

BONE DISEASE IN ANOREXIA NERVOSA

ARROW PROJECT PRESENTATION OPHIR MEGNAZI UNDER THE SUPERVISION OF: DR YAEL LEVY-SHRAGA PEDIATRIC ENDOCRINOLOGY UNIT, THE EDMOND AND LILY SAFRA CHILDREN'S HOSPITAL, SHEBA MEDICAL CENTER, ISRAEL

BACKGROUND

- Anorexia nervosa (AN) is an eating disorder characterized by low body weight/body mass index (BMI) secondary to a fear of weight gain and distorted body image.
- AN is associated with numerous medical complications that are directly attributed to weight loss and malnutrition and affect the major organ systems
- Multiple studies have demonstrated reduction in bone mineral density (BMD) in AN

patients and thus, increased risk for fractures.



BACKGROUND

- Studies evaluating adults who have recovered from adolescent-onset AN, demonstrate persistent deficits in BMD up to 20 years after full recovery from the eating disorder and a 2 to threefold increased risk for bone fracture.
- To date, evidence suggests that the safest and most effective strategy to improve bone health in adolescents with AN is normalization of weight with restoration of menses.
- Unfortunately, this process is slow, and improvements do not become detectable until more then 1 year follow-up, however longitudinal studies are limited.

Objectives: To explore the association between longitudinal changes in bone density and the severity of the disease in adolescence girls with AN.

METHODS

Study Design:

- 1. A retrospective longitudinal study including girls aged 10-19 with AN who had more then one BMD measurements available will be included in the study.
- 2. We will compare the 1^{st} DXA to the 2^{nd} DXA during two phases:
- a. Acute phase up to 2 years between the two scans
- b. Late phase more than 2 years between the two scans
 - We will use T-test for paired samples or Wilcoxon test to test whether there is a difference

between the two scans.

METHODS

- Δ between the L1-4 z-scores of the two scans to find correlation with different variables, such as BMI at hospitalization, age, disease duration, ΔBMI, Δweight, comorbidities, medications use, etc.
- Correlations between Δ L1-4 to continuous variables will be described using Pearson's correlation coefficient (normally distributed) or Spearman rank correlation coefficient (not normally distributed).
- Association between Δ L1-4 to categorical variables will be studied using independent samples T test or Mann Whitney test.
- Variables significantly associated with a change in L1-4 z-score in the univariate analysis will be included in backward stepwise linear regression model to examine independent predictors of improvement.



Sample size:

Calculating sample size is based on medium correlation of 0.5 , assuming Significance level , α =5% Power=80%

At least 30 AN girls are needed to show there is a correlation (n=30)