PRELIMINARY EVIDENCE FOR MENOPAUSAL BUT NOT ETHNIC OR SEASONAL DIFFERENCES IN BONE RESORPTION AS MEASURED BY SERUM C-TELOPEPTIDE: EARLY RESULTS OF THE D-FINES STUDY

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INTRODUCTION

• Bone turnover is a well studied phenomenon, however it is not clear as to whether bone shows a season driven rhythm over the course of the year.
• Some studies have found a significant seasonal variation in bone resorption markers e.g. Woitge, Knothe et al. (2000) and Hill, McCarthy et al. (2007).
• However other studies such as those by Blumsohn, Naylor et al. (2003) and Zittermann, Scheld et al. (1998) have found no evidence of seasonal variation in bone turnover markers.
• It is important to establish if bone turnover shows significant seasonal variation as this has practical implications in terms of the use of bone markers in diagnostics. There is also a lack of research into seasonal change in bone resorption in ethnic groups.

AIMS

• This study aimed to establish if bone turnover shows significant seasonal variation as this has practical implications for usage of bone markers in diagnostics.

METHODS

• The D-FINES study (Vitamin D, Food Intake, Nutrition and Exposure to Sunlight in Southern England) investigated 373 Surrey Caucasian (C) and Asian (A) women every season over a 12 month period (2006-2007).
• A random sub-sample of premenopausal C (n 18) and postmenopausal C (n 17); premenopausal A (n 13) and postmenopausal A (n 17) with blood samples for all seasons were selected.
• Serum CTX was determined by electrochemiluminescent immunoassay (Roche cobas e411 automated analyser).

RESULTS

• As shown in figure 1, a mixed between-within subjects ANOVA showed there was no significant main effect of season F(3,59.0)=1.467, p=0.233.
• However, there was a significant between subjects effect of group F(3,61)=3.099, p=0.033, with post hoc tests showing significant differences between the two C groups (p=0.007) and between the postmenopausal A and premenopausal C groups (p=0.042) but no significant differences between the other groups.

• Last, there was no significant interaction between season and group F(9,143.741)=0.540, p=0.843.
• The lower sCTX in the younger premenopausal groups is as would be expected.
• However, unexpectedly, there was a non-significant trend in the postmenopausal groups for the A women to have a lower mean sCTX than the C women. In contrast, in the premenopausal women, the sCTX was lower in the C group.
• Therefore it appears that it is menopausal status, not ethnicity which is likely the main reason for the group differences.
• Indeed, there was no significant difference between ethnic groups of the same menopausal status.

DISCUSSION

• Overall, no evidence for a seasonal variation in bone resorption was found here but there was evidence for a menopausal difference in bone resorption.
• However, numbers of participants in this preliminary analysis was small, and the trend for an ethnic difference in the postmenopausal women might be statistically significant with higher subject numbers.
• Further analysis with a larger sample is planned.

REFERENCES


