THE IMPORTANCE OF DIFFERENTIATION BETWEEN PARATHYROID HORMONE 1-84 (iPTH) AND NON 1-84 FRAGMENTS IN THE DISORDERS OF BONE AND MINERAL METABOLISM.

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OBJECTIVES

Parathyroid hormone (PTH) is one of the important hormones regulating calcium and phosphate homeostasis in the management of bone metabolism. Methods that are currently used for its determination can measure both the complete molecule 1-84 as well as its degradation fragments the non 1-84 (PTHi). Both molecules have different and sometimes opposite effects. This study is performed to determine whether patients are having a low bone turnover using the marketed automated methods of the third generation measuring PTH 1-84(PTHbio).

METHODS

The study was performed in 147 patients on hemodialysis with the determination of PTH, PTHbio, PTH ratio (PTHbio / PTH-PTHbio), Ca, P, FGF23, 25 OH vitaminD, before hemodialysis. PTH and PTHbio were measured using roche **elecsys®,** FGF23-Immunotopics.

RESULTS

The mean age of the study population was 66.1 ± 14.59 years, 76 men and 71 women, the mean time on HD was 5.2 ± 4.79 years.13 patients were on HDF online, and 134 on standard HD.

Other studied mean values were: Ca 9.21±0.74 mg/dl, P 5.34±2.3 mg/dl, PTHi 298.04±306.53 pg/ml, PTHbio 174.94±172.18 pg/ml, PTH1-84/PTH7-84: FGF23 2855.0±4246.8 RU/ml, 25 OH vitD 35.55 ng/ml.

There is correlation between FGF23 and PTHi,PTHbio and the ratio PTH1-84/PTH7-84, but not with the 25OHvitD. In the univariate model PTH1-84/PTH7-84 ratio correlates positively with FGF23 (p 0.04) such that a 1% increase in the ratio of an increase of 1.6% of FGF23. PTHbio iPTH and also correlate with FGF23. The ratio does not correlate with either the Ca or P, or years in HD or age.

In the univariate analysis model the PTH1-84/PTH7-84 ratio correlates positively with FGF23 (p 0.04) such that a 1% increase in the ratio represents an increase of 1.6% of FGF23. PTHbioand iPTH also correlate with FGF23. The ratio does not correlate with either the Ca or P, or years in HD or age.

TABLE OF RESULTS

Age	66.1 ± 14.59 years.
Male	76
Female	71
Time on HD	5.2 ± 4.79 years.
Calcium	9.21±0.74 mg/dl
P	5.34±2.3 mg/dl
PTHi	298.04±306.53 pg/ml
PTHbio	174.94±172.18 pg/ml
FGF23	2855.0±4246.8 RU/ml
25OHvitD	35.55 ng/ml
(PTH1-84/ PTH7-84)	1.723±3.285

CONCLUSIONS

1. - It is very important to know the values of 1-84 and non1-84 fragments our patients
2. - The values of PTH 1-84 are significantly lower than those used now.
3. - All measured forms of PTH correlate well with each other but indicate different aspects
4. - The ratio expresses a sample of high turnover bone and correlates with the FGF23.

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