as regularly taking medications, regularly physical and bicycle exercises, intensive training positively affected on the work or walking performance in patients with peripheral artery disease of the lower extremities. These finding are in line with what has been demonstrated by Aragão JA et al (Aragão 2018) who studied influence of quality of life in patients with peripheral artery disease of the lower extremities and Haga M et al (Haga 2019) who described influential factors to work performance in patients with peripheral artery disease.

In relation to gender, Aragão JA et al (Aragão 2018) and Nogales AM et al (Nogales 1998) demonstrated that lower quality of life in women than men might have been associated with new increased role of women in society and more engagement in family. When they are out of society activities due to the illness and left alone in family, their quality of life deteriorates. With relation to living in low-income family and not being able to take medications Fawkes FG (Fowkes 2013) suggested that social support and greater comprehensive explanation may improve patients financial situations and may enable to understand the illness better, as a result, to be able more compliance with medications.

With regard to the influence of concomitant diseases such as type two diabetes mellitus, systemic atherosclerosis and smoking to the quality of life have been stated in the works of several authors (Oka 2005, Regensteiner 2008). It could have been due to the involvement in the pathological process many organs and parts of the body consequently, it might have led to severe symptoms that deteriorate quality of life patients with peripheral artery disease of the lower extremities.

Naturally, losing legs due to amputation and tending to be less active could led to decrease quality of life in patients with intermittent claudication. Ratliff CR et al (Ratliff 2019) described that amputated patients had low quality of life scores than non-amputated patients with peripheral artery disease of the lower extremities. It is natural phenome that living without leg significantly affects on the quality of life as a result majority of amputated patients suffers from losing interest to life.

With relation to the influence of regular exercises, compliance to the treatment to the work performance have been described in several studies (Bedenis 2014, Collins 2019, Haga 2019,

Schieber 2020) which explains the finding the work performance is low and agrees with the decreased in patients with peripheral artery disease of the lower extremities.

Conclusion

In this study, it is found that quality of life in patients with peripheral artery disease of the lower extremities impaired in different degrees. This is in turn is concerned with gender, age, social status, family income, compliance to the treatment, comorbidities, bad habits such as smoking and of course complications related to the peripheral artery disease of the lower extremities. The worst quality of life was observed in women older patients than men, who were single in family, from low-income families, smokers and had concomitant type two diabetes mellitus, systemic atherosclerosis or had been undergone leg amputation due to the critical limb ischemia of the lower extremities.

Work performance also has been impaired in several degrees in patients with peripheral artery disease of the lower extremities. This in turn closely related with daily exercise activities, compliance to the treatment and timely intake antiplatelet drugs. In view of these result, it can be stated that this investigation increased our notion and understanding the pivotal insights in the field in terms of public health.

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