GEORGIAN MEDICAL NEWS

ISSN 1512-0112

NO 6 (351) Июнь 2024

ТБИЛИСИ - NEW YORK

ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

Monthly Georgia-US joint scientific journal published both in electronic and paper formats of the Agency of Medical Information of the Georgian Association of Business Press. Published since 1994. Distributed in NIS, EU and USA.

GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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Содержание:

GEORGIAN MEDICAL NEWS
No 6 (351) 2024

THE ROLE OF MYONECTIN IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Abstract.

Background: Diabetes is a chronic devastating disease characterized by remarkable tissue damage.

Aim: This prospective study conducted in Tikrit City aimed to investigate the role of myonectin and glycemic control parameters in type 2 diabetes (T2DM). **Methods:** The study enrolled 60 patients with T2DM and 30 controls participants. Blood withdrawn, serum separated, serum myonectin and glycemic control parameters were quantified using Cobas C 111 analyzer. The mean serum level FBS (263.60±130.83) and HbA1C (97.56±15.54%) in T2DM patients compared with the control group ($p \leq 0.0001$). Myonectin level (pg/ml) significantly reduced ($p > 0.005$) in T2DM (292.78±110.32) compared with the control group (379.72±140.64).

Conclusions: Circulating myonectin levels were decreased in T2DM patients. Moreover, serum myonectin levels were correlated with metabolic markers of T2DM. These data suggest that myonectin may be a useful marker in predicting the development of T2DM.

Key words. Myonectin, T2DM, Insulin, ß-cells.

Introduction.

Insulin is a hormonal protein produced by the pancreas, especially by the ßcells of the pancreas. These cells (ß-cells) are located in a part of the pancreas called ‘’islets” Insulin hormone has extensive effects on whole body metabolism. It promotes glucose disposal in adipose tissue and muscle and prevents glucose production by the inhibition of glycogenolysis and gluconeogenesis in the liver. Insulin also plays a vital role in the other important processes such as synthesis and storage of fat, protein synthesis, cell growth, cell proliferation and differentiation. Insulin has a half-life of approximately 6 minutes [1-2].

According to the World Health Organization (WHO) report, approximately 422 million people have diabetes in the whole world, with 90–95 % of them having type 2 diabetes (T2DM). T2DM has become a common global epidemic chronic endocrine and metabolic disease, which can cause a variety of acute and chronic complications and seriously endanger human health [3]. It is one of the important public health problems in the world. It is a serious chronic metabolic disease characterized by chronic hyperglycemia caused by impaired insulin secretion and/or insulin resistance [4]. Continuous hyperglycemia in T2DM patients induces harmful complications. Among them, cardiovascular diseases are the major diabetic complications and increase mortality of patients with T2DM.Additionally, T2DM patients are commonly accompanied by other cardiovascular disease risk factors, such as obesity and dyslipidemia. Therefore, the focus on T2DM treatment has changed, showing as from "only hypoglycemia” to “comprehensive management of multiple risk factors” [5-6].

Muscle tissues have been considered to be an endocrine organ that releases some cytokines, termed myokines, which regulate some physiological and metabolic pathways. Myonectin has been identified as a myokine, expressed predominantly by muscle tissues[7,8]. Myonectin is a nutrient-sensing cytokine that may have an important role in diabetes and related disorders. In addition, myonectin could be a potential biomarker in predicting the development of pre-diabetes and diabetes [9,10]. To identify the serum levels of myonectin, HbA1c, and Blood glucose in patients with T2DM.

Materials and Methods.

Study design: This case-controlled study enrolled 90 male metabolic syndrome patients (60 patients and 30 control) who were 20-79 years old, the samples were collected, from October 2023 to the end of November 2023 from Tikrit Teaching Hospital in Tikrit City. Formal informed consent was collected from participants. The Scientific committee of the faculty of medicine at Tikrit University awarded the research protocol formal clearance, which had previously accepted the methodology in Tikrit Teaching Hospital in Tikrit City provided clearance for collecting patient samples.

Research Ethics: This study is part of major research work, and the Ministry of Iraqi Health approved it for using human serum samples.

Study groups were categorized as the following:

Group 1: include 60 male patients with T2DM.

Group 2: included 30 samples from a normal healthy control.

Each participant in this study should be fast at least 8 hours before that. Blood samples were collected from patients. All participants' samples were collected by using a disposable syringe to extract approximately five milliliters of blood from the antecubital vein. The obtained blood was divided into two portions; the first portion, 3 ml, was put in a separation gel tube, which facilitates serum separation by centrifugation at 3000 rpm for 10-15 minutes. The clear serum was pipetted into clear, dry Eppendorf tubes and stored at deep freeze-20 °C for the subsequent measurement of myonectin, blood glucose. The second part, consisting of 2 mL of blood, was put in a blood collection tube containing ethylene diamine tetra acetic acid (EDTA) as an anticoagulant for immediate measurement of glycated haemoglobin (HbA1c).

SPSS v26 (Statistical Package for Science Services), was used to perform computerized statistical analysis using Comparison, and this was carried out using; a T test, one-ANOVA and Probability (P-value). analysis conducted using t-test with significance considered at p-value 0.05.

Table 1. *Distribution the studied groups according to demographic parameters.*

parameters	Subgroups	Study Groups		Total	p value
		Case (n=60)	Control (n=30)		
Age range (Years)	(20-34)	6 (10.0%)	5 (16.7%)	11 (12.2%)	**0.27**
	(35-49)	16 (26.7%)	7 (23.3%)	23 (25.6%)	
	(50-64)	20 (33.3%)	5 (16.7%)	25 (27.8%)	
	(65-79)	18 (30.0%)	13 (43.3%)	31 (34.4%)	
	Total	60 (100.0%)	30 (100.0%)	90 (100.0%)	
Gender	Male	33 (55.0%)	16 (53.3%)	49 (54.4%)	**0.88**
	Female	27 (45.0%)	14 (46.7%)	41 (45.6%)	
	Total	60 (100.0%)	30 (100.0%)	90 (100.0%)	
BMI (Kg/m^2)	<18.5-underweight	2 (3.3%)	3 (10.0%)	5 (5.6%)	**0.22**
	(18.5-24.9)-Normal weight	19 (31.7%)	13 (43.3%)	32 (35.6%)	
	(25-29.9)-Overweight	28 (46.7%)	8 (26.7%)	36 (40.0%)	
	>30-Obese	11 (18.3%)	6 (20.0%)	17 (18.9%)	
	Total	60 (100.0%)	30 (100.0%)	90 (100.0%)	

Results.

The results of this study showed there were a non-significant (p=0.27) differences between the age range groups (years) among cases and control groups. The results of this study showed there were a non-significant difference between the frequency and percentage of sex among cases and control groups with (p=0.88). The results of this study showed the most cases of T2DM had Overweight score with 28 (46.7%) out of 60 cases, followed by 19 (31.7%) had normal weight score, while the obese cases recorded 11 (18.3%), 2 (3.3%) cases of T2DM underweight score, these differences statistically were non-significant (p=0.22). The results of this study showed the most cases of T2DM had Overweight score with 28 (46.7%) out of 60 cases, followed by 19 (31.7%) had normal weight score, while the obese cases recorded 11 (18.3%), Two (3.3%) cases of T2DM had underweight score, these differences statistically were non-significant (p=0.22) (Table 1).

The results of the current study showed the levels of FBS (mg/dl) were higher in cases than control groups (263.60±130.83), (97.56±15.54), respectively. These differences had P ≤0.0001. The results of this study also documented there were high levels of HbA1C (%) among cases than control groups (8.10±1.67), (4.75±0.53), respectively. These differences statistically were highly significant (P ≤0.0001).

The results of the current study recorded there were a small difference in the levels of ALP between cases and control groups. These differences statistically were significant (p=0.02).

The results of the current study observed the levels of Myonectine (292.78±110.32) were lower among cases and higher among control groups (379.72±140.64) (p=0.005) (Table 2).

Table 2. *Comparative of the mean levels of FBS (mg/dl),HbA1C (%) between cases and control.*

parameters	control	Cases	P value
Albumin	3.44±0.80	3.81±0.54	0.02
FBS (mg/dl)	97.56±15.54	263.60±130.83	0.0001
HbA1C (%)	4.75±0.53	8.10±1.67	0.0001
Myonectin	379.72±140.64	292.78±110.32	0.005

The results of this study observed there were a positive correlation between the levels of myonectine with Age, BMI, and gender with (r=0.044, r=0.037, r=0.2), respectively. These correlations have (p=0.679, p=0.730, p=0.059), respectively (Table 3). The results of this study also observed there were an inverse correlation between the levels of FBG (mg/dl) and HbA1C (%), statistically these correlations were significant with (p=0.012, p=0.016), respectively (Table 4).

Table 3. *Correlation between the levels of myonectine with levels of Age, gender, BMI, FBG, and HbA1C (%).*

Test	r	p value
Age (Years)	0.044	0.679
Gender	0.2	0.059
BMI (Kg/m^2),	0.037	0.730
FBG (mg/dl)	-0.264*	0.012
HbA1C (%)	-0.254*	0.016
*Correlation is significant at the 0.05 level (2-tailed).		

Table 4. *Correlation between the levels of myonectine with levels of ALP, globulin, protein.*

Test	r	p value
albumin	-0.176	0.098
Protein	-0.025	0.818
Globulin	0.026	0.809
*Correlation is significant at the 0.05 level (2-tailed).		

Table 5. *ROC analysis for the myonectine between cases and control.*

Myonectine	
Sensitivity	93
Specificity	10
Area under curve (AUC)	0.315
Cutoff value	172
95% CI	0.193-0.437
SE	0.062
p value	0.004

The results of this study observed there were a positive correlation between the levels of myonectine with the levels of globulin with (r = 0.026), these correlation have p = 0.809. The results of the current study also documented there were an inverse correlation between the levels of myonectine with the levels of albumin, protein (r= -0.176, r= -0.025), respectively,

Statistically these differences have (p=0.098, p=0.818), respectively (Table 5).

Discussion.

Serum myonectin was lower in T2DM patients compared with controls. Contrary to our results Li et al. 2019, found in their study that higher myonectin levels have been reported in T2DM patients, particularly higher in T2DM patients than pre-diabetic subjects, indicating its role in the progression of diabetic state [11]. In this study plasma myonectin levels were positively correlated with glycemic parameters such as fasting blood sugar, HbA1c, HOMA-IR, but negatively correlated with insulin sensitivity. Li et al. (2021) reported decreased myonectin levels in obese subjects and T2DM patients [12].

These findings suggest that myonectin signalling has a role in the regulation of lipid and glycemic parameters, and its levels are affected under different pathological conditions. Thus, changes in myonectin levels have the potential to be a useful marker for insulin sensitivity/resistance status in T2DM [11,12].

Albumin clearance in plasma is the sum of albumin clearance from gastrointestinal, urinary tract, and catabolism component. Albumin clearance in urinary tract is about 6%, from gastrointestinal is about 10%, and other catabolism component is about the rest 84%. Meanwhile, albumin synthesis is influenced by osmotic colloid pressure and albumin level in plasma, but oncotic colloids pressure has stronger role in controlling the synthesis and compared to plasma albumin level.

Albumin is a negative acute-phase reactant and lower albumin indicates greater inflammation. Thus, lower circulating albumin might be expected to be associated with increased risk of T2D. The mechanistic pathways for the link between elevated serum albumin and the development of T2DM are unclear, although a higher dietary protein intake has been suggested for the positive association between serum albumin and the metabolic syndrome [13-15]. Inflammation can increase the permeability of capillaries and allow serum albumin to escape. On the other hand, it can shorten albumin's half-life and decrease its amount, resulting in hypoalbuminemia. Additionally, serum albumin factors are directly related to inflammatory reactions, quality of life, and life expectancy [16].

Fujioka et al. hypothesizes that the increase in blood flow velocity of the central retinal artery and central retinal vein in DM is due to optic disc edema caused by reduced serum albumin levels; the high blood flow velocity in group 2 is proposed to be caused by low serum albumin levels [17].

Glucose molecule in the blood normally binds to the haemoglobin molecule – known as glycated haemoglobin (HbA1c) or glycation. Its level is increased in diabetes mellitus and thus monitoring the levels of HbA1c in diabetic patients provides valuable information about the changes occurring in the blood glucose level over the period of three months. Diabetes is a metabolic disorder and is generally accompanied by increased levels of free radicals and decreased activity of antioxidants and various studies suggests that increased oxidative stress in diabetes mellitus may be due to increased formation of Glycated Haemoglobin (HbA1c). This increased glycation is thus involved in progression of diabetes and its complications [18-20].

HbA1c reflects average plasma glucose over the previous eight to 12 weeks. It can be performed at any time of the day and does not require any special preparation such as fasting. In this study, HbA1c was significantly higher among patients with T2DM. This finding is consistent with that of previously published studies [20].

Conclusion.

Recent research has indicated that circulating myonectin levels are notably decreased in patients with Type 2 Diabetes Mellitus (T2DM), suggesting a potential role of myonectin as a biomarker for this metabolic disorder. In individuals diagnosed with T2DM, serum myonectin concentrations were found to have significant correlations with various metabolic markers pertinent to the disease. For instance, lower levels of myonectin were associated with elevated blood glucose and insulin resistance, hallmark features of T2DM pathophysiology. This correlation underscores the importance of myonectin in metabolic regulation and its potential predictive value for the development and progression of T2DM. The observed relationship between reduced myonectin levels and adverse metabolic profiles supports the hypothesis that this muscle-derived hormone could serve as an early indicator of metabolic dysfunction. Consequently, monitoring serum myonectin may offer clinicians a novel tool for early diagnosis and intervention strategies aimed at mitigating the onset or severity of T2DM, enhancing patient outcomes through timely management efforts. Therefore, further longitudinal studies are warranted to validate these findings and elucidate the mechanistic pathways linking myonectin with glucose metabolism and insulin sensitivity.

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