

Anorexia Nervosa and Bone Loss in the Postmenopausal Woman

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Epidemiology

- Anorexia Nervosa (AN) is most commonly diagnosed in adolescent and college-aged women.
- Is anorexia nervosa also prevalent in older women?

Increasing incidence of eating disorders after age 35

- **NY Presbyterian White Plains Eating Disorders Clinic:**
 - 1988: 4.2% of women in treatment >40
 - 2006: 10-12% of women in treatment >40
- **Renfrew Center:**
 - 2001-2003: 70% increase in admissions of women >35
 - 2003: ~ 25% patients >35

Osteoporosis and Fracture Risk in Premenopausal Women with AN

- Cross-sectional look at 214 community-dwelling women with AN, ages 17-45¹:
 - Osteopenia: 51.7%
 - Osteoporosis: 34.6%
 - History of fracture: 30% (40% atraumatic)
- 27 women with AN followed for 2 years² → 7-fold increased risk of non-spine fracture

¹Miller et al, 2005. *Arch Intern Med*; 165: 561-66.

²Rigotti et al, 1991. *JAMA*; 265(9): 1133-38.

Fracture Risk in Postmenopausal Women

- History of AN significantly increases fracture risk even many years after initial diagnosis¹
 - 3-fold increased risk of fracture in community-based retrospective study
- History of a premenopausal fracture increases risk of postmenopausal fracture²
 - 9086 ambulatory Caucasian women, > 65yo
 - 30% increased risk of fracture with history of premenopausal fracture

¹Lucas et al, 1999. *Mayo Clinic Proceed*; 74(10): 972-77.

²Hosmer et al, 2002. *Osteoporos Int*; 13(4): 337-341.

Prior Treatment Trials in *Premenopausal* women with AN

- **Estrogen:** No effect seen in 2 studies
 - Klibanski et al, 1995. *JCEM*; 80(3): 898-904.
 - Grinspoon et al, 2002. *JCEM*; 87(6): 2883-91.
- **Bisphosphonates:** Mixed results
 - Miller et al, 2004. *JCEM*; 89(8): 3903-06.
 - Golden et al, 2005. *JCEM*; 90(6): 3179-3185.
- **DHEA:** No effect
 - Gordon et al, 2002. *JCEM*; 87(11): 4935-4941.
- **IGF-1 +/- estrogen:** Greatest benefit in women receiving both IGF-1 & estrogen
 - Grinspoon et al, 2002. *JCEM*; 87(6): 2883-2891

Postmenopausal Osteoporosis

Healthy women:

Decreased

Estrogen

Androgens

GH/IGF-1

20% bone loss

Anorexia Nervosa:

Decreased

Estrogen

Testosterone

IGF-1

Increased

Cortisol

Low bone formation

Ideal Therapy

- ✓ A stimulator of bone formation
- ✓ An anabolic agent

The Role of PTH in Low Bone Mass In Anorexia Nervosa

- Clinical trial for *peri or postmenopausal women with AN*
 - 45-70 years old
 - Bone density evaluation, hormonal evaluation, nutritional evaluation at baseline
 - PTH or placebo for 6 months
 - Bone density evaluation at completion of study