

Usage of Flaxseed Lignan in Menopausal Complaints in Perimenopausal Women Patients

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Abstract

Lignans are phenylpropanoid dimers widely distributed in the plant kingdom. Flaxseed (*Linum usitatissimum*) is one of the richest source of dietary lignans. Plant lignans comprise one of the two main groups of phytoestrogens the other group being the isoflavonoids. The major flax lignan is secoisolariciresinol diglucoside (SDG). Flaxseed is the richest food source of SDG. Flaxseed also contains much smaller amounts of matairesinol, lariciresinol, and pineresinol. The plant lignans are converted by the intestinal microflora in the proximal or upper part of the large intestine to enterodiol (END) and enterolactone (ENL). Between 2017 and 2019, 26 female patients who applied for getat polk, obesity and perimenopausal complaints were included in the study. Demographic data of the patients were recorded. Age, weight, height, BMI and blood T_{3,4}, TSH, B₁₂, Na, K levels were measured. Statistically average measurements were taken. Flaxseed was recommended for patients whose cholesterol levels were above the reference value. SDG has antioxidant activity. It also may have hypoglycemic, hypocholesterolemic, estrogenic, anti-estrogenic, anticancer, antiproliferative and renoprotective properties.

Key words: Flaxseed; lignan; perimenopausal women;

Introduction

Lignans are phenylpropanoid dimers widely distributed in the plant kingdom. Flaxseed (*Linum usitatissimum*) is one of the richest source of dietary lignans. Plant lignans comprise one of the two main groups of phytoestrogens the other group being the isoflavonoids.

The major flax lignan is secoisolariciresinol diglucoside (SDG). Flaxseed is the richest food source of SDG. Flaxseed also contains much smaller amounts of matairesinol, lariciresinol, and pineresinol. The plant lignans are converted by the intestinal microflora in the proximal or upper part of the large intestine to enterodiol (END) and enterolactone (ENL). END and ENL are not themselves plant lignans and are called mammalian lignans or enterolignans. Plant lignans are precursor of mammalian lignans. It is thought that many of the possible biological actions of SDG are due to its conversion to END and ENL. SDG is dibenzylbutyrolactone. This is one of the two major structural types of plant lignans. The spruce lignan 7-hydroxymatairesinol also processes this type of chemical structure (see spruce lignans). The other major chemical type is the tetrahydrofuran type that can be found in the sesame seed lignans sesamin and sesaminol. (see spruce lignans). The biphenolic nature of SDG resembles many of the

substances known to exert estrogenic action or in some epidemiological studies to be correlated with reductions in prostate cancer and breast cancer incidence. Experimental evidence in animals has shown anticarcinogenic effects of SDG as well as cardiovascular and renal protective effects. Plant lignans began receiving much attention in the field of natural product chemistry ever since the discovery of the plant lignan podophylotoxin, which is used as starting compound for a few cancer drugs including oetoposide.

Lignans should not be confused with lignins. A lignin is a cross-linked phenolic polymer which combines with cellulose to give woody plant tissue its rigidity.

Method

Between 2017 and 2019, 26 female patients who applied for getat polk, obesity and perimenopausal complaints were included in the study. Demographic data of the patients were recorded. Age, weight, height, BMI and blood T_{3,4}, TSH, B₁₂, Na, K levels were measured. Statistically average measurements were taken. Flaxseed was recommended for patients whose cholesterol levels were above the reference value.

Findings

	age long	Kg	BMI	HGB	cholesterol	TG	VLDL	HLDL	LDL	
Median	49.00	1.600	72.00	27.00	13.30	207	143	28.30	53.10	122.8

In the table below, the average values of patients' TSH,K,Na,Mg,B12, T3,T4 Descriptives

	TSH	D-VITAMİNİ	Na	K	Ca	Mg	B12	FREE T3	FREE T4
N	28	35	23	22	40	27	16	10	11
Missing	68	61	73	74	56	69	80	86	85
Mean	3.175	25.60	134.0	4.775	9.380	2.030	457.8	2.925	1.169
Median	1.985	23.50	140.0	4.500	9.515	2.000	351.0	2.910	1.160
Standard deviation	6.182	22.85	28.33	1.173	1.262	0.1877	420.2	0.1471	0.1603
Minimum	0.01000	4.200	4.300	4.100	1.980	1.800	1.530	2.720	0.9500
Maximum	34.09	140.0	144.0	9.660	10.68	2.750	1859	3.150	1.490

Actions and pharmacology

SDG has antioksidant activity. It also may have hypoglycemic, hypocholesterolemic, estrogenic, anti-estrogenic, anticancer, antiproliferative and renoprotective properties.

SDG, SECO, and the enterolignans END and ENL have been shown to be effective antioksidants against lipid peroxidation and oxidative DNA damage potentially due to their free radical scavenging activity.

SDG was found to be protective against streptozotocin induced diabetes in rats an animal model of type 1 diabetes. It delayed the onset of diabetes in the rats and was thought to act by an antioxidant mechanism.

Indications and usage there are claims that the flaxseed lignan SDG may be useful in preventing heart disease, some cancers, insulin-dependent diabetes mellitus and obesity; that it has kidney protective effects; that it may favorably alter estrogen metabolism in postmenopausal women to an equal or greater extent than supplementation with soy products; and that it may relieve the symptoms of benign prostatic hyperplasia (BPH). The best supported claims relate to heart disease BPH and cancer.

One recent study concluded that supplementation with flaxseed alters estrogen metabolism to a possible less mitogenic form estrogen to greater extent in menopausal women than does soy. Experimentation with SDG itself in this context has apparently not been performed.

Contraindications flax lignans are contraindicated in those who are hypersensitive to any component of a flax lignan-containing product.

Dosage SDG has been studied at doses of 300mg to 600mg daily for prolonged periods of time without any significant adverse events noted.

Conclusion

Phytotherapeutic flaxseed and products can be used in menopausal complaints of perimenopausal women.

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