REDUCTION IN PAPPALYSIN AND STANNIOCALCIN LEVELS EXPLAIN THE DECREASE IN IGF-I BIOAVAILABILITY IN ANOREXIA NERVOSA

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INTRODUCTION

- Changes in the peripheral IGF system, including low IGF-I concentrations independently of GH secretion, have been reported in scenarios of malnutrition such as anorexia nervosa (AN).
- The role of pappalysins and stanniocalcins, novel regulators of the GH-IGF axis in AN is not fully established.

AIM

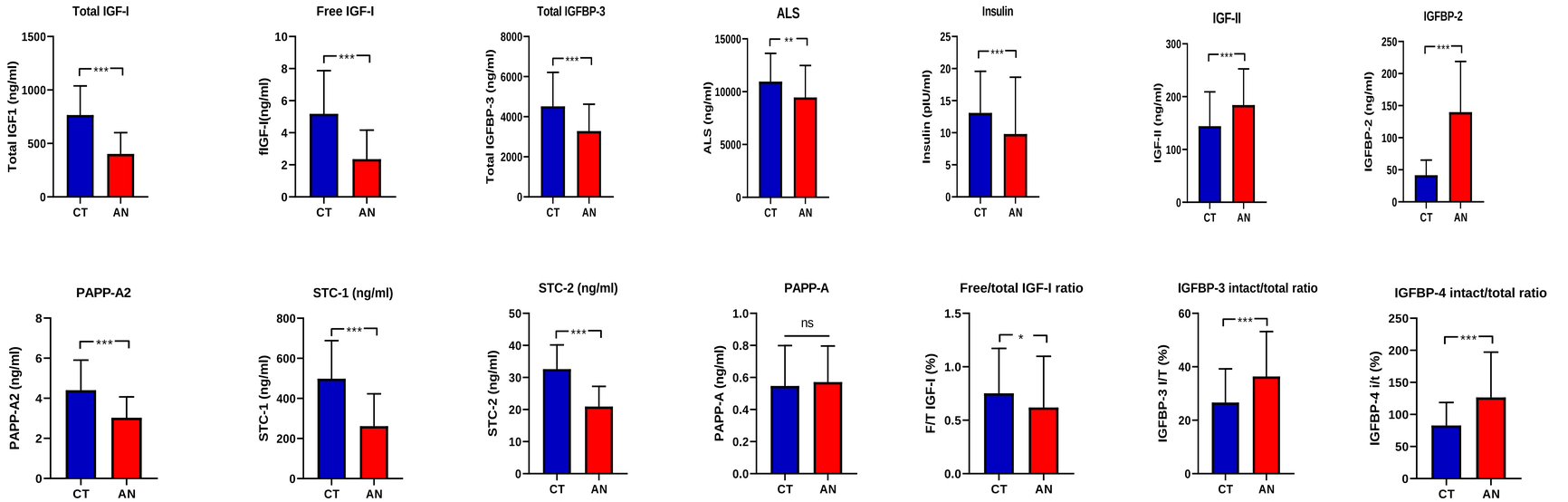
- To determine the changes in the serum levels of the peripheral GH-IGF axis components in a cohort of female adolescents with AN

PATIENTS AND METHODS

- 106 female adolescents with AN were included (age 14.93 ± 1.80 years, BMI: -2.13 ± 0.65 SDS, weight loss at diagnosis: 9.06 ± 5.70 kg) and compared with 106 healthy and normal-weight females
- At diagnosis, total IGF-I, free IGF-I, IGF-II, IGFBP-2, total and intact IGFBP-3, total and intact IGFBP-4, IGFBP-5, ALS, insulin, PAPP-A, STC-1 and STC-2 were measured by ELISA and PAPP-A2 by CLIA in fasting serum samples.

RESULTS

- Patients with AN showed lower concentrations of total and free IGF-I, total IGFBP-3, insulin, ALS, PAPP-A2, STC-1 and STC-2 than the controls. Levels of IGF-II and IGFBP-2 were higher. The free/total IGF-I ratio was decreased, whereas the intact/total IGFBP-3 and -4 ratios were increased in females with AN.
- In patients with AN, standardized BMI was positively correlated with total IGF-I (r = +0.33, p<0.001), total IGFBP-3 (r = +0,36, p<0.001), and STC-2 (r = +0.26, p<0.01), and negatively with IGFBP-2 (r = -0.32, p<0.001) and the intact/total IGFBP-4 ratio (r = -0.27, p<0.01). Weight loss was negatively correlated with STC-2 (r = -0.28, p<0.01) and PAPP-A2 (r = -0.24, p<0.05) levels.



Figures legend: Graphs show Mean ± Standard Deviation values. CT: controls, AN: anorexia nervosa, ns: non-significant, *: p<0,05, **: p<0,01; ***: p<0,001.

CONCLUSIONS

- The decrease in circulating pappalysin and stanniocalcin levels in patients with anorexia nervosa, would explain, at least in part, the reduction in IGF-I bioavailability.
- These changes could be influenced by both the nutritional status and the changes in the body mass index.

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