



Research article

## Osteocalcin – A hidden factor in diabetes mellitus: A cross sectional study

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**Key words:** Osteocalcin, Diabetes, Insulin Resistance.

### Abstract

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**Background:** Osteocalcin, a bone gamma carboxy glutamic acid protein (BGP) is synthesised from osteoblasts. Experimental animal studies reported the role of osteocalcin in glucose homeostasis. Research is going on still to find out the role of osteocalcin in humans. Hence we also designed this study. **Aim:** To find out the association of serum osteocalcin and glycemic status in type 2 Diabetic subjects and healthy controls. **Materials and methods:** This is a cross sectional study done at Chettinad Hospital and Research Institute, Chennai with 84 male participants in the age group of 30 -60 years. Out of 84, 42 were healthy subjects and 42 were previously diagnosed Type 2 Diabetes with 5 years duration. Participants on exogenous insulin or with any other chronic illnesses such as hypertension, kidney diseases, cardiovascular diseases, bone disorders, drug intake such as vitamin D, calcium were excluded. After obtaining informed consent, demographic details and personal history were recorded in the form of Questionnaire. 5ml of venous blood was collected for estimating serum osteocalcin, fasting plasma glucose, serum insulin and processed on the same day. Fasting plasma glucose was estimated using HEXOKINASE method in Siemens DADE XPAND auto analyser. Serum osteocalcin, Serum insulin was estimated using SANDWICH IMMUNOLUMINOMETRIC ASSAY method in MAGLUMI1000 chemiluminescence fully auto analyser. Insulin resistance was determined using HOMA-IR model. Statistical analysis was done using SPSS software version 21. **Results:** Serum osteocalcin level was significantly low in diabetic subjects compared to healthy subjects (p value 0.000) and it shows an negative association with fasting plasma glucose, serum Insulin, HOMA-IR, BMI, Waist circumference. **Conclusion:** Our study suggested that serum osteocalcin have a significant role in glucose homeostasis. This puts up a new foothold in the field of diabetes especially in the line of treatment.