Background: Systemic lupus erythematosus (SLE) is a chronic autoimmune disease. SLE is attributed to different autoimmune mechanisms leading to the production of several autoantibodies and formation of immune complexes with subsequent organ damage. 25 hydroxy-vitamin D3 (25(OH)D3) plays a significant role in immune system regulation and is an important immunomodulatory hormone involved in various biochemical reactions.

Objectives: Are to assess the levels of 25(OH)D3 in patients with SLE and to investigate the relationship between 25(OH)D3 levels and disease activity in patients with and without lupus nephritis.

Methods: 300 subjects were included in the study and were divided into 3 groups: group 1 consisted of 100 patients with SLE and lupus nephritis (LN), group 2 consisted of 100 patients free from LN and group 3 consisted of 100 healthy volunteers as a control group. All patients fulfilled the American College of Rheumatology criteria for diagnosis of SLE and were recruited from Internal Medicine department and out-patient clinics, Cairo University Hospital. Exclusion criteria included diseases and drugs which affect the endothelial function such as: smoking, diabetes mellitus, essential hypertension, and coronary artery disease and drugs such as nitrates, hypolipidemic drugs and aspirin. Disease activity was evaluated by systemic lupus erythematosus disease activity index (SLEDAI). 25(OH)D3 was measured using ELISA. 25(OH)D3 level ≥30 ng/ml was considered as recommended, <30 ng/ml was considered vitamin D insufficiency and <25 ng/ml was considered vitamin D deficiency.

Results: The mean value of 25(OH)D3 was significantly lower in patients with lupus nephritis (17.1±5.5 ng/ml) and those without lupus nephritis (16.6±5.9 ng/ml) than in controls (36.7±3.3 ng/ml) (p-value 0.001). Serum 25(OH)D3 level was inversely correlated with the duration of SLE disease (r = -0.678, p-value <0.001) and with the duration of lupus nephritis (r = -0.363, p-value<0.001). There was strong negative correlation between 25(OH)D3 level and prednisolone dose, hydroxychloroquine, cyclophosphamide and mycophenolate mofetil but not with NSAIDs.

Conclusion: 25(OH)D3 levels are markedly lower in patients with SLE. Low 25(OH)D3 levels are significantly correlated with disease activity parameters, disease duration and disease treatment.

REFERENCES

Figure 1. Level of serum 25(OH)D3 in patients with SLE and controls: