

Determination of Reference Values of Parathyroid Hormone (iPTH)

Obelleiro Campos Alexandre¹, Busquets Puigdevall Teresa¹, Cardenas Pelaez Sara¹, España Betriu Alba¹, Almodovar Esther², Campos Seoane Ana³.

Serveis de Salut Integrats del Baix Empordà, Hospital de Palamós. (1)

Servicio Andaluz de Salud, Hospital Torrecardenas, Almería. (2)

Consellería de Educación, Xunta de Galicia. (3)

Background-Aim

Parathyroid hormone (PTH) is a peptide hormone secreted by the parathyroid glands, this hormone influences calcium (Ca) and phosphorus (P) homeostasis. Therefore, the determination of PTH is essential for the management of multiple clinical situations.

When new techniques in clinical laboratories are implemented it is important to establish reference values (RV). However, in the case of PTH it is essential to establish new RV since a significant lack of comparability between PTH assays has been described in the literature.

Our aim is to establish RV in our population for the quantification of intact PTH (PTH_i) performed by chemiluminescence.

Methods

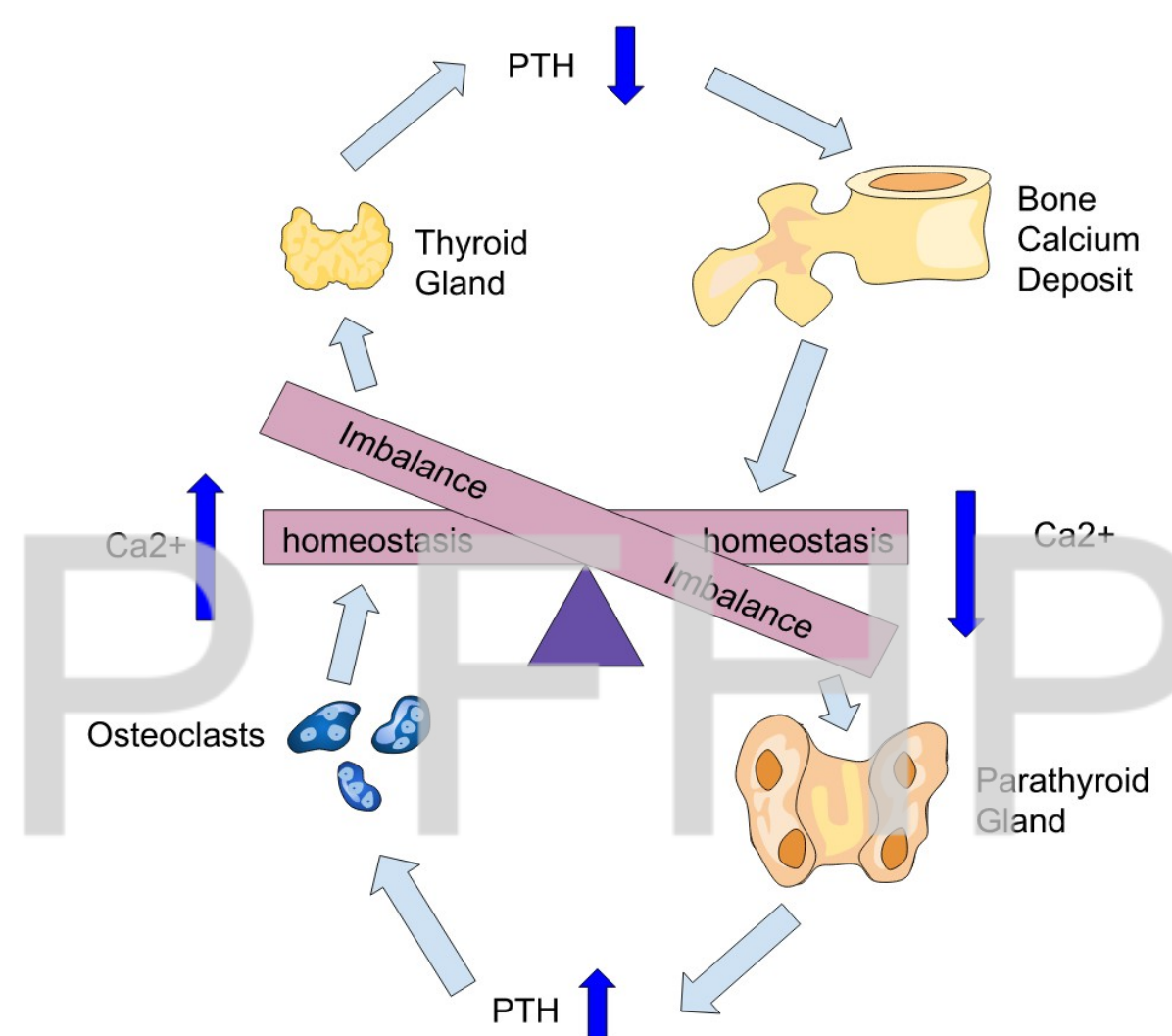
We retrospectively analyzed 12-month data stored in our Laboratory System for Abbot's PTH_i technique (Architect i2000).

The sample is made up of primary care patients (>18 years) in whose blood tests we have Ca, Creatinine and Vitamin D values.

The medical records of these patients have been reviewed to verify the absence of any associated symptoms. As exclusion criteria we proposed:

- Symptomatic patients.
- Current pathologies and/or history of renal pathologies.
- Altered values for Ca (RV: 8.5 - 10.2 mg/dL) and/or Creatinine (RV: 0.7 - 1.3 mg/dL) and/or Vitamin D (RV: > 30 ng/mL).

The data was analyzed with SPSS software from IBM. Outliers were eliminated by Dixon's test. RV were established for the 2.5th and 97.5th percentile (95% confidence interval)

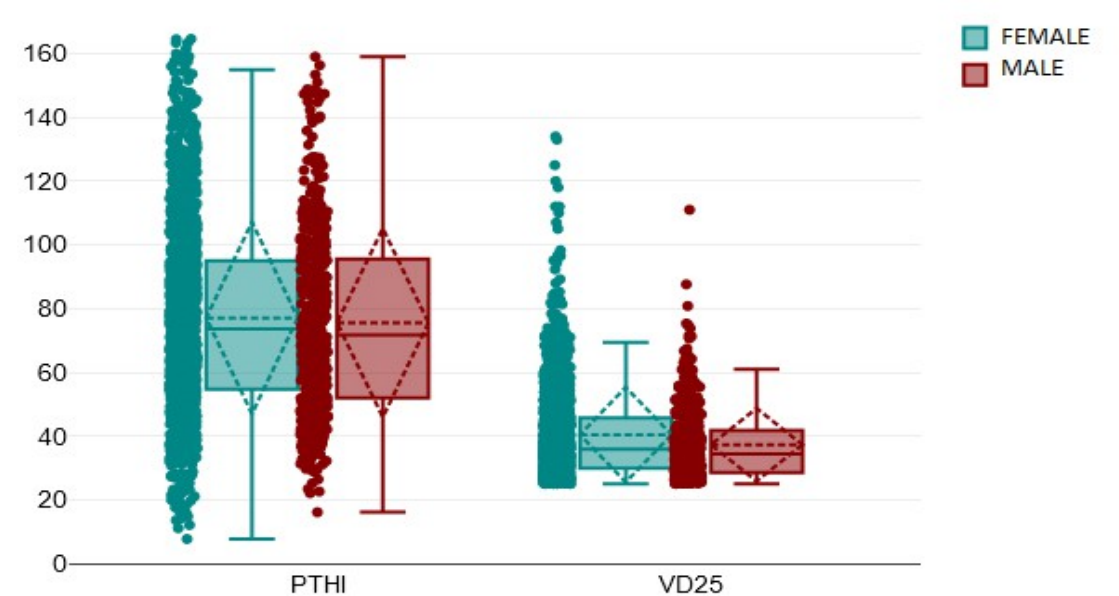


Results

PTH_i was analyzed in 1712 primary care patients (437 men and 1275 women). The average obtained in men was 75.54 pg/mL, with values for the 2.5th percentile (30.64 pg/mL) and 97.5th percentile (113.79 pg/mL). The average obtained in women was 77.07 pg/mL, with values for the 2.5th percentile (27.77 pg/mL) and 97.5th percentile (119.46 pg/mL).

TABLE 1 iPTH sex related values

	N	Average \bar{X}	Percentile 2,5	Percentile 97,5
Male	437	75,54	30,64	113,79
Female	1275	77,07	27,77	119,46



Conclusion

The data allow us to establish new RV for this analytical method in our healthy adult population. We establish RV from 28.31 to 118.94 pg/mL. In our case, RV were significantly higher than those recommended by the manufacturer (15-68.3 pg/mL). Therefore, it is essential to establish own RV for each population when determining PTH_i, this avoids false alarms and prejudices when carrying out a diagnostic approach. Appropriate results will facilitate the monitoring of diseases that alter the metabolism of Ca and P.