THE EFFECT OF ANOREXIA NERVOSA ON BONE

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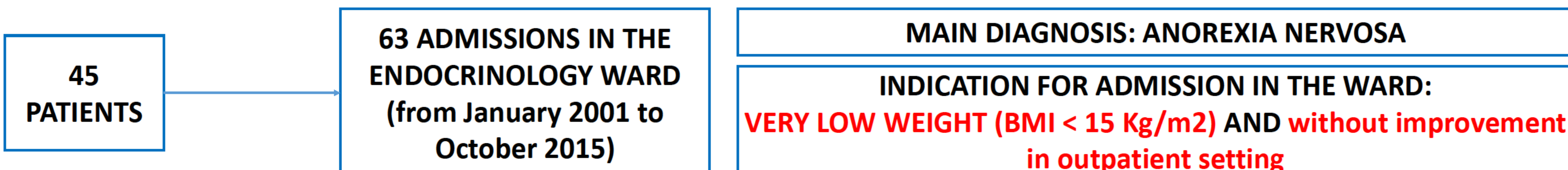
CHUC CENTRO HOSPITALAR E UNIVERSITÁRIO DE COIMBRA

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INTRODUCTION

One of the most common endocrine complications of anorexia nervosa (AN) is the decrease in bone mineral density. The authors evaluated the predictive factors of osteopenia and osteoporosis in AN patients admitted with low weight.

METHODS

| 45 PATIENTS | → | 63 ADMISSIONS IN THE ENDOCRINOLOGY WARD (from January 2001 to October 2015) |

MAIN DIAGNOSIS: ANOREXIA NERVOSA

INDICATION FOR ADMISSION IN THE WARD:
VERY LOW WEIGHT (BMI < 15 Kg/m2) AND without improvement in outpatient setting

Investigation included clinical characterization, colection of blood samples (full blood count, total cholesterol, HDL-cholesterol, LDL-cholesterol, triglycerides, folate, vitamin B12, ferritin, FSH, LH, estradiol (in females), total testosterone (in males), TSH, free T3 (fT3), free T4 (fT4)) and a bone densitometry imediately after admission.
BMD was considered both as a continuous (T-score) or as a discrete variable (according to WHO criteria as normal, osteopenia or osteoporosis). The relationship between clinical and analytical parameters and bone density was evaluated.

RESULTS

POPULATION

MEAN AGE 20.6±7.7 years

GENDER

FEMALE 93%

TYPE

PURGATIVE 13%

RESTRICTIVE 87%
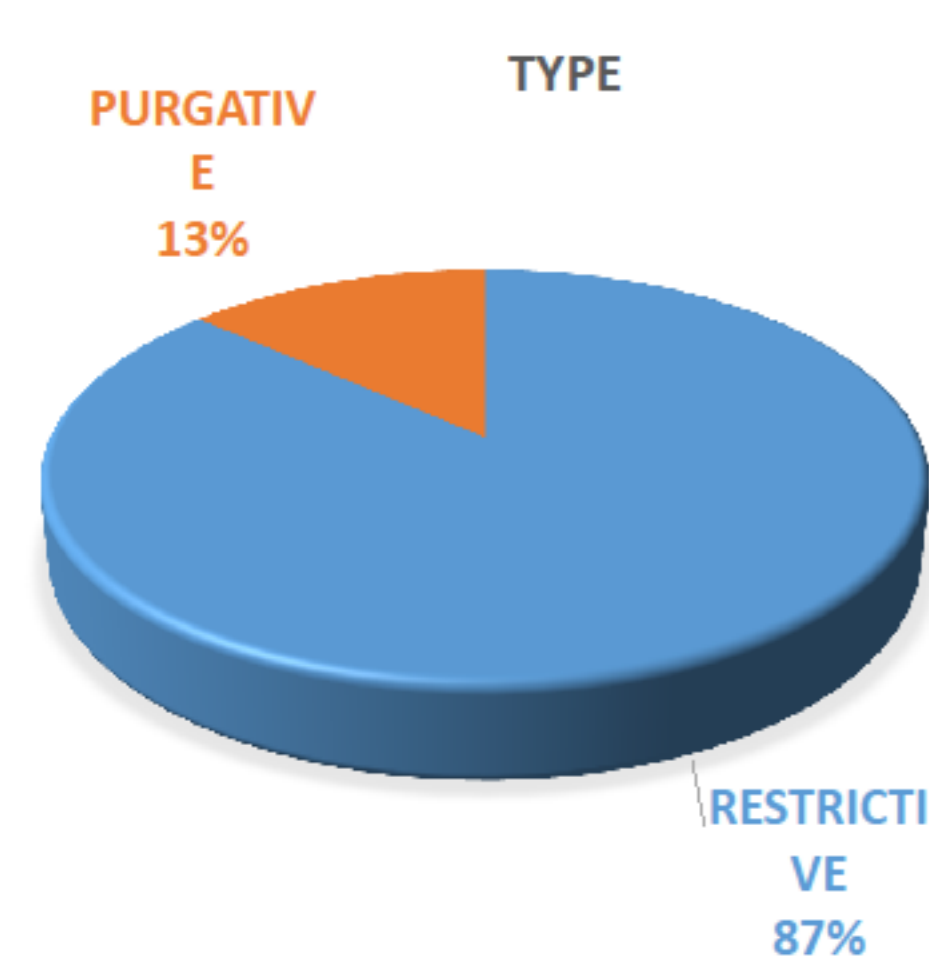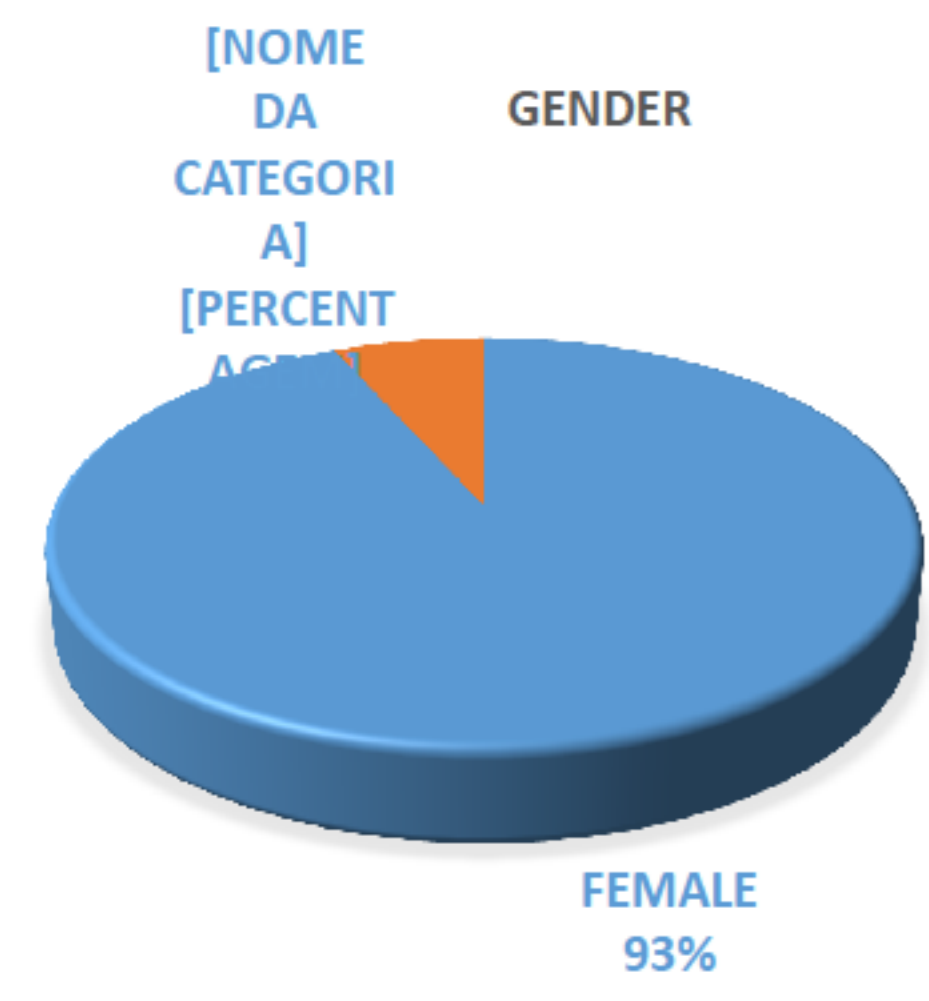
CHARACTERISTICS ON ADMISSION

CLINICAL	
AMENORRHEA	48.9% (n=22)
BODY MASS INDEX (mean±standard deviation)	14.3±1.6 Kg/m²
% FAT MASS (mean±standard deviation)	4.2±2.4

ANALYTICAL	
LOW T$_3$ SYNDROME	15.6% (n=7)
HIPOGONADOTROPHIC HIPOGONADISM	51.1% (n=23)
ANEMIA	33.3% (n=15)
LEUKOPENIA	37.8% (n=17)

OTHER	
SINUS BRADYCARDIA	22.2% (n=10)
OSTEOPENIA	57.1% (n=24)
OSTEOPOROSIS	31.0% (n=13)

STATISTICAL ANALYSIS

BONE DENSITOMETRY (NORMAL, OSTEOPENIA, OSTEOPOROSIS)

PARAMETERS	p*
INITIAL WEIGHT	0.039
FAT MASS	NS
FSH	NS
LH	NS
ESTRADIOL	NS
TOTAL TESTOSTERONE	NS
TSH	NS
fT4	NS

*Kruskal Wallis test. *p-value < 0.05*

INITIAL WEIGHT WAS SIGNIFICANTLY DIFFERENT AMONG THE RESULTS OF BONE DENSITOMETRY

CORRELATIVE ANALYSIS

PARAMETERS	T-SCORE LUMBAR SPINE	T-SCORE TOTAL FEMUR
INITIAL WEIGHT	0.58*	0.48*
INITIAL FAT MASS	0.39*	
INITIAL FREE FAT MASS	0.55*	0.47*
ESTRADIOL	0.37*	

Only the results with significant correlation are displayed. *Spearman's correlation test.* * p < 0.05

CONCLUSION

In this group of patients, low weight on admission was associated with osteopenia and osteoposoris. Initial weight was positively correlated with better results of densitometry in lumbar spine and total femur. The greater number of correlations with lumbar spine bone loss is in agreement with the earlier changes in the trabecular bone described in the literature. The low number of patients with normal densitometry (n=5) may have limited the association with other factors, as well as the statistic strength of the presented results.