ASSOCIATION BETWEEN DEGREE OF SEASONAL FLUCTUATION (‘CYCLING’) OF 25(OH)D, PTH AND BONE RESORPTION IN UK SOUTH ASIAN AND CAUCASIAN WOMEN LIVING AT 51°N (SURREY)

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INTRODUCTION

- It has been hypothesised that the U shaped association between 25(OH)D and some health outcomes may be due to large seasonal fluctuations of 25(OH)D\(^1\).

- It is unknown whether such fluctuation of 25(OH)D (‘cycling’) influences bone health.

AIMS

- The purpose of this study was to assess whether there is a difference in PTH and bone resorption by degree of seasonal change in 25(OH)D and whether this varies by ethnicity.

METHODS

- In the D-FINES study, n=373 women (South Asian/Caucasian) had repeated measurements in four seasons for serum 25(OH)D and PTH.

- A random sample (n=66) were also measured for serum C-telopeptide (CTX).

- Seasonal cycling of 25(OH)D was assessed as the absolute difference between winter (nadir) and summer (peak) 25(OH)D and was split into quartiles within ethnicity.

- Summer to winter change in CTX and PTH were also calculated.

RESULTS

- ANCOVA showed no statistically significant association between quartile of cycling of 25(OH)D and CTX or PTH in either ethnic group.

- However, in Asians, there was a trend for increased cycling to be associated with reduced PTH but not CTX, and for an increase in PTH from summer to winter.

- In Caucasians, there was a trend for increased cycling in all seasons to be associated with reduced CTX.

- However, in Caucasians, increased cycling was associated with increased PTH in summer and spring, but lower PTH in other seasons, as well as a reduction in PTH from summer to winter (p=0.06).

DISCUSSION

- Increased cycling in Caucasians was associated with lower bone resorption and was differentially associated with PTH depending on season.

- Further analysis of banked D-FINES samples for urine NTX (n=1500) will enable these novel results to be explored further.

REFERENCES