HERBCLIP

FILE: · **Flaxseed (*Linum utitatissimum)***
· **Lupus nephritis**
· **Alpha-linolenic acid (ALA)**

DATE: April 6, 1997 HC 040674

RE: Potential Benefits of Flaxseed in Lupus Nephritis

Clark, William F., A. Parbtani, M.W. Huff, E. Spanner, H. deSalis, I. Chin-Yee, D.J. Philbrick, and B.J. Holub. 1995. Flaxseed: A potential treatment for lupus nephritis. *Kidney International*, Vol. 48, pp. 475-480.

This study was designed to investigate the short-term effects of three different doses of flaxseed on immune, inflammatory, and kidney functions, and on platelet and blood lipid levels in nine patients with lupus nephritis at Victoria Hospital Research Institute and Department of Medicine in London, Ontario, Canada. Mean age of the patients was 44.5 years; mean length with lupus was 68.8 months (range from 8-122 months). The ultimate purpose of the study was to determine a dosage that was well-tolerated and that had a significant effect on pathogenic mechanisms.

All patients in the study met the minimum American Rheumatism Association's criteria for the diagnosis of systemic lupus erythematosus (SLE), an autoimmune disease that results in death and that includes early inflammatory and late atherosclerotic events. Clinical signs evident in all subjects included measures of abnormal immune function and protein in the urine. Of primary interest in the study were the effects of two components of flaxseed: ∝-linolenic acid (ALA, an essential omega-3 fatty acid) which has anti-atherogenic properties, and lignans, which are antagonists for platelet activating factor (PAF)-receptors. PAF is known to assist in activating and propagating the inflammatory response. Flaxseed is the richest natural source of lignans and produces 75- to 800-fold more mammalian lignans than 66 other plant foods in vegetarian diets. It is composed of 38-40% fat of which 50% is ALA and 26 to 33% dietary fiber and mucilage.

In four-week intervals, patients were given 15, 30, and 45 g of whole flaxseed per day sequentially, followed by a final five-week washout period. Sachets containing 15 g of flaxseed were provided to each patient. In the first phase of the study, one sachet per day was ingested; in the second phase, two were ingested, and in the third phase, three. Sachets returned at the end of each phase was used to indicate compliance with the test protocol, although the actual ingestion of flaxseed was assessed from the relative increase of ALA when serum phospholipids were analyzed.

Eight patients completed the study. All patients tolerated well the lower dosages. No patient required a change in their medications during the 17 weeks of the study.

There was no significant change in patient diets throughout the investigation. Compliance at the 15 and 30 g dosage was excellent. Three patients experienced difficulty ingesting the 45 g flaxseed sachets three times daily due to increased laxation. The levels of linolenic acid serum phospholipids increased from baseline to four-weeks post-15 g flaxseed, significantly increased with the 30 g/day dosage, and moderately declined at the 45 g/day level. Levels of ALA returned to baseline value after the five-week washout period. Eicosapentanoic acid (EPA) as well as the ratio of n3/n6 fatty acids also increased with all of the dosages.

Total cholesterol and LDL-cholesterol was significantly lowered at 30 g/day and remained lower over the 45 g/day dose and the five-week washout period. Whole blood viscosity (WBV) was significantly reduced at the 30 g/day dose level and remained reduced following the five-week washout period. These results indicate a prolonged effect of flaxseed that lowers damaging blood lipids and reduces blood viscosity.

Overall, the study provides preliminary evidence for a positive effect of whole flaxseed on the disease process, including significant effects on increased creatinine clearance in the blood and from the kidneys, reduced protein in the urine, increased levels of protective plasma lipids with decreased levels of damaging blood lipids, and a change in selected blood complements (PAF and others) that reflects reduced immune over reactivity. Rather than suggesting a pharmacologic action of flaxseed on blood dynamics, these findings point to a more direct alteration in the glomerular basement membrane that result in increased filtration and improved permselectivity. Further studies with larger controls could confirm or refute flaxseed's potential as a treatment for patients with lupus nephritis. —*Anne Tarleton, PhD*