GEORGIAN MEDICAL NEWS

ISSN 1512-0112

N0 10 (331) Октябрь 2022

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.

GEORGIAN MEDICAL NEWS
No 10 (331) 2022

Содержание:

GEORGIAN MEDICAL NEWS
No 10 (331) 2022

THE CORRELATION BETWEEN SERUM HOMOCYSTEINE LEVEL AND PARKINSON'S DISEASE DISABILITY

Yahya Qasem Mohammed Taher[1]*, Mohammed Natheer[2], Hakki Mohammed Majdal[2].

[1]College of Medicine, University of Mosul, Mosul, Iraq.
[2]Department of Neurology, Ibn-Sina Teaching Hospital, Mosul, Iraq.

Abstract.

Background: The second common disease that is neurodegenerative is connected with PD in elderly patients which is the distribution of gender. The proliferation has been reported in the last decade in homocysteine (Hcy) along with other diseases, epilepsy, Alzheimer, and idiopathic Parkinson's.

Objectives: identifying the elevated level of Hcy which is a common factor for developmental disease and making the increase in motor disability of Hcy.

Patients and method: With Parkinson's disease, a total of 70 patients were included in the case-control research which indicates that the newly diagnosed patients are not receiving any treatment at the department of neurology. These patients were compared with 70 healthy individuals attending the hospital for routine checkups matched for age and sex who were considered the control group. measurements of serum Hcy levels were done in both the case and control groups by the ELIZA method.

Results: This study shows that The mean Hcy level among the Parkinson's bunch was (16.884 ± 15.582) which is essentially higher than that of the control bunch (9.493 ± 3.752) at p=0.000 and albeit The Hcy level is higher in the currently analyzed patients (14.895±9.073) contrasted and recently analyzed patients (17.640±17.453) this distinction is genuinely non-critical Hcy level has a moderate direct relationship with the importance of brain highlights of the illness (r=0.682) in a genuinely huge way (p=0.000) While the connection with the term is exceptionally powerless (r=0.198) and measurably non-critical.

Conclusion: Parkinson's patients have raised degrees of Hcy contrasted with ordinary individuals and there is an immediate relationship between the Hcy level and the importance of brain highlights of the sickness despite the fact that the Hcy level expanded with the span of the illness this shows a non-critical connection with sickness importance.

Key words. Parkinson's disease, homocysteine, Neurodegenerative, Disability, Inflammation.

Introduction.

Parkinson's disease, which affects almost all races equally and has a severe and prevalent driving limitation in the elderly, is the second most prevalent neurodegenerative illness [1]. Its rate increases with age [2], especially in people over the age of 60, and is generally irregular, but 15% of cases have positive proportions; The origin of the illness is related to both environmental and genetic factors[3,4].

Homocysteine (Hcy) is released by cleavage of amino corrosive methionine and is likely to be reabsorbed by remethylation and conversion to methionine. The chemical that regulates this response requires vitamin B12 and folic acid. This chemical also regulates Hcy levels in the blood using coenzymes B12, folic acid, B6, and choline. Therefore, the deficiency of these nutrients leads to the accumulation of Hcy and is associated with an increased burden of disease [5]. Folic acid and B12 deficiency and high Hcy levels cause neurodegeneration in the hippocampus, leading to mental retardation, which has been linked to several neuro infections such as "Alzheimer's and Parkinson's disease" [6].

Elevated plasma Hcy levels are associated with an increased risk of essential vascular disease through emergencies such as cardiovascular disease, smoking, lipid and lipoprotein dissolution, mitigation of adverse effects, and acceleration of the progression of exacerbations. Furthermore, extended Hcy has been considered delayed for too long in neurodegenerative diseases without vascular onset, e.g., "Alzheimer's disease" [7] and "idiopathic Parkinson's disease" [8,9].

Furthermore, in a study of patients with PD, the concentration of Hcy in the cerebrospinal fluid was considered to be higher than normal [8]. Hcy causes cell damage of MPTP dopamine ("1-methyl, 4-phenyl-1,2,5 and 6-tetrahydropyridine") [10]. This investigation aims to ascertain whether elevated Hcy is a hazard to Parkinson's disease progression or even whether raised Hcy is linked to greater neurological deficits.

Patience and methods.

This "Parkinson's disease case-control study" summoned 70 patients (19 recently screened patients who have not received any treatment so far and 51 significant cases) to the Mosul City Neurology Department "Ibn Sina Presents Emergency Clinic" between November 2021 and April 2022.

These patients were compared, and the reference group was 70 healthy subjects who went to the doctor's office for routine checks based on age and gender.

This research was done in accordance with the "Standard Declaration of Helsinki" and all members provided informed consent before the start of the review.

Patients were diagnosed with "Parkinson's disease" based on the "Movement Disorder Society" (MDS) "clinical diagnostic criteria for Parkinson's disease" [11] and four main indicators, including "tremor, hypokinesia, inflexible personality, and postural impairment" [12]. A neurologist is in charge of the review. He was referred for neuroimaging and basic blood tests. Some other neurological, endocrine and underlying infections were avoided.

The severity of the motor manifestation of "Parkinson's disease was assessed" using the "Unified Parkinson's Disease Rating Scale" (UPDRS) Part 3, which evaluates the motor indices of "Parkinson's disease according to the Movement Disorders Society" (MDS) modification of the standardized

disease classification Parkinson's. MDS-UPDRS scale [13].

The duration of the disease was classified into three categories[18]:

- < 5 years
- 5 to10 years
- and >10 years

Evaluations of the serum Hcy level were completed in both case-control meetings, the serum Hcy level was assessed using the ELISA strategy [14]. Plasma heparin tests were centrifuged for approximately 30 minutes at the research facility to prevent false increases due to Hcy from red blood platelets. Splitting and freezing the examples after sorting will be completed soon. Serum Hcy levels below 15 µmol / L were attractive and levels above 15 µmol / L were considered a risk factor for PD [15]. Furthermore, taking into account, the Hcy level in the blood was classified into four categories: normal (15 µmol / l and less), mild (16-30 µmol / l), moderately high (31-100 µmol / l), and severe (more than 100 µmol / L).

Statistical analysis:

The information was gathered and coordinated in Microsoft Excel (2007), and afterwards, the "Statistics Package for Social Sciences (SPSS 26.0 for Windows)" was utilized for examining the information. Implies and the standard deviations were determined for the mathematical information and the extent for the unmitigated one. t-test and the Chi-square examination were performed for the affiliation and the correlation of boundaries between the two gatherings for the means and extent separately. Pearson's connection coefficient was utilized to explore the connection between the Hcy level with importance and term, "r" is the connection coefficient, esteems near 1 demonstrate the solid connection between two factors and those near zero show an unfortunate relationship. The p-esteem ≤ 0.05 was viewed as genuinely huge.

Results.

Table 1 exhibits the examination between a concentrate on bunches in regard to progress in years, orientation, and Hcy level and uncovers that the mean age among the Parkinson's bunch is lower than that of the control bunch however the thing that matters is genuinely non-huge. Besides, albeit the male orientation is more than female in the two gatherings, the thing that matters is measurably not critical. The mean Hcy level among the Parkinson's bunch (16.884 ± 15.582) is altogether higher than that of the control bunch (9.493 ± 3.752) at p=0.000.

Table 1. *The comparison between study groups regarding age, gender, and Hcy level.*

Variables		**Parkinson Group (n=69)**	**Control group (n=69)**	**p-value**
Age (Mean ±Sd)		58.754± 6.978	59.681 ± 7.819	0.463*
Gender No. (%)	Male	36(52.2%)	35(50.7%)	0.865**
	Female	33(47.8%)	34(49.3%)	
Hcy level (Mean ±SD)		16.884 ± 15.582	9.493 ± 3.752	0.000*
*t-test for independent two means ** Chi-square test				

Table 2 shows the examination among recently and old analyzed Parkinson's bunches with respect to progress in years, orientation, and Hcy level and uncovers that the recently analyzed patients are more youthful than the old analyzed patients albeit the thing that matters is measurably non-critical. Male orientation addresses 57.9% of recently analyzed and 50.0% of old analyzed, while the females address 42.1% and 50.0% of recently and old analyzed individually, the thing that matters is genuinely non-huge. The Hcy level shows a measurably non-huge distinction between the mean among recently analyzed (14.895±9.073) and old analyzed (17.640±17.453) gatherings.

Table 2. *The comparison between new and old diagnosed Parkinson groups regarding age, gender, and Hcy level.*

Variables		**Newly diagnosed Parkinson's group (n=19)**	**Old diagnosed Parkinson Group (n=50)**	**p-value**
Age (Mean ±Sd)		57.316±5.831	59.300±7.346	0.295*
Gender No. (%)	Male	11(57.9%)	25(50.0%)	0.558**
	Female	8(42.1%)	25(50.0%)	
Hcy level (Mean ±Sd)		14.895±9.073	17.640±17.453	0.517*
*t-test for independent two means ** Chi-square test				

Table 3 shows Interval by Interval Pearson's R connection of Hcy level with both importance and span and exhibits that the Hcy level is in a moderate straightforwardly relationship with the importance (r=0.682) in a measurably huge way (p=0.000) as displayed in (figure 1). While the connection with the term is exceptionally frail (r=0.198) and genuinely non-critical as displayed in (figure 2).

Table 3. *Pearson's R correlation of Hcy level with both severity and duration.*

Pearson's *r* correlation	***r*-value**	**Asymp. Std. Error**	**Approx. T[b]**	**p-value**
The severity with Hcy level	0.682	0.052	7.632	0.000[c]
Hcy level with a duration	0.198	0.125	1.401	0.168[c]
No. of Valid Cases	69			
a. Not assuming the null hypothesis. b. Using the asymptotic standard error assuming the null hypothesis. c. Based on normal approximation.				

Table 4 exhibits the correlation of Hcy level as indicated by the term of sickness and portrays that the mean of Hcy level under 5 years is lower than the mean over 5 years albeit the thing that matters is genuinely non-huge.

Table 4. *The comparison of Hcy level according to the duration of disease.*

Variables	**Below 5 years (n=28)**	**Above 5 years (n=22)**	**p-value**
Hcy level (Mean±SD)	14.929±10.169	21.091±23.569	0.219
*t-test for independent two means			

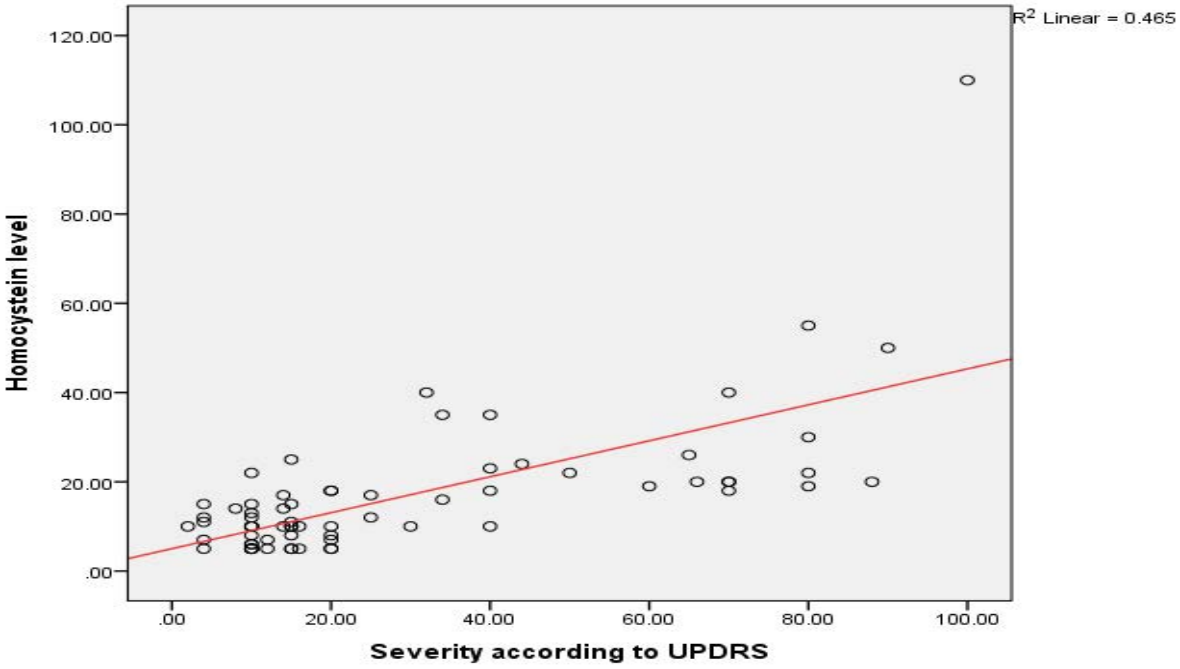

Figure.1. Scatter diagram for the Pearson correlation of Hcy level with severity.

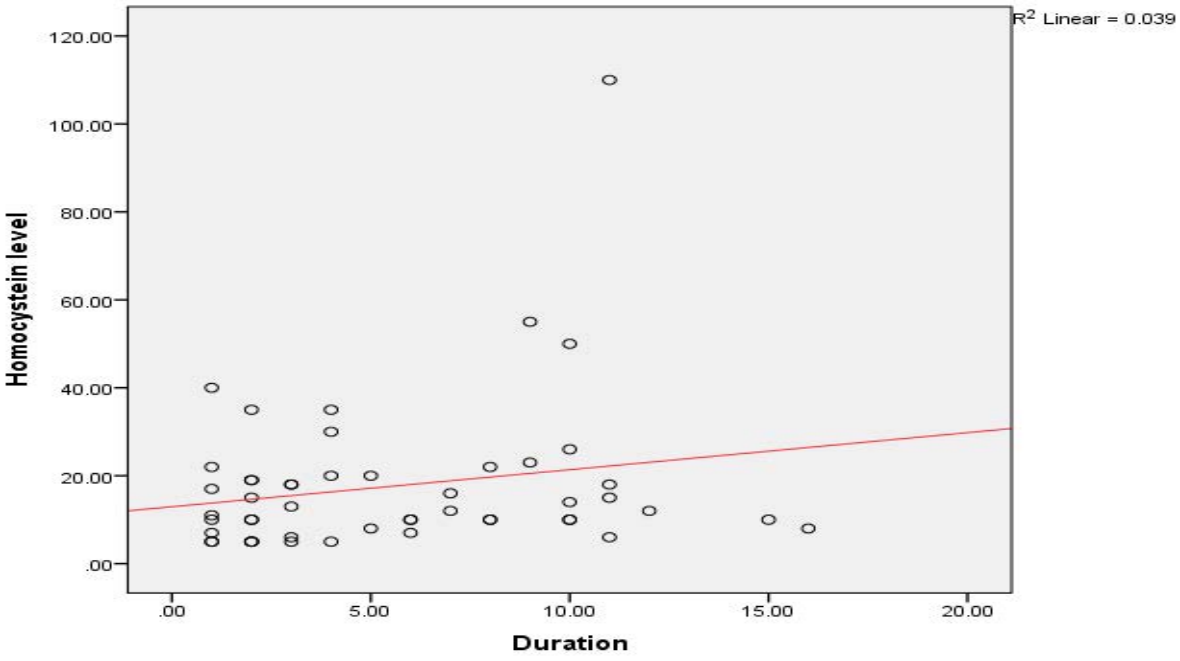

Figure. 2. Scatter diagram for the Pearson correlation of Hcy level with duration.

Discussion.

The general rate of old Parkinson's disease (PD) places a severe economic load on families and healthcare facilities, despite the difficulties associated with resistance to disease diversity. The effect of "serum Hcy" levels on "Parkinson's patients" is one of the controversial issues in the disease under study.

The mean age in the current sample was 58,754 ± 6,978 years, 59,681 ± 7,819 years between cases and controls individually, 52.2% of cases and 50.7% of controls were male, while the female trend was 47.8 % of cases and 49.3% of controls.

A group in "North-East England between 1 June 2009 and 31 December 2011" led by Solomon et al [16], found that the average age of the cases was 66.4 ± 10.4 years, while the mean age of controls was 67.9 ± 8.2 years; The real difference isn't terrible.

The orientation of the men was 100 (64.9%) and the women 54 (54.5%). Furthermore, Sultan et al [17], said that the participants' average age was 55.60 11.45 years. Direct distribution revealed that 67 participants (37.60%) were female, and 111 patients (62.40%) were male.

This review showed a very high blood Hcy level among Parkinson's patients (16,884 ± 15,582) compared to the control group (9493 ± 3752). This result was similar to that of the cross-sectional study and the case-control study conducted by Sadat et al. It was performed by [18], who was performed at "Ayatollah Rouhani Hospital" Neurology Clinic, Babol in 2015-2016, where mean serum Hcy levels for case and control packs were 14.93 ± 8.30 and 11.52 ± 2.86 mol / L (95% CI): 1.68; 5.14, P 0.001). Among the patients, 85 patients had normal serum Hcy levels and 15 had non-essential levels. Hcy levels were 98 and 2 in controls, respectively (P = 0.002).

The initial confirmation of the relationship between serum Hcy levels and Parkinson's disease was in 1995, when Allen and colleagues [19] concluded in their review that Hcy levels were higher in patients with Parkinson's disease than in subjects. normal.

Uncertainty surrounds the precise mechanism through which plasma Hcy level will rise in Parkinson's disease, and it's also possible that elevated serum Hcy levels are caused more by the illness's impact on individuals rather than by disorder itself. real [20]. Muller and colleagues demonstrated a higher plasma concentration of Hcy in Parkinson patients on chronic use of levodopa than levodopa-free patients [21]. In patients with PD, Continued levodopa use increases plasma Hcy levels. The catabolism of levodopa with catechol-O-methyltransferase (COMT) leads to S-adenosylhomocysteine (SAH), which rapidly hydrolyzes and forms long-term Hcy [22].

Previous research has found a direct connection between all high Hcy amounts and cognitive deficits, atherosclerosis, and neurodegenerative conditions like Alzheimer's disease, vascular dementia, and Parkinson's disease [23-25].

The variance between the PD recently and the old one analyzed in the present work was measurably insignificant (p = 0.517), although the level of the latter analysis (14.895 ± 9.073) was lower than that of the old group (17.640 ± 17.453). .

The Hcy level in the blood increased as the severity of the disease increased. However, this increase was not measurable. When Parkinson's disease severity was 2.5-3 at different severity levels, a higher frequency was observed in patients with hyperhemocyteinemiamia (8 patients). However, this difference was not significant between the three unique severity categories of Parkinson's disease.

Hcy levels increased in "Parkinson's disease" patients with increasing disease duration, but this difference was not critical among tolerant populations [18]. The case-control focus was readjusted in 89 patients with Baroud's disease with at least 10 years of development and more than 60 years of experience. Plasma Hcy levels were increased in patients with PD (P = 0.0001).

The report's findings revealed that, despite the substantial disparity between the two patient groups and the stationary group, there had been no discernible change in serum total Hcy between male and female patients with PD. On issues related to orientation. In light of the 2016 study by Kocer et al. [26], there was a significant difference between the two patient encounters. They reported higher blood Hcy levels in men than in women.

Another review published in 2013 [27] found no significant differences in Hcy levels in untreated patients with respect to the voice factor.

In the study, plasma Hcy concentration was significantly higher in PD patients than in controls (11.1 ± 3.8 *vs.* 9.6 ± 3.3 μmol / L, separately, p <0.01), at 1 year and a half (12.3 ± 3.8 ± 3.3 μmol / L, separately, p <0.01), separately). 3.8 *vs.* 11.1 ± 3.7 μmol / L, individually, p <0.05) and three years 13.9 ± 4.9 *vs.* 12.3 ± 4.2 μmol / L, individually, p <0 , 05). However, a study of the reviewed measurements showed a complete increase in plasma Hcy in two groups north of three years (p <0.01 for both) [16].

Hcy was significantly higher in the newly analyzed PD than in controls. This is reliable based on a previous PD report [28]. Furthermore, Hcy has been associated with increased psychomotor intensity and mental deterioration. This is true of the results by O'Suilleabhain and colleagues [29] which explain in detail that in patients with PD, those with hyperhemocyteinemia performed worse on neuropsychiatric tests despite the nearly identical motor intensity.

A truly insignificant association between Hcy level and age was identified in a cross-sectional review conducted at "Jinnah Postgraduate Medical Center, Karachi" from 06/07/2013 to 12/07/2013 (r = 0.21, p = 0.778) [17].

Slide characteristics of PD patients and control subjects were recorded in a review led by Shen and Sohn [30], who concluded that PD subjects had higher Hcy levels (13.6 ± 7, 3) compared to control subjects (11.0 ± 2.9). Contrary to the study's findings, the majority of prior clinical trials of hyperhomocysteinemia in PD patients were unable to show a connection between elevated Hcy concentrations and the extent or persistence of the illness [29,31-36]. Additionally, the 2-year follow-up examines the clinical decline in PD patients with elevated Hcy levels in comparison to those with normal Hcy concentrations[37]. These findings suggest that elevated Hcy levels in PD patients are not toxic enough to have an impact on the extent of their condition. A prolonged prospective review can decide the effects of expanded Hcy concentrations on neurodegenerative movements in patients with PD. According to epidemiological data, serum Hcy levels are linked to mental capacity in healthy senior people and are higher in people with Alzheimer's disease (AD). Patients with PD who had increased Hcy levels performed worse mentally than those who had normal Hcy levels [38-40].

Conclusion.

Parkinson disease patients have elevated levels of Hcy compared to normal people and there is a reciprocal correlation between the Hcy level and harshness of motor features of the Parkinson's disease and although Hcy level elevated with the duration of the Parkinson's disease this shows a non-significant correlation with disease severity.

REFERENCES

1. Hirsch L, Jette N, Frolkis A, Steeves T, Pringsheim T. The incidence of Parkinson's disease: a systematic review and meta-analysis. Neuroepidemiology. 2016;46:292-300.

2. Ross GW, Abbott RD. Living and dying with Parkinson's disease. Movement disorders: official journal of the Movement Disorder Society. 2014;29:1571-1573.

3. Singleton AB, Farrer MJ, Bonifati V. The genetics of Parkinson's disease: Progress and therapeutic implications. Movement Disorders. 2013;28:14-23.
4. Białecka M, Robowski P, Honczarenko K, Roszmann A, Sławek J. Genetic and environmental factors for hyperhomocysteinaemia and its clinical implications in Parkinson's disease. Neurologia i neurochirurgia polska. 2009;43:272-285.
5. Williams KT, Schalinske KL. Homocysteine metabolism and its relation to health and disease. Biofactors. 2010;36:19-24.
6. Kocer B, Guven H, Conkbayir I, Comoglu SS, Delibas S. The effect of hyperhomocysteinemia on motor symptoms, cognitive status, and vascular risk in patients with Parkinson's disease. Parkinson's Disease. 2016;2016.
7. Seshadri S, Beiser A, Selhub J, Jacques PF, Rosenberg IH, et al. Plasma homocysteine as a risk factor for dementia and Alzheimer's disease. New England journal of medicine. 2002;346:476-483.
8. Isobe C, Murata T, Sato C, Terayama Y. Increase of total homocysteine concentration in cerebrospinal fluid in patients with Alzheimer's disease and Parkinson's disease. Life sciences. 2005;77:1836-1843.
9. Ansari R, Mahta A, Mallack E, Luo JJ. Hyperhomocysteinemia and neurologic disorders: a review. Journal of clinical neurology. 2014;10:281-288.
10. O'Suilleabhain PE, Oberle R, Bartis C, Dewey Jr RB, Bottiglieri T, et al. Clinical course in Parkinson's disease with elevated homocysteine. Parkinsonism & related disorders. 2006;12:103-107.
11. Postuma RB, Berg D, Stern M, Poewe W, Olanow CW, et al. MDS clinical diagnostic criteria for Parkinson's disease. Movement disorders. 2015;30:1591-1601.
12. Jankovic J. Parkinson's disease: clinical features and diagnosis. Journal of neurology, neurosurgery & psychiatry. 2008;79:368-376.
13. Goetz CG, Tilley BC, Shaftman SR, Stebbins GT, Fahn S, et al. Movement Disorder Society-sponsored revision of the Unified Parkinson's Disease Rating Scale (MDS-UPDRS): scale presentation and clinimetric testing results. Movement disorders: official journal of the Movement Disorder Society. 2008;23:2129-2170.
14. Ramakrishnan S, Sulochana KN. Manual of Medical Laboratory Techniques: Jaypee Brothers Medical Publishers Pvt. Ltd.
15. Sachdev PS. Homocysteine and brain atrophy. Progress in Neuro-Psychopharmacology and Biological Psychiatry. 2005;29:1152-1161.
16. Sleeman I, Lawson RA, Yarnall AJ, Duncan GW, Johnston F, et al. Urate and homocysteine: Predicting motor and cognitive changes in newly diagnosed Parkinson's disease. Journal of Parkinson's disease. 2019;9:351-359.
17. Sultan MO, Farooque U, Javed R, Khan MI, Karimi S, et al. Correlation of homocysteine level and age in patients with ischemic stroke. Cureus. 2020;12.
18. Saadat P, Ahmadi Ahangar A, Samaei SE, Firozjaie A, Abbaspour F, et al. Serum homocysteine level in parkinson's disease and its association with duration, cardinal manifestation, and severity of disease. Parkinson's Disease. 2018;2018.
19. Allain P, Le Bouil A, Cordillet E, Le Quay L, Bagheri H, et al. Sulfate and cysteine levels in the plasma of patients with Parkinson's disease. Neurotoxicology. 1995;16:527-529.
20. Rodriguez-Oroz MC, Lage PM, Sanchez-Mut J, Lamet I, Pagonabarraga J, et al. Homocysteine and cognitive impairment in Parkinson's disease: a biochemical, neuroimaging, and genetic study. Movement disorders: official journal of the Movement Disorder Society. 2009;24:1437-1444.
21. Muller T, Weme B, Fowler B, Kuhn W. Nigral endothelial dysfunction, homocysteine, and Parkinson's disease. The Lancet. 1999;354:126-127.
22. Zoccolella S, Martino D, Defazio G, Lamberti P, Livrea P. Hyperhomocysteinemia in movement disorders: current evidence and hypotheses. Current Vascular Pharmacology. 2006;4:237-243.
23. Song IU, Kim TW, Yoo I, Chung YA, Lee KS. Can COMT-inhibitor delay the clinical progression of Parkinson's disease? 2 years follow up pilot study. International Journal of Imaging Systems and Technology. 2016;26:38-42.
24. Song IU, Kim JS, Park IS, Kim YD, Cho HJ, et al. Clinical significance of homocysteine (hcy) on dementia in Parkinson's disease (PD). Archives of Gerontology and Geriatrics. 2013;57:288-291.
25. Chaudhuri KR, Healy DG, Schapira AH. Non-motor symptoms of Parkinson's disease: diagnosis and management. The Lancet Neurology. 2006;5:235-245.
26. Kocer B, Guven H, Comoglu SS. Homocysteine levels in Parkinson's disease: is entacapone effective? BioMed Research International. 2016;2016.
27. Hu XW, Qin SM, Li D, Hu LF, Liu CF. Elevated homocysteine levels in levodopa-treated idiopathic P arkinson's disease: a meta-analysis. Acta Neurologica Scandinavica. 2013;128:73-82.
28. Rodriguez-Oroz MC, Lage PM, Sanchez-Mut J, Lamet I, Pagonabarraga J, et al. Homocysteine and cognitive impairment in Parkinson's disease: a biochemical, neuroimaging, and genetic study. Movement disorders: official journal of the Movement Disorder Society. 2009;24:1437-1444.
29. O'Suilleabhain PE, Sung V, Hernandez C, Lacritz L, Dewey Jr RB, et al. Elevated plasma homocysteine level in patients with Parkinson disease: motor, affective, and cognitive associations. Archives of neurology. 2004;61:865-868.
30. Shin HW, Sohn YH. Hyperhomocysteinemia in patients with Parkinson's disease and relationship to vitamin B level. Journal of Movement Disorders. 2009;2:33.
31. Kuhn W, Roebroek R, Blom H, Van Oppenraaij D, Müller T. Hyperhomocysteinaemia in Parkinson's disease. Journal of neurology. 1998;245:811-812.
32. Kuhn W, Roebroek R, Blom H, Van Oppenraaij D, Przuntek H, et al. Elevated Plasma Levels of Homocysteine inParkinson's Disease. European neurology. 1998;40:225-227.
33. Müller T, Woitalla D, Hauptmann B, Fowler B, Kuhn W. Decrease of methionine and S-adenosylmethionine and increase of homocysteine in treated patients with Parkinson's disease. Neuroscience letters. 2001;308:54-56.

34. Yasui K, Nakaso K, Kowa H, Takeshima T, Nakashima K. Levodopa-induced hyperhomocysteinaemia in Parkinson's disease. Acta Neurologica Scandinavica. 2003;108:66-67.
35. O'Suilleabhain PE, Bottiglieri T, Dewey Jr RB, Sharma S, Diaz-Arrastia R. Modest increase in plasma homocysteine follows levodopa initiation in Parkinson's disease. Movement disorders. 2004;19:1403-1408.
36. Zoccolella S, Lamberti P, Armenise E, De Mari M, Lamberti SV, et al. Plasma homocysteine levels in Parkinson's disease: role of antiparkinsonian medications. Parkinsonism & Related Disorders. 2005;11:131-133.
37. Blundell G, Rose FA, Tudball N. Homocysteine induced endothelial cell toxicity and its protection.
38. Ozer F, Meral H, Hanoglu L, Aydemir T, Yilsen M, et al. Plasma homocysteine levels in patients treated with levodopa: motor and cognitive associations. Neurological research. 2006;28:853-858.
39. Religa D, Czyzewski K, Styczynska M, Peplonska B, Lokk J, et al. Hyperhomocysteinemia and methylenetetrahydrofolate reductase polymorphism in patients with Parkinson's disease. Neuroscience letters. 2006;404:56-60.
40. Irizarry MC, Gurol ME, Raju S, Diaz-Arrastia R, Locascio JJ, et al. Association of homocysteine with plasma amyloid β protein in aging and neurodegenerative disease. Neurology. 2005;65:1402-1408.