Association between serum vaspin levels and diabetes in obese T2DM patients

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Abstract
This hospital-based descriptive cross-sectional study was carried out in Al-Fallujah Teaching Hospital, during a one year period starting from the 1st of June 2018 and ending on the 31st of June 2019. The aim of this study was to evaluate the role of vaspin in T2D obese patients. One hundred patients having DM included in the study through non-probability consecutive sampling. The study also included 100 healthy control group. A questionnaire including the demographic information [age, gender, body mass index (BMI), education level, marital status, and occupation] was recorded. Blood samples were aspirated from each subject of the study for determination of Blood sugar, HbA1c, and serum vaspin by ELISA. The study showed the mean serum level of vaspin was significantly elevated in DM patients compared to the control group (62.77 ± 6.1 and 23.98 ± 5.9 ng/l) respectively at a P-value < 0.01. Current study showed that the mean serum level vaspin was higher in DM patients especially in persons with high BMI and decreased in lower BMI persons but still higher than healthy ones (P<0.01), so as compared with the control group (9.76 ± 1.6 ng/ml). This result was highly significant at a P-value of 0.001. This study found that there was a positive correlation of vaspin with RBS level, BMI and HbA1c of DM patients. It was concluded that serum vaspin was highly correlated with type 2 diabetes especially in obese ones.

Keywords: T2DM, Vaspin, Obese; HbA1c.

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Introduction
Visceral adipose tissue-derived serine protease inhibitor (vaspin) is a novel candidate that links human obesity and its related metabolic alterations (1). Several animal studies have implied an association between vaspin and the severities of T2DM. Vaspin was isolated from Otsuka Long-Evans Tokushima Fatty (OLETF) T2DM rats by Japanese researchers in 2005, and subsequent animal experiments revealed its insulin sensitizing effect. In OLETF rats, serum vaspin levels peaked at the age when obesity and insulin plasma concentration reached a peak; however, vaspin levels decreased with worsening of diabetes and body weight loss. It has been proposed that vaspin has potential insulin-sharpening impacts (2).

Vaspin has been suggested as a compensatory factor against the insulin resistance state of based on the evidence from animal experiments that used recombinant vaspin protein and cross-sectional expression studies from both human visceral and subdermal white adipose tissue samples metabolic syndrome (3). In people, vaspin articulation regarding mRNA was distinguished in human instinctive and subcutaneous fat tissue (6). Ongoing examinations likewise found that vaspin quality articulation in human fat tissue and flowing vaspin levels were emphatically connected with corpulence related illnesses and T2DM (5-7). Until now, no study evaluating the association of serum vaspin levels with the complications of diabetes has been undertaken (1). Notwithstanding late investigations (8-10), the putative job of vaspin in human starch digestion, be that as it may, is at present obscure. The effect of changes in body weight and related modifications of metabolic parameters just as of menopausal state on circling vaspin levels has not been researched to date. The aim of this study was to evaluate the role of vaspin in T2D obese patients.
Materials and methods

A hospital-based descriptive cross-sectional study was carried out in Al-Fallujah teaching hospital, located in Al-Fallujahcity, Anbar, Iraq; during a one year period starting from the 1st of June 2018 and ending on the 31st of June 2019. One hundred patients having DM included in the study through non-probability consecutive sampling. The study also included 100 healthy control group. A questionnaire including the demographic information [age, gender, body mass index (BMI), education level, marital status, and occupation] was recorded. Blood samples were aspirated from each subject of the study for determination of Blood sugar, HbA1c, and serum vaspin by ELISA (Komabiotech, USA).

Finding

As shown in Table 2, the mean serum level of vaspin was significantly elevated in DM patients compared to control group (62.77 ± 6.1 and 23.98 ± 5.9 ng/l) respectively at a P value < 0.01.

Table 2: The mean and standard deviation (SD) of Vaspin level in studied groups

<table>
<thead>
<tr>
<th>Vaspin level (ng/ml)</th>
<th>DM patients</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Mean</td>
<td>62.77</td>
<td>23.98</td>
</tr>
<tr>
<td>SD.</td>
<td>6.1</td>
<td>5.9</td>
</tr>
</tbody>
</table>

P<0.01

This study showed that the mean serum level vaspin was higher in DM patients especially in persons with high BMI and decreased in lower BMI persons but still higher than healthy ones (P<0.01), Table 2. As compared with the control group (9.76 ± 1.6 ng/ml). This result was highly significant at a P value of 0.001, see Table 3.

Table 3: Relation of vaspin with obesity of DM patients
This study found that there was a moderate positive correlation between vaspin with RBS level of DM patients ($r: 0.63$), Figure 1.

![Figure 1: Correlation of vaspin with RBS level in DM patients](image1)

This study found that there was a moderate positive correlation between vaspin with BMI level of DM patients ($r: 0.53$), Figure 2.

![Figure 2: Correlation of vaspin with BMI of DM patients](image2)

This study found that there was a moderate positive correlation between vaspin with BMI level of DM patients ($r: 0.71$), Figure 3.

![Figure 3: Correlation of vaspin with BMI of DM patients](image3)
Discussion
Numerous studies have shown that there is a strong correlation between diabetes and high BMI since obese people are more likely to have diabetes and vice versa (5). In this study, the highest rates of Vaspin were recorded in people with diabetes. This finding is consistent with many previous studies conducted around the world. A recent study found that the level of vaspin was significantly higher in people with diabetes than in healthy people (6). Other scientists have noted in previous studies that people with type 2 diabetes actually suffer from elevated serum levels of vaspin (7, 8). In terms of the relationship of vaspin with body mass level, which was noted that vaspin is significantly associated with weight gain in the current study has shown that a global study conducted earlier that there is a direct proportion between the level of vaspin and the rate of body mass 33 kg / m² (9).

The study of people with diabetes also noted that vaspin is significantly lower in people with diabetes who are within normal weight (10). On another level, studies conducted worldwide have also indicated a positive correlation between vaspin and both blood glucose and cumulative glucose (11-14). A study of people fasting in the morning with type 2 diabetes found that the level of vaspin was positively correlated with blood glucose (15). Of these studies, one study found that the level of cumulative sugar increases positively with the elevation of the level of vaspin in the blood photographer of the disease with diabetes (16). Note that the present examination has a few confinements. To start with, the example size was not enormous. Moreover, this was an epidemiologic investigation, equipped for recognizing connections amongst factors and not causal connections. In this way, further trial ponders are required to clarify the atomic systems fundamental they watched the relationship between the serum vaspin focus and different metabolic parameters (17).

In spite of the fact that the present investigation had adequate capacity to distinguish the critical relationship between the serum vaspin fixation and different metabolic parameters in more seasoned grown-ups with and without diabetes, further enormous scale contemplates are required to acquire understanding into the job of vaspin in T2DM (18-21).

Conclusion
Serum vaspin was highly correlated with type 2 diabetes especially in obese ones
Conflict of interest: None
Source of findings: self-findings.
Ethical clearance: This research was carried out with the patient's verbal and analytical approval before the sample was taken.

References