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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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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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BREAST CANCER-MODULATED OMENTIN AND VASPIN PLASMA LEVELS

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Abstract.

Background and objectives: Omentin and vaspin levels have been shown to change in many inflammatory diseases, the present study aimed to evaluate the omentin and vaspin levels in breast cancer patients. **Methods:** To do so serum samples were collected and analysed for omentin, vaspin, renal and liver function tests. **Results:** The levels of creatinine ($p<0.01$) and urea ($p<0.05$) showed substantial increases, while omentin and Vaspin levels notably decreased ($p<0.05$). Additionally, breast cancer patients exhibited significantly higher levels of aspartate aminotransferase (AST), alkaline phosphatase (ALP), and alanine transaminase (ALT) compared to the control group ($p<0.05$). **Conclusion:** In comparison to the control group, individuals with breast cancer demonstrated reduced blood concentrations of omentin and vaspin and elevated levels of creatinine and urea. Additionally, liver function testing indicated lower levels of Alanine transaminase (ALT), Alkaline phosphatase (ALP), and Aspartate aminotransferase (AST) in breast cancer patients. Breast cancer patients had lower levels of omentin and vaspin, and higher levels of creatinine and urea compared to the control group. Liver function tests also indicated lower levels of AST, ALP, and ALT in breast cancer patients compared to the control group.

Key words. Breast cancer, Omentin, Vaspin, ALT, ALP, AST.

Introduction.

Breast cancer, also known as malignant neoplasm, is characterized by the unchecked and abnormal growth of breast tissue cells, as well as their ability to penetrate and infiltrate adjacent normal tissue [1,2]. After lung cancer, breast cancer is the most prevalent and the second-leading cause of cancer-related deaths among women globally [3]. Because women in Eastern countries utilize hormones and contraception and because their lifestyles differ, the infection rate in Western societies is higher than in Eastern societies [4]. Every year, the number of cancer cases rises as a result of pollution in the air, water, and soil; the introduction of canned goods without proper quality control; a lack of culture in this area, which may lead to an increase in infections; and the significant influence of a family's genetic predisposition [5]. Breast cancer syndrome is largely hereditary [6].

Omentin is a 35 kDa hydrophilic polypeptide that is released and has 313 amino acids [7]. Yang et al. initially discovered omentin in a cDNA library of omental fat in 2006. Omentins include omentin-1 and omentin-2, with omentin-1 being the predominant circulating type. It was discovered to have potential associations with insulin resistance. Furthermore, mention-1 was the primary focus of several research studies [8]. It was determined that omentin-1 was advantageous to humans and inhibited the development of metabolic disorders [9].

Presently, a prevalent area of research in breast cancer involves discovering new biomarkers for prognosis, diagnosis, and prediction, which can serve as non-invasive tools and potential therapeutic targets. Considering the association of omentin-1 with metabolic issues linked to obesity and various solid tumours, it is hypothesized that postmenopausal women with breast cancer, an obesity-related cancer, may exhibit dysregulated levels of this pro-apoptotic and anti-inflammatory adipokine in circulation. These abnormal levels of omentin-1 may be linked to cardiometabolic risk factors, including inflammatory, lipid, and metabolic biomarkers. The relationship between serum omentin and BC has only been studied in four small case-control studies [10,11]. Omentin-1 also provides protection against bone metabolic disorders, cancer, atherosclerosis, and type 2 diabetes [12].

An incredibly intricate, highly dynamic, and vital metabolic and endocrine organ is adipose tissue (4). Sex steroids, cell signalling proteins, apelin, resistin, leptin, and visfatin are among the many peptide hormones with high metabolic activity, bioactive cytokines, chemokines, and adipokines that are released [13-15].

The adipokine vaspin reduces inflammation and proliferation by inhibiting inflammatory mediators. It also improves glucose tolerance and protects against tissue hyperinsulinemia by preventing IRS-2 phosphorylation. Moreover, vaspin demonstrates antiapoptotic effects by stimulating the PI3K/AKT and mitogen-activated protein kinase/ERK signalling pathways, potentially impacting the development of cancer and the proliferation of cells. It is produced in various tissues, with liver production being the highest. Serum vaspin concentrations are positively correlated with BMI, waist circumference, and body fat percentage [16,17]. Omentin and vaspin are involved in different pathological pathways as per Figure 1 [18].

Materials and Methods.

This descriptive cross-sectional study was conducted on November 15, 2022, and December 30, 2022, in Iraq. The participants were split into two groups. There were 30 healthy normal subjects in Group (A). A total of 60 women with BC were included in Group (B).

Samples were taken from healthy individuals by extracting ten millilitres (ml) of blood from a vein using a plastic syringe. The samples were then divided into three groups and centrifuged at a speed of four thousand revolutions per minute (rpm) for ten minutes before being frozen. To measure the biochemical variables, the temperature was set at -20°C.

Statistical analysis: Using the tiny tap, the findings were statistically examined. The T-test, analysis of variance (ANOVA), and arithmetic means were used to evaluate 17 statistical programs to determine significant differences using Duncan's multinomial test at the level of significance P 0.05.

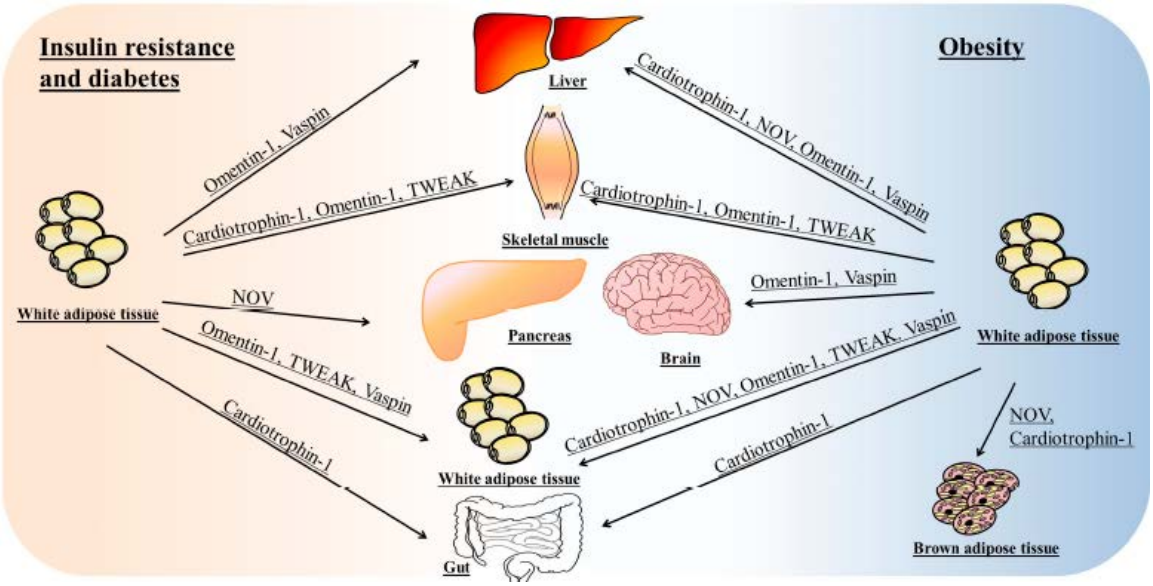

Figure 1. *Schematic representation of the omentin and vaspin in different pathological pathways [18].*

Results.

The results showed a significant ($p<0.05$) decrease in omentin among women with breast cancer (102.1±24.1) compared to the control group (144±112). The levels of vaspin in women with breast cancer (1.93±0.794) were notably ($p<0.05$) lower than those in the control group (3.11±3.23).

The results showed a significant ($p<0.05$) increase in urea among women with breast cancer (29.5 10.8 mg/dl) compared to the control group (25.5±8). The results showed a significant ($p<0.05$) increase in creatinine among women with breast cancer (0.881 ± 0.187) compared to the control group (0.732 ± 0.163).

The results showed a significant ($p<0.05$) increase in ALP among women with breast cancer (115±57.9) compared to the control group (61.6±16). The results showed a significant ($p<0.05$) increase in ALT among women with breast cancer (26.8±2.84) compared to the control group (15.32±5.58). While there was a significant ($p<0.05$) decrease in AST among women with breast cancer (3.92±13.8) compared to the control group (16.48±3.72) (Table 1).

Table 1. *Comparison of measured parameters between studied groups.*

Studied groups	Control	Patients
Omentin (Pg/ml)	144±112*	102.1±24.1
Vaspin (ng/ml)	3.11±3.23*	1.93±0.794
Urea (mg/dl)	25.55±8.07	29.5±10.8*
Creatinine (mg/dl)	0.732±0.163	0.881±0.187*
ALP (U/L)	61.6±16	115±57.9*
AST (U/L)	16.48±3.72*	3.92±13.8
ALT (U/L)	15.32±5.58	26.8±2.84*
Data Expressed as mean±SD *indicates a significant difference at p value less than 0.05		

Discussion.

Omentin-1 levels are higher in pancreatitis, prostate cancer, and colorectal cancer, but lower in breast, bladder, and kidney cell malignancies, presumably reflecting abdominal fat storage and an increased risk of breast and cervical cancer [17-21].

A previous study suggests that vaspin may contribute to the advancement of carcinogenesis in breast cancer patients, albeit the exact mechanism is unknown. Reduced blood levels of vaspin and omentin-1 are linked to an increased risk of breast cancer, whereas larger levels appear to give protection. More research is needed to acquire a complete understanding of this connection [22,23].

Urea and creatinine levels: Research has revealed elevated urea levels in women with breast cancer. A previous study compared malignant and benign cases, with the control group being premenopausal women with malignant cases. When comparing malignant cases to the control group, a significant increase in blood glucose levels was observed (p-value < 0.05). Patients with malignant conditions were found to have a higher likelihood of developing hyperglycemia and elevated urea compared to healthy women. Furthermore, a notable rise in serum urea levels in the benign group in comparison to the control group was indicated (p-value = 0.05). The serum urea levels of malignant breast cancer patients did not demonstrate significant differences from those of breast cancer-free women. The assessment of glomerular filtration rate relies on serum urea and creatinine concentrations, and deviations from normal levels may indicate renal impairment [24-26]. The current study found a substantial difference in creatinine levels between breast cancer patients and the control group, which is consistent with prior research [27,28]. In addition to these aforementioned, tumour stage and infiltration [29], immunological arm should be considered [30], serum estrogens [31], and the type of antineoplastic used by the patients [32].

Conclusion.

To summarize, breast cancer patients displayed diminished levels of omentin and vaspin and increased levels of creatinine and urea compared to the control group. Moreover, liver function tests showed lower levels of AST, ALP, and ALT in breast cancer patients compared to the control group.

Competing Interest: The authors declare that there is no conflict of interest.

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