

## **Elevated serum $\alpha$ -linolenic acid levels are associated with decreased chance of pregnancy after in vitro fertilization.**

[Jungheim ES<sup>1</sup>](#), [Macones GA](#), [Odem RR](#), [Patterson BW](#), [Moley KH](#).

### **Abstract**

#### **OBJECTIVE:**

To analyze relationships between serum free fatty acid (FFA) concentrations and pregnancy.

#### **DESIGN:**

Prospective cohort.

#### **SETTING:**

University hospital.

#### **PATIENT(S):**

Ninety-one women undergoing IVF.

#### **INTERVENTION(S):**

Serum was analyzed for total and specific serum FFAs, including myristic, palmitic, stearic, oleic, linoleic, and  $\alpha$ -linolenic acids.

#### **MAIN OUTCOME MEASURE(S):**

Univariate analyses were used to identify specific FFAs and other factors associated with pregnancy after IVF. Logistic regression was performed modeling relationships between identified factors and chance of pregnancy.

#### **RESULT(S):**

In unadjusted analyses, women with elevated serum  $\alpha$ -linolenic acid (ALA) levels (highest quartile) demonstrated a decreased chance of pregnancy compared with women with the lowest levels (odds ratio 0.24, 95% confidence interval 0.052-0.792). No associations between other FFAs and pregnancy were identified. In a multivariable regression model, associations between elevated serum ALA levels and decreased chance of pregnancy remained after adjusting for patient age, body mass index, and history of endometriosis or previous live birth (adjusted odds ratio 0.139, 95% confidence interval 0.028-0.686).

#### **CONCLUSION(S):**

Elevated serum ALA levels are associated with decreased chance of pregnancy in women undergoing IVF. Further work is needed to determine whether ALA is involved in early reproductive processes and whether the relationship between ALA and pregnancy is associated with excess ALA intake, impaired ALA metabolism, or both.