

# KSN 2016 Abstract Submission

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## EFFECT OF OMEGA-3 FATTY ACIDS AND VITAMIN D ON ELONGASE-6 EXPRESSION AND OLEIC ACID CONTENT IN 5/6 NEPHRECTOMY RAT MODEL

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**Background:** The erythrocyte MUFA content, including oleic acid is significantly higher in patients with acute coronary syndrome and dialysis patients. In this study, we evaluated the effect of omega-3 FA and fat soluble vitamin D on the activity of Stearoyl-CoA desaturases (SCD) and elongase-6 (Elovl-6) are related with oleic acid synthesis in 5/6 nephrectomy rat model.

**Methods:** The erythrocyte MUFA content, including oleic acid is significantly higher in patients with acute coronary syndrome and dialysis patients. In this study, we evaluated the effect of omega-3 FA and fat soluble vitamin D on the activity of Stearoyl-CoA desaturases (SCD) and elongase-6 (Elovl-6) are related with oleic acid synthesis in 5/6 nephrectomy rat model.

**Results:** Serum creatinine was the lowest in 5/6 Nx treated with omega-3 FA and vitamin D group among 5/6 Nx rat models. The omega-3, EPA, DHA, and omega-3 index levels were increased in 5/6 Nx with omega-3 FA supplemented group compared to 5/6 Nx untreated group. The ratio of AA to EPA and omega-6 to omega-3 were significantly decreased in 5/6 Nx treated with omega-3 FA group compared to 5/6 Nx untreated group. Oleic acid levels have tendency to decrease in 5/6 Nx treated with omega-3 FA group and were significantly decreased in 5/6 Nx treated with omega-3 FA and vitamin D group compared to 5/6 Nx untreated group. Compared with the control group, 5/6 Nx untreated group showed significant elevation of SCD expression and decrement of Elovl-6 expression. Omega-3 FA and vitamin D supplementation in 5/6 Nx rats significantly up-regulated expression of Elovl-6 and tends to down-regulate expression of SCD compared to 5/6 Nx untreated group.

**Conclusion:** Combined treatment with Omega-3 FA and vitamin D definitely decreases oleic acid content by inhibiting SCD activity and activating Elovl-6 activity in 5/6 Nx rats.

**Keywords:** enzyme, fatty acid, omega-3