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Original research article

Study of vitamıns and zinc supplementation in chronic non-specific low back pain in women

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Abstract

The majority of people suffer from back pain. Pain complaint is the second most common complaint after headache. Chronic pain in the low back (CLBP) usually gets worse with time, and determining the root reason can be challenging to determine or verify. Despite the fact that there are a great deal of pharmaceutical despite the availability of very intrusive therapeutic options, a significant number of patients still suffer due to a significant amount of mortality. Vitamin D deficiency has been associated with persistent discomfort in the musculoskeletal system, including low back pain. Back Pain (LBP). Inadequate levels of vitamin D also have negative effects on the mobility of the body, both directly and indirectly as a result of experiencing pain. There is a high prevalence of vitamin-D deficiency, which can reach up to 83 percent reported in patients with chronic low back pain compared to those in the general population. We aimed to investigate the effects of vitamin D3, vitamin C, vitamin E and zinc supplements on pain and functional capacity in Chronic Low Back Pain.

Keywords: Vitamin D, zinc, supplementation, low back pain

Introduction

Pain can be defined as an unpleasant sensory and emotional experience that is connected with existing or potential tissue damage, or that is described in terms of such damage [1]. Back pain is the second most prevalent type of pain complaint, the most common type being headache. The symptoms of chronic low back pain (CLBP) frequently worsen with time, and its root cause can be challenging to identify. In spite of the fact that there are numerous pharmacological and invasive therapy options available, a significant number of patients continue to have significant morbidity [2]. Low back pain has been linked to vitamin D deficiency, which has been linked to other types of chronic musculoskeletal pain (LBP). Additionally, a deficiency in vitamin D can damage the flexibility of the body in both a direct and indirect manner due to the effects of pain.

In comparison to the general population, patients with chronic low back pain have been found to have a much higher prevalence of vitamin-D deficiency (up to 83%) [2-5].

There is still a lack of understanding regarding the mechanisms that underlie these relationships [6, 7]. In principle, there are two different connections that could be made. In the first place, hypovitaminosis D might be to blame for the widespread discomfort in the bones and muscles, as well as the weakness and paresthesia. Secondly, hypovitaminosis D could have a role in the development of morphic alterations by increasing the vertebral end plates' vulnerability to irradiation [8]. This increased susceptibility could lead to morphic abnormalities. One of the important nutrients that acts as an antioxidant in the human body is vitamin E. Vitamin E is an essential nutrient. It is the most important chain-breaking antioxidant in the body and the first line of defence against lipid peroxidation. It shields cell membranes from the damage caused by free radicals [9]. In early research, the anti-nociceptive effects of vitamin E were seen and documented. For instance, streptozotocin-induced diabetic neuropathy in rats was treated with the dietary supplement vitamin E (12 g/kg per day, taken orally for three months), and this improved the rats' nerve conduction deficits [10]. One study found that a single infusion of vitamin E (0.1-5 g/kg intraperitoneally) reduced the severity of mechanical allodynia in rats who had undergone spinal nerve ligation [11].

Aims and Objectives

To effects of vitamın D, C, E and zinc supplementation in chronic non-specific low back pain in Women.

Materials and Methods

This study was done in the Department of OBG along with the help of Department of Orthopedics, Kamineni Institute of Medical Sciences, Andhra Pradesh. The study was done from Oct 2014 to Oct

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One hundred female Patients in the age range of 20-65 years old with chronic low back pain (CLBP) for at least three months, no leg pain, not responding to medications and physical therapies, having a pain score of at least 5 as assessed on a 0-10 Visual Analogue Scale (VAS) at baseline, and having low plasma levels of 25-hydroxyvitamin D3 (30 ng/mL) were eligible for study recruitment. Patients who did not have leg pain were excluded from the study. After an overnight period of abstinence, a blood sample was drawn and analysed for levels of 25-hydroxyvitamin D3.

Before and after 8 weeks treatment protocol, McGill Pain Questionnaire, The Finger Floor Test, Roland Morris Disability Questionnaire, Fear-Avoidance Beliefs Questionnaire was evaluated.

Results

Table 1: Age Distribution

20-35 years	36-50 years	50-65 years
29.65 ± 2.17 years	44.18 ± 1.02 years	61 ± 0.98 years

Table 2: Before treatment, MPQ, FFT, RMDQ and FABQ were evaluated and the results were recorded

MPQ	51.54±6.03
FFT	5.6±2.35 cm
RMDQ	13.9±2.38
FABQ	2.44±0.89

Table 3: After treatment, MPQ, FFT, RMDQ and FABQ were evaluated and the results were recorded

MPQ	22.38±5.21
FFT	2.68±0.82 cm
RMDQ	5.82±1.28
FABQ	2.5±5.73

Discussion

The activation of certain enzymes, such as proline hydroxylase and lysine hydroxylase, is crucial to the maintenance of stable collagen helixes, which are a hallmark of healthy connective tissues. Vitamin C, often known as ascorbic acid, is a key component of vitamin C. It is well known that vitamin C can operate as an antioxidant, protecting DNA, proteins, and the cellular walls from the damaging effects of oxidation. Antioxidant vitamins are essential to humans not only because of their preventive action against the damages caused by free radicals, but also because they contribute to regenerate the redox (oxidoreduction) potential of cells and circulating fluids, and to maintain a stable and active antioxidant system [12]. This is because antioxidant vitamins play a role in maintaining a stable and active antioxidant system. Zinc is a trace element that plays an important role in maintaining human health. In addition to playing an important part in the processes of cellular differentiation and production, it is also required for the synthesis of proteins and nucleic acids. In addition to this, it plays a role as a microelement in a wide variety of biological reactions [13, 14]. Zinc is necessary for the proper functioning of approximately three hundred different metalloenzymes, as well as the RNA enzymes and DNA polymerases that they are a component of. In addition to this, there is evidence that zinc contributes to the healthy functioning of the immune system. Zinc deficiency can cause growth limitation, iron deficiency anaemia, organomegaly, inadequate wound repair, weight loss, reduced immunological response, and increased susceptibility to infection [15-17]. Other symptoms include organomegaly. Zinc has been shown to ease gastrointestinal infections and diarrhoea, as well as aid in wound healing by activating enzymes involved in collagen formation. These benefits can be attributed to zinc's presence. The current investigation is being carried out with the purpose of determining the efficacy and safety of vitamin-D3, vitamin-C, vitamin-E, and zinc dietary supplements with regard to alleviating pain and other symptoms associated with CLBP.

Conclusion

The effects of vitamin D, C, E and zinc on chronic pain should not be forgotten and should be questioned in the evaluation.

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