

Exercise: Paper Critique, bone loss

The following is the abstract of a paper and a short extract from the discussion.

Brit J Obstet Gyneacol 2000;**107**: 863-9.

A prospective study on the effects of depot medroxyprogesterone acetate on trabecular and cortical bone after attainment of peak bone mass.

Merki-Feld GS, Neff M, Keller PJ.

OBJECTIVE: To study the annual change of bone mass in women aged 30-45 years being treated with depot medroxyprogesterone acetate (DMPA) in order to evaluate whether the bone mass depends on the duration of DMPA use or the oestradiol level.

DESIGN: Prospective longitudinal study over an interval of 12 months.

SETTING: A family planning centre of a university hospital.

PATIENTS: Thirty-six current users of DMPA.

INTERVENTIONS: Injection of 150 mg DMPA every 12 weeks.

MEASUREMENTS: Bone mass was measured at the distal radius by peripheral quantitative computed tomography (reproducibility 0.3%).

RESULTS: Mean annual changes (SD) in trabecular and cortical bone mass were 0.06 (1.6%) [$P = 0.8$] and -0.26% (0.6) [$P < 0.04$]. The decrease in cortical bone mass was not significant because the changes were within the precision error of the method used for the measurements. Duration of DMPA use and oestradiol levels were not associated to the bone parameters.

CONCLUSION: We did not find a negative impact of DMPA on the bone mass of premenopausal women aged 30-45 years.

From the text (Discussion):

The magnitude of cortical bone loss (0.26% per year) was within the coefficient of variation (0.3%) for replicate measurements. Thus the observed decrease in cortical bone mass during one year was not significant.

Question

1. What do they mean by within the coefficient of variation (0.3%) for replicate measurements?
2. Do you think this statement from the discussion makes sense in terms of statistical significance?
3. Do you think this statement from the discussion makes sense in terms of clinical significance?