

## Accepted Manuscript

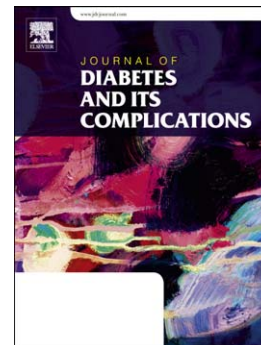
Decreased serum undercarboxylated osteocalcin is associated with cognitive impairment in male patients with type 2 diabetes

Hui Fang, Xiao-yu Xu, Rui-zhe Xu, Yan-feng Zhen, Gang Xu, Yu-kai Li

PII: S1056-8727(17)30061-2  
DOI: doi: [10.1016/j.jdiacomp.2017.09.004](https://doi.org/10.1016/j.jdiacomp.2017.09.004)  
Reference: JDC 7096

To appear in: *Journal of Diabetes and Its Complications*

Received date: 19 January 2017  
Revised date: 22 August 2017  
Accepted date: 2 September 2017



Please cite this article as: Fang, H., Xu, X.-, Xu, R.-, Zhen, Y.-, Xu, G. & Li, Y.-, Decreased serum undercarboxylated osteocalcin is associated with cognitive impairment in male patients with type 2 diabetes, *Journal of Diabetes and Its Complications* (2017), doi: [10.1016/j.jdiacomp.2017.09.004](https://doi.org/10.1016/j.jdiacomp.2017.09.004)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## Decreased serum undercarboxylated osteocalcin is associated with cognitive impairment in male patients with type 2 diabetes

Hui Fang<sup>a,1</sup>, Xiao-yu Xu<sup>a,1</sup>, Rui-zhe Xu<sup>b,1</sup>, Yan-feng Zhen<sup>a</sup>, Gang Xu<sup>c,\*</sup>, Yu-kai Li<sup>a</sup>

<sup>a</sup>Department of Endocrinology, Tangshan Gongren Hospital, Tangshan, China

<sup>b</sup>Department of Finance and Economy, Tangshan Vocational and technical college, Tangshan, China

<sup>c</sup>Department of Surgery, Tangshan Gongren Hospital, Tangshan, China

\*Correspondence to: Department of Surgery, Tangshan Gongren Hospital, No.27, Wenhua Road, Lubei District, Tangshan City, Hebei Province, China. E-mail: jane791115@126.com; fanghui@medmail.com.cn

<sup>1</sup>Hui Fang, Xiao-yu Xu, Rui-zhe Xu contributed equally to this work.

Conflict of Interest: None of the authors report conflicts of interest.

### Abstract

**Background-**Basic and clinical researches have suggested that type 2 diabetes (T2DM) is associated with cognitive impairment, and diabetes mellitus increases the risk of cognitive impairment and dementia. Recently, some reports found that undercarboxylated osteocalcin (ucOC) could affect brain functions, and decreased in patients with T2DM. We aimed to investigate the association of serum ucOC with cognitive impairment in T2DM patients.

**Methods-**A total of 196 male T2DM patients without medications known to affect bone metabolism or history of bone fracture, aged  $\geq 18$  years were recruited and divided into impaired cognition group and normal cognition group. We use the scores of Minimum Mental State Examination (MMSE) to evaluate the subjects' cognitive function. Detailed cognitive performance was also evaluated by the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS). Serum ucOC was measured by Enzyme-Linked Immunosorbent Assay (ELISA) kit.

**Results-** Compared to male T2DM patients with normal cognition, the mean osteocalcin concentrations were significantly lower in male T2DM patients with impaired cognition ( $P < 0.05$ ). RBANS total and all indexes scores were also lower in patients with impaired cognition (all  $P < 0.05$ ). After adjusted effects of confounding factors, serum ucOC was positively correlated with a variety indexes of RBANS except visuospatial/constructional.

**Conclusions-** The serum ucOC is positively correlated with RBANS scores in male T2DM patients. It suggests that serum ucOC may be involved in the development and progression of cognitive dysfunction in T2DM patients.

**Keywords** Type 2 diabetes; Cognition; Male; Undercarboxylated osteocalcin

## 1. Introduction

Type 2 diabetes (T2DM) is a disease characterized by the hyperglycemia and glucose

Download English Version:

<https://daneshyari.com/en/article/8632338>

Download Persian Version:

<https://daneshyari.com/article/8632338>

[Daneshyari.com](https://daneshyari.com)