



Nutraceutical supplement in the management of tendinopathies: a systematic review

Review article

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Summary

Background: nutraceuticals are common support therapy for management of tendinopathies. Even if they are widely diffused, our knowledge is still poor. The aim of this systematic review is to analyse the most commonly used nutraceuticals and their effects on tendons.

Methods: glucosamine and chondroitin sulphate, vitamin C, hydrolysed type 1 collagen, arginine alpha-keto-glutarate, bromelain, curcumin, boswellic acid, and methyl-sulfonyl-methane were considered. During the last week of December 2015 a comprehensive research of main databases for each substance was made in relation with tendinopathy. Repeated articles, articles not in English nor in Italian, not common nutraceuticals, and articles not related with tendons or tenocytes were excluded. Clinical article quality was assessed independently by two reviewers using the modified Coleman methodology score.

Results: preclinical and clinical data from 38 articles from all databases were analysed. All these nutraceuticals demonstrated several effects on

normal and pathological tendons. Preclinical and clinical studies showed a possible role on collagen synthesis, inflammation, mechanical properties, and maturation of collagen bundles, antioxidant effect, edema, and angiogenesis. The majority clinical studies had some methodological limitations with an average Modified Coleman Methodology Score of 51.3 points and SD of 20.5 points. In particular, there were very low values in power, error, outcome assessment, and clinical effect. **Conclusion:** preclinical results are very encouraging, however they are not fully confirmed by clinical studies. There are few clinical papers on the use of nutraceuticals in tendon disorders, and their methodological quality is poor. Furthermore, in most of the studies more than one supplement was administered at the same time. This may bias the results, and the effect of each single component cannot be determined. Furthermore, the interactions between nutraceuticals and drugs, or other dietary supplements (especially at high doses) has not been evaluated, neither their effects on chronic diseases. For these reasons, it is not possible to draw any definitive recommendations on the use of nutraceutical supplementation in tendinopathies.

KEY WORDS: exercise, boswellic acid, curcumin, arginine alpha-keto-glutarate, oral supplement, tendon disorder.

Introduction

Tendinopathies are common diseases with about 20% of all consultations with a general practitioner for musculoskeletal disorders. In the last years, the increase of sport activities, life expectancy, and other factors such as environment, diet, systemic diseases and some drug therapies have led to a rise in the incidence of tendinopathies. In fact, not only athletes, but also the general and older populations suffer from inflammatory or degenerative tendinopathies. In each of these clinical categories, there are 2 common anatomical and functional actors: the quality of tendon tissue and mechanical overuse¹.

Some tendons suffer more from tendinopathies than others; in particular supraspinatus and biceps brachii tendons, forearm extensor and flexor tendons, patellar tendon, Achilles and fibular posterior tendons are the most commonly affected.