

## Medical or Research Professionals/Clinicians

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### VITAMIN D LEVELS AND ASSOCIATION WITH DISEASE ACTIVITY IN PARAGUAYAN SLE PATIENTS

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**Background:** Systemic Lupus Erythematosus (SLE) is a systemic inflammatory disease associated with genetic, environmental, hormonal and immunological factors. Vitamin D levels are nowadays considered as one possible factor associated with disease activity. Therefore, previous studies have analyzed vitamin D to the severity of SLE.

**Objectives:** To assess the Vitamin D status in paraguayean SLE patients and its association with disease activity.

**Methods:** An observational Trial has been performed on individuals diagnosed with SLE. Epidemiological, clinical and biochemical data have been recorded for each patient to study the association between vitamin D concentrations, the phospho-calcium metabolism parameters and disease activity. Quantitative determination of Vitamin D was performed using chemoluminescence ARCHITEC assay. Vitamin D status was interpreted as follows: deficiency  $\leq 20$  ng/ml and insufficiency 21-29 ng/ml. The statistical association tests were performed using linear (SLEDAI activity index) and logistic (Inactive/Mild vs Moderate/Severe) regressions. The epidemiological, clinical and biochemical variables were used as explanatory variables in these models. This study is a preliminary analysis of a trial supported by CONACYT (Paraguay) to investigate the role of vitamin D in patients diagnosed with SLE.

**Results:** We included 77 SLE patients, of whom 94.8% (73/77) were female. The average age of patients at the time of the study was  $30.7 \pm 10.3$  years. All patients received calcium supplements associated with vitamin D. The average vitamin D concentration was  $32.2 \pm 12.10$  ng/ml. 29.9% (23/77) of patients had vitamin D insufficiency and 13.0% had vitamin D deficiency. 94.8% (73/77) of the population had normal serum calcium and the total population had a normal phosphoremia. As for the dosage of PTH, it was found that 27.3% (21/77) have high values of PTH. 20.8% (16/77) of the patients had positive anti-DNA. Low C3 complement was observed in 30/77 (39%) and low C4 in 50/77 (64.9%) patients.

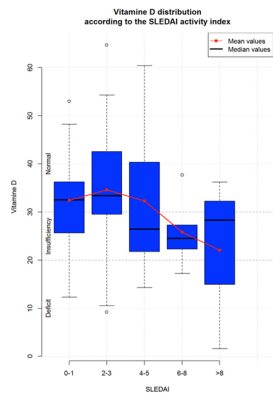
The mean value of SLEDAI at the time of the study was  $2.32 \pm 2.83$ . When we study the distribution of vitamin D concentration according to the disease activity (SLEDAI) a clear pattern is observed linking lower vitamin D concentrations with higher disease activity (Figure 1). Patients with lower vitamin D concentrations are more likely to have higher disease activity (OR 0.93, 95%CI 0.88-0.99; P-Value=0.059). The means and standard deviations of vitamin D depending on the SLEDAI activity index are provided in Table 1.

**Table 1.** Mean and standard deviation of each patient group according to the ranges of SLEDAI activity index.

| SLEDAI | Mean  | Standard deviation |
|--------|-------|--------------------|
| 0-1    | 32.41 | 9.61               |
| 2-3    | 34.59 | 13.37              |
| 4-5    | 32.28 | 14.38              |
| 6-8    | 25.8  | 7.61               |
| >8     | 22.03 | 18.13              |

Image/graph:

Figure 1. Distribution of vitamin D depending on the SLEDAI activity index



**Conclusions:** In this preliminary study of Paraguayan SLE patients, Vitamin D deficiency was frequent despite treatment with supplements. In addition, a clear association between SLEDAI and Vitamin D values was observed. The final analysis in a larger patient cohort will have to confirm these findings and clarify relation with disease activity.

**References:** 1.- Eloi M, Horvath DV, Ortega JC, Prado MS, Andrade LE, Szejnfeld VL, de Moura Castro CH. 25-Hydroxivitamin D Serum Concentration, Not Free and Bioavailable Vitamin D, Is Associated with Disease Activity in Systemic Lupus Erythematosus Patients. PLoS One. 2017 Jan 13;12(1)

**Disclosure of Interest:** None declared