Effect of DHA/EPA Omega-3 in Hypercalciuric Stone Formers

Reference:

Omega-3 Fatty Acids Eicosapentaenoic Acid and Docosahexaenoic Acid in the Management of Hypercalciuric Stone Formers

Ortiz-Alvarado, O. et al., Urology, in press, 2011

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Summary:

Urolithiasis is a medical condition where urinary calculi (‘stones’) are formed and locate in various regions of the urinary system (including the kidney and ureter). Patients which present with kidney stones often exhibit high urinary levels of calcium as a frequent abnormality. Diets rich in omega-6 fatty acids contribute to higher levels of the omega-6 fatty acid in the body tissues (the kidney and elsewhere) known as AA (arachidonic acid). AA is metabolically converted to ‘eicosanoids’ which have been implicated in promoting the formation of kidney stones. Since omega-3 fatty acids suppress AA levels in the body and the conversion of AA to its corresponding eicosanoids, it was of interest to determine if supplementation with DHA/EPA omega-3 might decrease urinary calcium levels and the excretion of oxalate since these are involved in stone formation.

In the present study, 29 patients (average age of 43 years) with high levels of urinary calcium and calcium-containing stones were managed via dietary advice (with respect to fluid intakes, citric juices, other recommendations) plus daily supplementation with 1200 mg of fish oil (containing DHA plus EPA) with an average follow-up period of 9.9 months. Relative to baseline levels, an average reduction of 29 % was found in urinary calcium excretion within 6 months of dietary intervention with fish oil along with a significant decrease in urinary oxalate excretion. The authors concluded that dietary advice and the use of DHA/EPA omega-3 via daily fish oil supplementation may reduce the urinary calcium and oxalate levels in hypercalciuric stone formers.
Dr. Holub’s Comments:

While interesting and novel, this study has a number of limitations in the design of the clinical trial which significantly compromise its potential value as a basis for promoting the therapeutic effect of DHA/EPA omega-3 fatty acids in hypercalciuric stone formers. Firstly, the investigators did not include a ‘control’ group of subjects so as to show that no dietary and/or no omega-3 treatment was without effect over the same time interval on the urinary measures as performed. Secondly, since the dietary treatment was done simultaneously with the omega-3 supplementation, one cannot assess the relative impact of each (if any) on the reduced levels of urinary calcium and oxalate. Thirdly, the authors refer to the use of 1200 mg fish oil per day as the supplemental dose but do not provide specific information on the daily dose of DHA and/or EPA in mg/day.