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SUPPLEMENTATION OF FISH OIL AS A SOURCE OF N-3 POLYUNASATURATED FATTY ACIDS IN HUMAN REDUCTION OF PSORIASIS DISEASE – A SYSTEMATIC REVIEW

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ABSTRACT

Psoriasis is an immune mediated chronic inflammatory human disease of unknown etiology and characterized by epidermal hyperplasia and inappropriate immune activation, which affects the skin and joints as well. Increased concentrations of free arachidonic acid (AA) and its pro-inflammatory metabolites have been observed in psoriatic lesions. Replacement of arachidonic acid by alternative precursor polyunsaturated fatty acids (PUFA), might be a therapeutic option in psoriasis. Fish oil contains n-3 polyunsaturated fatty acids, mainly eicosapentaenoic (EPA), and docosahexaenoic acids (DHA), reduces symptoms in many inflammatory skin diseases. The mechanism of action of fish oil in the treatment of psoriasis is widely based on the alteration of epidermal and blood cell membrane lipid composition. In conclusion, n-3-fatty acid administration causes reduction of psoriasis, which may be related to changes in inflammatory eicosanoid generation. oral administration of fish oil n-3 polyunsaturated fatty acids had positive effects. However, further studies are warranted to answer many intriguing questions, for instance, the ideal quantity of fish oil to be utilized, the effect on different forms and severity of psoriasis . we conducted a systematic review of all randomized controlled trials and observational studies that determined the effects of n-3 PUFAs on outcomes in patients with psoriasis compared with control treatment.

INTRODUCTION

Omega-3 fatty acids, which are found abundantly in fish oil, are increasingly being used in the management of many diseases. In this review we examine the extent to which Omega-3 nutritional interventions has been studied for the treatment of psoriasis. Psoriasis is a chronic, non communicable, inflammatory, hyper proliferative skin disease.It occurs equally in both sexes. There are more than 125 million people, or nearly three percent of the world's population, who endure the symptoms of psoriasis.

OBJECTIVES

Many randomized controlled trials have been performed on the efficacy and mechanism of action of omega-3 polyunsaturated fatty acids (n-3 PUFAs) on psoriasis. This study wants to assess the effects of n-3 PUFAs on the severity of psoriasis.

MATERIALS AND METHODS

Systematic review was conducted and reported

Search strategy -

Databases were searched by two research investigators (AKS and VAM) independently. The search terms used were ‘psoriasis’, ‘fish oils’, ‘omega 3’, ‘EPA’, ‘DHA’,’PUFA’ and ‘POLYUNASATURATED FATTY ACIDS’. Databases were searched for published studies indexed in the Cochrane Central Register of Controlled Trials (CENTRAL) of The Cochrane Library, PubMed/MEDLINE and EMBASE from database inception to November 2016. References of articles were also examined.

Inclusion and exclusion criteria -

All published randomized clinical trials were included in this study, comparing the effect of N3 PUFA with control in Psoriasis Patient. Titles and abstracts were read for preliminary screening; afterward, full texts were read to determine which studies were eligible for inclusion. Reviews and case reports were not included in this sudy.

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Participants -

Participant of I8 years in age or older with any type of psoriasis (Plaque, guttate, pustular, inverse, erythrodermic or psoriatic arthritis) were included.

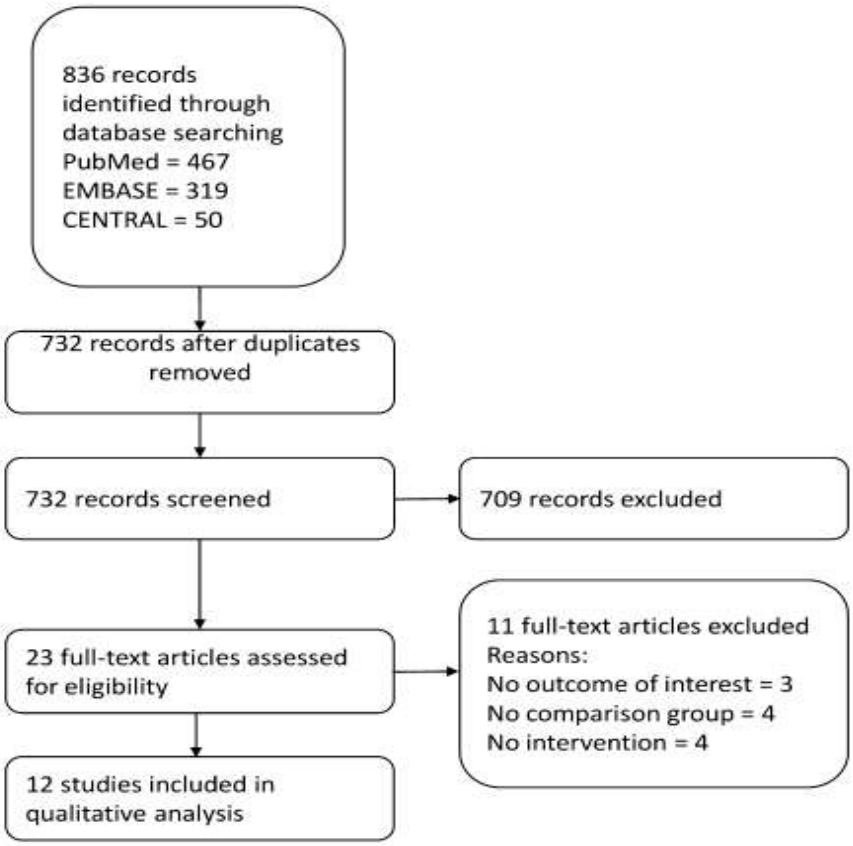
Data extraction and management -

Two study investigators (AKS and VAM) independently reviewed the titles and abstracts of all identified citations. The inclusion criteria were independently applied to all identified studies. Only full-text articles written in English were included.

RESULTS

Initial search identified 732 articles. A total of 720 articles were excluded because they were not randomized controlled trials. 12 randomized controlled trials were included, and the data of all 12 studies were extracted. Six studies reported improvement in the patients' erythema, scaling, itching, area involved and infiltration. The remaining study evaluated the effects of Fish oil combined with nonsteroidal anti-inflammatory drugs or disease-modifying antirheumatic drugs in patients with psoriatic arthritis. Patients in the group that received combination therapy showed reduction in PASI score and report a decrease in the number of tender joints.

FIGURE 1 : Flow diagram of the literature search process.



DISCUSSION

The most widely available dietary source of EPA and DHA is oily fish, such as salmon, herring, mackerel, anchovies, menhaden, and sardines. saturated n-3 fatty acids within human tissues is possible when provided with the precursor linolenic acid, the rate of synthesis to longer more unsaturated fatty acids in humans is limited. Eicosapentaenoic acid (EPA; 20:5 n-3) and docosahexaenoic acid (DHA; 22:6 n-3) are long-chain n-3 fatty acids found in all fish species, with oily fish from cold climates containing the highest levels of EPA and DHA. Eicosanoids from AA are responsible for inducing proinflammatory, proarrhythmic, and vasoconstrictive responses, whereas eicosanoids from EPA have the contrasting effects of anti-inflammatory, antiarrhythmia, and vasodilative responses.

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Comparing fish oil with present treatment -

Cyclosporin - Fish oil inhibits TXA_2 production and reduces both the hypertensive and nephrotoxic effects of cyclosporin.

Methotrexate - studies show that LC n3 PUFAs reduce loss of appetite, weight loss and gastrointestinal damage associated with methotrexate therapy.

Prescribers should consider the NSAID-sparing effects, The lack of serious side effects and the positive health benefits of fish oil. Its supplements offer the lowest cost of EPA and DHA than other supplementation.

There are still a number of limitations associated with their use in psoriatic patients. patients experiencing nausea, the consumption of therapeutic doses of fish oil (43 g per day) or more purified EPA/DHA (42 g EPA, 41.4 g DHA per day) may be impractical, because of the commonly experienced side effect of 'fishy' reflux experienced by many patients consuming fish oil or EPA/DHA supplements**.**

CONCLUSIONS

A number of studies have evaluated the therapeutic benefit of n-3 fatty acids either using fish oil or highly purified n-3 fatty acid ethyl esters by the oral or topical route. Further research is still required to determine the mechanisms by which both marine derived n-3 PUFAs and other fish-oil derived compounds are mediating their effects**.**

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