The Effect of Hospital Admission and Nutritional Rehabilitation (NR) on Growth and Metabolic abnormalities in adolescent females with severe Anorexia Nervosa (AN)

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Introduction

There is a lack of clear evidence-based guidelines for hospital admission of adolescents with anorexia nervosa (AN), resulting in a high degree of variation in practices.

Acceptable indications for admission include the following: weight is less than 75% of ideal body weight, temperature < 35.5°C, heart rate < 50 beats/min, systolic BP <80 mm Hg, and orthostatic change in pulse or in BP.

Aim of study

To evaluate the anthropometric and metabolic changes in adolescent girls with severe AN who required admission (based on the previous criteria) and underwent nutrition rehabilitation.

Methodology

38 adolescent females with severe AN had been hospitalized with two or more of the previous criteria.

Daily supervised nutrition to build up gradually caloric and protein intake and monitoring for weight and metabolic changes were performed by an expert dietitian and adolescent physician.

Results

- 20/38 girls had secondary amenorrhea.
- They were hospitalized for an average of 35 +/- 20 days. During hospitalization, a gradual increase of caloric intake to 2457 +/-543 was achieved.
- The weight gain, weight in kg, and BMI increased significantly during nutritional rehabilitation (NR).
- The circulating levels of FT4 and LH increased significantly. The concentration of prolactin decreased significantly with NR. (table)
- After 6 months of follow-up, their weight parameters were maintained (Wt. = 51 +/-9 kg), BMI (19.9+/-2.6), and BMISD (-0.15+/-1).

	On admission	On Discharge
Age (yr)	14.9 +/- 1.7	15.1 +/- 1.7
2ry Amenorrhea	57%	28%*
Weight (Kg)	41.6 +/-7.3	46.4 +/- 7.6*
Height (cm)	159 +/- 7	161 +/- 6.5*
BMI	16.3 +/- 2.2	19.9 +/- 2.6*
BMISDS	-1.7 +/- 1	-0.5 +/- 1*
Caloric intake Kcal/day	753 +/-347	2457 +/-543*
Vitamin D (low %)	(21+/- 17) (41%)	(32.5 +/- 11) (0%) *
Free T4 pmol/L (low %)	11 +/- 4.5 (35%)	12.8 +/- 3.9* (20%)
TSH (ng/dL)	2.3 +/- 1.8	1.5 +/- 1
Prolactin (mcg/L)	397 +/- 200	185 +/- 137*
LH (mIU/mL)	2.1 +/- 2.4	3.2 +/- 2.2*
FSH (mIU/mL)	5.1 +/- 3.4	5.1 +/- 0.7
ALT (U/L)	15.0 +/- 9	17.6 +/- 8.1
Creatinine (µmol/L)	61 +/- 10.6	58.4 +/- 11.5
Hb g/dl	12.2 +/- 1.1	12.4 +/- 1.5

* p <0.05 after vs before NR

Conclusion

- NR in hospital for an average of 5 weeks, using high caloric density formula and food by an expert dietitian, resulted in a significant weight gain and improvement of BMI and significant correction of hormonal abnormalities.
- Improvement was maintained for 6 months after discharge.

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