

Adjustment of testosterone and dihydrotestosterone reference intervals to the male Portuguese population

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Introduction

- In our daily clinical practice we have been following some patients with low or low/normal levels of testosterone. Generally, these patients are cancer survivors harbouring a high risk of developing hypogonadism. They are usually asymptomatic.
- We hypothesized that there could be a difference between the “real” values of androgens in these patients and the reference levels provided by the producers of each assay.

Methods

- We collected blood samples from 125 healthy masculine blood donors, with ages between 21-69 years and we determined, for each man, the levels of TT, FT and DHT.
- For these assays we used Immulite 2000 (Siemens), Free TESTO-RIA-CT (Diasource) e Dihydrotestosterone RIA (Beckman Coulter) for TT, FT and DHT, respectively.
- RIs were calculated using mean±2SD, being the RI described as -2SD+2SD.

Results

Total Testosterone

Age (years)	Kit Producer	Our Endoc. Lab
21 – 30		247-635 (M=441)
31 – 40	160-730	137-562 (M=350)
41 – 50		120-482 (M=336)
51 – 60	130-770	104-478 (M=291)
>61		

Free Testosterone

Age (years)	Kit Producer	Our Endoc. Lab
21 – 30	9-43	4.9-14.9 (M=9.9)
31 – 40		4.0-13.3 (M=8.6)
41 – 50	7-30	3.9-11.3 (M=7.6)
51 – 60		2.8-9.3 (M=6.1)
>61	5-22	2.8-8.6 (M=5.7)

Dihydrotestosterone

Age (years)	Kit Producer	Our Endoc. Lab
21 – 30	170-700	149-395 (M=272)
31 – 40	160-600	120-386 (M=244)
41 – 50	80-450	109-349 (M=229)
51 – 60	90-420	64-306 (M=185)
>61		61-281 (M=171)

M = mean

Conclusion

- Limitations: single values from each man; collected between 9am-2pm; small sample (+++ older men).
- The RI that we determined are inferior and narrower than those provided by the kit-producers.
- These new RI were adopted in our daily clinical practice and seem to correlate better with our patients' symptoms.

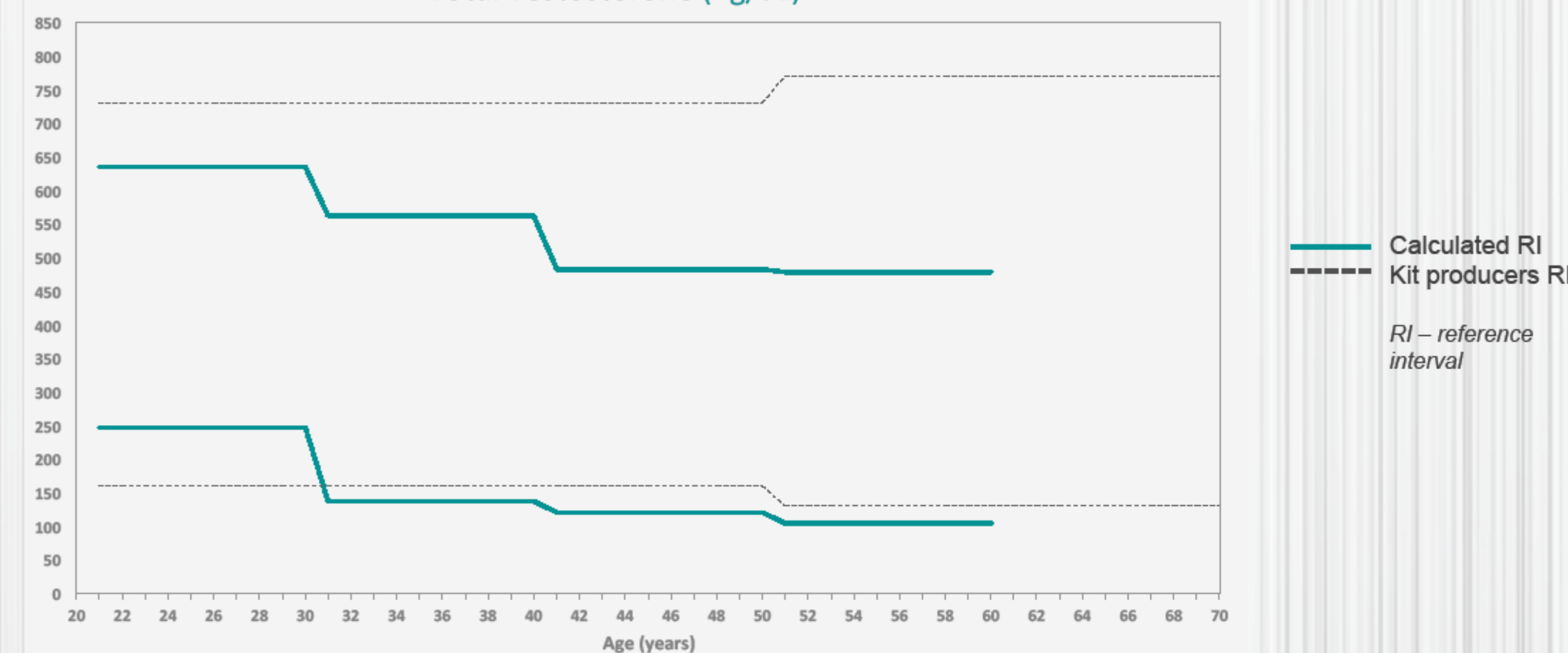
Aims:

- To determine the levels of total testosterone (TT), free testosterone (FT) and dihydrotestosterone (DHT) in healthy men;
- To find the reference interval (RI) adjusted to our population.
- To compare the new RI with those provided by the kit-producers.

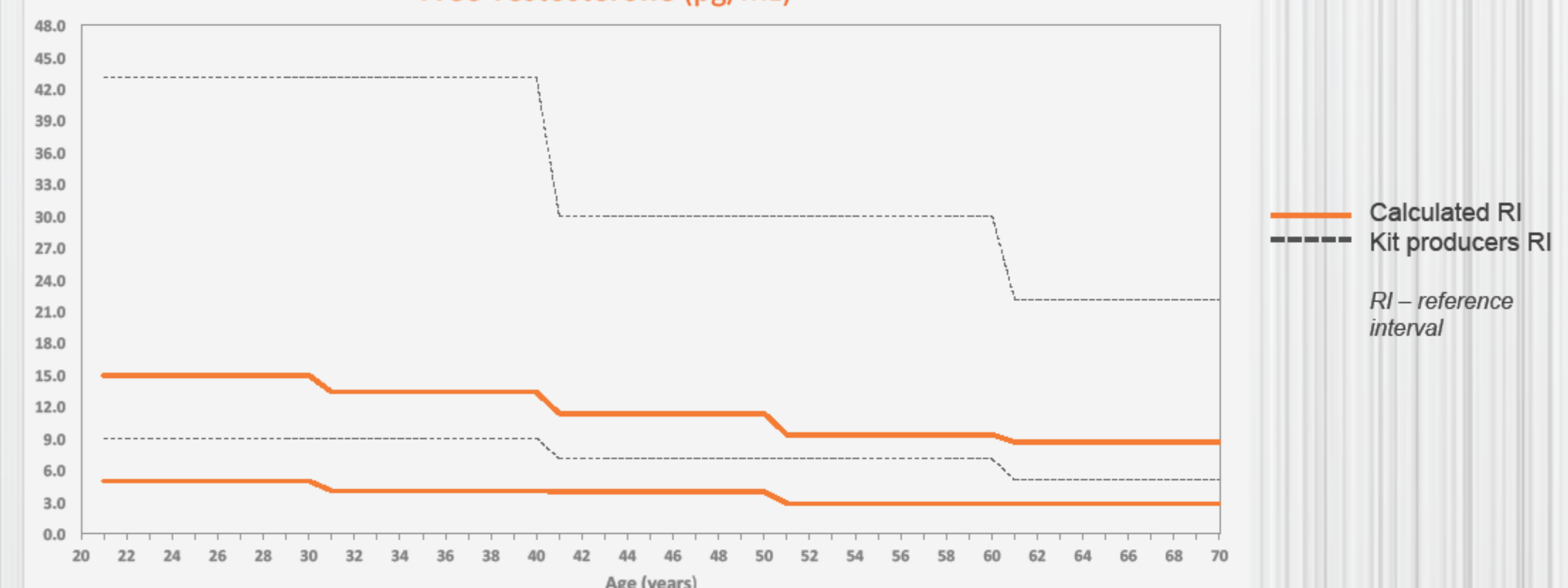
Number of samples used to calculate the reference intervals

Age (years)	Kit Producers			Our Endoc. Lab No. samples
	Total Test	Free Test	DHT	
21 – 30			26	20
31 – 40	95	?	32	34
41 – 50		?	29	34
51 – 60	23		32	25
>61		?	-	12
<i>N total</i>	118	?	119	125

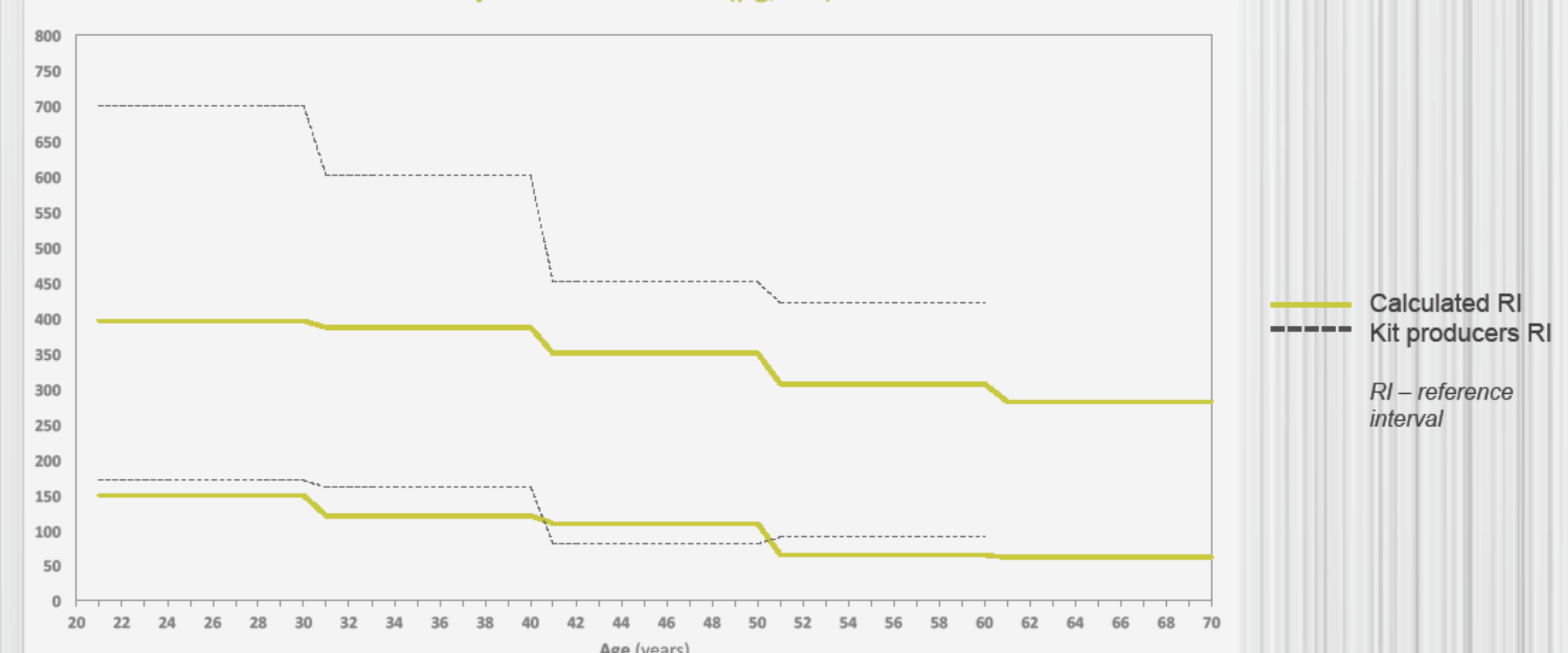
Total Testosterone (ng/dL)



Free Testosterone (pg/mL)



Dihydrotestosterone (pg/mL)



- These new RI were adopted in our daily clinical practice and seem to correlate better with our patients' symptoms.
- We highlight the need to verify if the RIs provided are adjusted to our population's reality.
- It would be important to verify these RI with different methods, including the paediatric population in order to adjust our RI to the Portuguese population.

