

Effect of Quercetin Supplement on Some Bone Mineralization Biomarkers in Diabetic Type 2 Patients

Abstract

Background: Diabetes associated with multiple metabolic problems in the body, including bone mineralization remodeling, osteoporosis and increase risk of fracture. Quercetin is natural flavonoids and according to animal studies; it has Potent antioxidant, antidiabetic and protective effect against bone loss due to various causes.

Objectives: explore effect of quercetin as nutritional supplement administered Orally on some bone mineralization bio-markers such as calcium, vitamin D and Osteocalcin in Iraqi diabetic patients.

Methods: interventional double-blind placebo randomized controlled study in which 40 patients with type 2 diabetes mellitus (age range 40-45) assigned randomly (using simple randomization) in either control (n=20) or study (n=20) group. Study group received Quercetin oral supplement as 500mg capsule once daily for three months. Venous blood was used for measuring Serum calcium, 25(OH) vitamin D and osteocalcin at base line and after 3 months.

Results: After 3 months treatment with Quercetin; levels of Osteocalcin (28.1 ± 7.6), serum calcium (9.2 ± 1.8) and 25(OH) vitamin D (26.6 ± 8.7) were significantly ($p < 0.05$) Higher than pretreatment values of osteocalcin (24.0 ± 8.6); serum calcium (7.0 ± 2.2) and 25(OH) vitamin D (20.6 ± 7.7) and control values of serum calcium (6.8 ± 2.0) and 25(OH) vitamin D (20.8 ± 7.4), but not Osteocalcin (25.2 ± 9.0). There Was also significant correlation between use of quercetin; elevation of serum calcium And osteocalcin ($r = 0.454$; $p = 0.032$), indicating modulation in bone mineralization. Conclusions: Quercetin's use in diabetic patients may elevate Serum level of Calcium; 25(OH) vitamin D and may modulate bone mineralization represented by elevation of osteocalcin