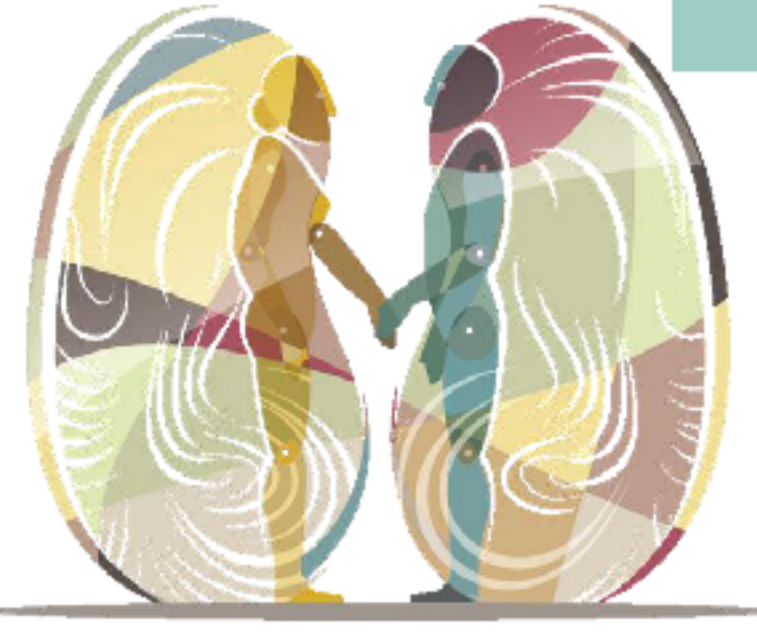


TOTAL BODY ADIPOSITY IS ASSOCIATED WITH INFLAMMATION AND VITAMIN D IN CHRONIC KIDNEY DISEASE



CKD
INTERDISCIPLINARY
TREATMENT CENTER

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INTRODUCTION

High body adiposity, chronic inflammation and 25(OH) vitamin D deficiency contribute to poor outcome in chronic kidney disease (CKD).

OBJECTIVE

To describe vitamin D profile and its association with inflammation and body adiposity in non dialysed CKD patients.

METHODS

❖ Study Design: cross-sectional observational conducted in non dialysed CKD patients under regular treatment with interdisciplinary team, at the Hospital of the Rio de Janeiro State University, Brazil

❖ estimated glomerular filtration rate (eGFR): CKD-EPI

❖ Body mass index – BMI (kg/m²)

❖ Body adiposity by:

→ X-ray absorciometry – DXA (%):

-TOTAL (DXA-total-BF)

-CENTRAL (DXA-trunk-Fat)

→ Anthropometry (cm):

-WC: Waist Circumference

-WHR: Waist-to-Hip-ratio

-WheiR: Waist-to-Height-ratio

❖ Serum levels analysis:

- 25(OH) vitamin D: [25(OH)D]

- Leptin

- HMWAdipo: High Molecular Weight Adiponectin

- CRP: C-reactive protein

- IL-6: Interleukin-6

- TNF-α: Tumor necrosis factor alpha

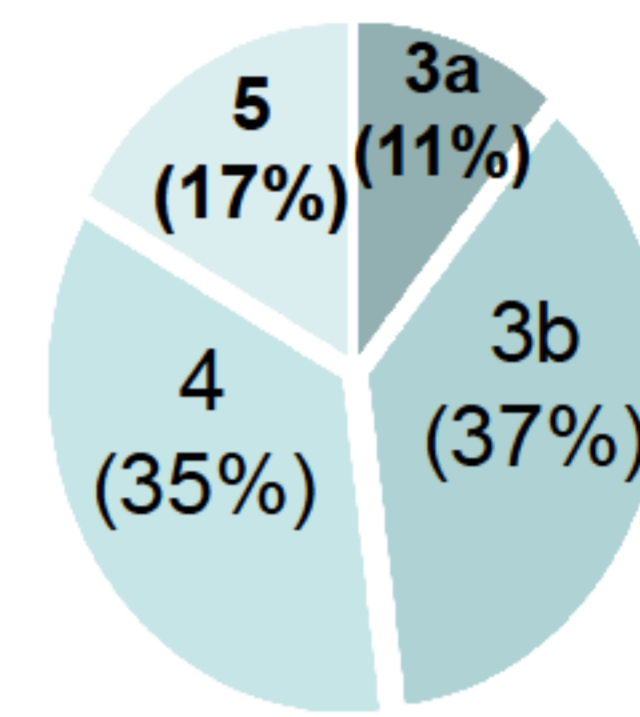
- IFN-γ: Interferon gamma

RESULTS

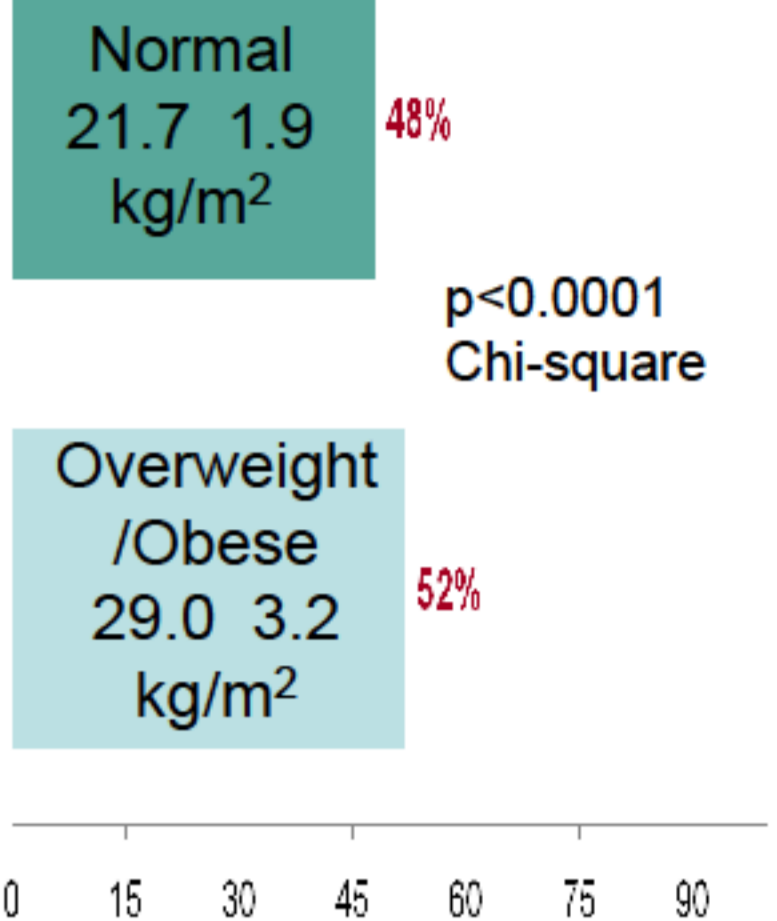
PATIENTS:

- n= 100 {56% men}
- mean±standard deviation: (limits)
- age: 65.9±12.6 years (32 - 87)
- eGFR= 29.3±12.7 ml/min. (4 - 50)
- BMI= 25.3± 4.4 kg/m²
- treatment period: 4.9± 3.2 years

CKD STAGES DISTRIBUTION



BMI CLASS DISTRIBUTION



BODY ADIPOSITY STATUS

- DXA-total-BF: Men= 28.9 6.9% (15%)* Women= 38.1 7.0% (23%)*
- DXA-trunk-Fat: Men= 33.0 9.1% Women= 39.3 9.4%
- WC: Men= 92.6 11.6 cm (>102 cm)^a Women= 86.2 11.5 cm (>88 cm)^a
- WHR: Men= 0.97 0.07 cm (≥ 0.9 cm)^a Women= 0.92 0.09 cm (≥ 0.85 cm)^a
- WheiR = 0.56 0.07 cm (≥ 0.55 cm)

* Reference values for normal by Lohman TG, 1992

^a Reference values for substantially increased risk for metabolic complications by World Health Organization-WHO Expert Consultation Geneva, 2008

BODY ADIPOSITY ASSOCIATIONS

DXA-total-BF vs Leptin: r = 0.60 **

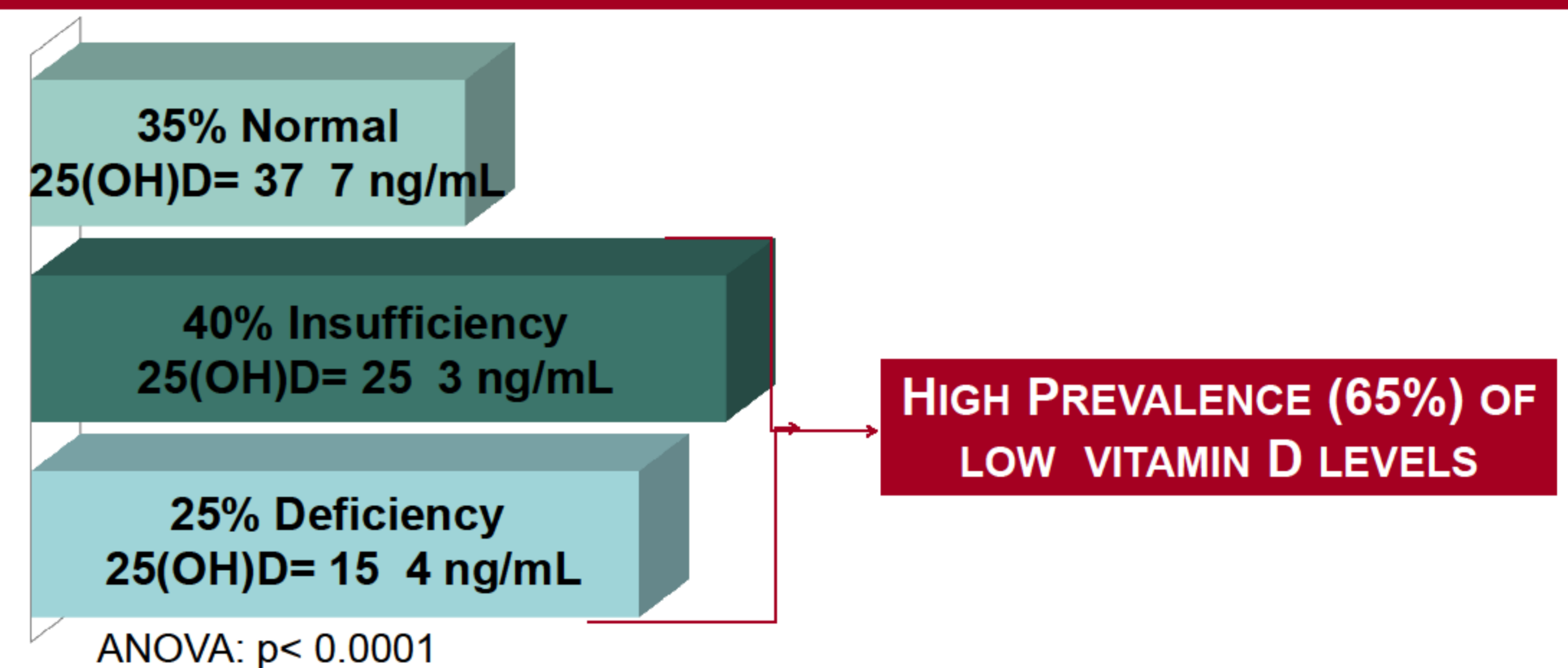
DXA-total-BF: NO Association with → CRP, IL-6, IFN-γ

DXA-total-BF vs HMWAdipo: r = - 0.33 **

DXA-total-BF vs TNF-α: r = 0.24 *

** p<0.0001; *p<0.001 (adjusted for: age, gender, eGFR)

VITAMIN D PROFILE



VITAMIN D ASSOCIATIONS

PARCIAL CORRELATION ANALYSIS (adjusted for: age, gender, eGRF)

VITAMIN D vs DXA-total-BF r = - 0.25 (p<0.02)

VITAMIN D: NO Association with: DXA-trunk-Fat, WC, WHR, WheiR

MUTIPLE REGRESSION ANALYSIS

Stepwise MODEL variables:

- dependent: 25(OH)D;

- independents: DXA-total-BF, Leptin, HMWAdipo, TNF-α

➤ TNF-α was independently associated with 25(OH)D

R² adjusted= 0.14; multiple correlation coefficient= 0.42 (p<0.0001)

CONCLUSIONS

❖ Vitamin D [25(OH)D] deficiency was prevalent among CKD patients.

❖ TNF-α was the best inflammation marker in overweight nondialysed CKD patients and was independently associated with Vitamin D [25(OH)D].

❖ High body adiposity may contribute to inflammation and vitamin D deficiency, thus should be a target in the nutritional treatment of this population.

