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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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THE IMPACT OF EPILEPTIC FOCUS LATERALIZATION ON THE STRUCTURE OF DEPRESSIVE SYMPTOMATOLOGY IN FOCAL EPILEPSY

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Abstract.

Focal epilepsy commonly involves affective disturbances that compromise treatment adherence and exacerbate seizure frequency.

Aim: To assess the impact of epileptic-focus lateralization on the severity of depressive symptoms in patients with focal epilepsy.

Materials and Methods: Sixty patients (30 left-hemisphere, 30 right-hemisphere) were evaluated with the Hamilton Depression Rating Scale (HAM-D), State-Trait Anxiety Inventory (STAI), Patient Health Questionnaire-15 (PHQ-15), Emotional Reactivity Index (ERI), a depression-awareness scale, and speech productivity measures. Data were analyzed using the Shapiro-Wilk test for normality, Student's t-test, and Mann–Whitney U-test ($p < 0.05$).

Results: Left-hemispheric group: Predominance of apathy, anhedonia, and heightened self-reflection; mean HAM-D 7.5 ± 1.2, with 76.6 % meeting the threshold for clinically significant depression (HAM-D ≥ 8).

Right-hemispheric group: Predominance of anxiety (STAI 9.0 ± 1.0), somatiform complaints (PHQ-15 7.0 ± 1.5), and emotional lability (ERI 8.0 ± 1.2); 83.3 % exhibited high anxiety, and 71 % significant somatization (PHQ-15 ≥ 10). Speech productivity was markedly reduced (2.0 ± 1.1), with monotony and low spontaneity.

Conclusions: Epileptic-focus lateralization shapes affective disturbance profiles and should guide personalized psychopharmacological and psychotherapeutic strategies in focal epilepsy.

Key words. Focal epilepsy, lateralization, depression, apathy, anxiety, somatization, emotional lability, awareness.

Introduction.

Affective disorders, particularly depression, rank among the most common comorbid complications in patients with focal epilepsy and substantially impair quality of life. Contemporary studies report that up to 40 % of these patients exhibit clinically significant depressive symptoms, which undermine adherence to antiepileptic medication and increase the risk of suicidal behavior [1-9]. Although standardized treatment protocols for epilepsy are widely implemented, anxiety and depressive symptoms often remain unrecognized in routine practice. As a result, patients struggle to comply with therapy, seizure frequency escalates, neuroinflammation worsens, and a self-perpetuating cycle emerges seizure exacerbation deepens depression, and depression, in turn, precipitates further seizures [8].

In recent years, interest has grown in the role of epileptic-focus lateralization in the pathogenesis of affective disturbances. Several investigations suggest that left-hemispheric foci are predominantly associated with classic depressive features—apathy, anhedonia, speech retardation, and heightened awareness of one's emotional state [1,6,7], whereas right-hemispheric foci more often manifest as pronounced anxiety, somatoform complaints, and reduced emotional introspection [2,3,10], complicating timely diagnosis.

To date, most studies have limited themselves to overall assessments of depression severity, without a detailed analysis of the structure of affective symptoms in relation to focus lateralization. In particular, the interrelationships among depressive, anxious, and somatoform manifestations and levels of self-awareness in patients with different lateral forms of the disorder remain insufficiently explored [9].

The scientific novelty of this study lies in its comprehensive, differentiated evaluation of depressive symptom structure-incorporating scales of self-reflection and speech productivity-according to focus lateralization. Its practical significance resides in the development of tailored diagnostic and therapeutic strategies for depression in focal epilepsy, adapted to the lateralization of the epileptic focus.

Materials and Methods.

The study included 60 right-handed patients with a confirmed diagnosis of focal epilepsy, all of whom underwent standard neuroimaging (MRI) and electroencephalographic (EEG) examinations. The diagnosis was established based on a combination of clinical manifestations and instrumental findings. The study was cross-sectional and comparative in design, aimed at analyzing the features of depressive symptomatology development depending on the lateralization of the epileptic focus (in the left or right cerebral hemisphere). The study was approved by the local ethics committee (Protocol No. 2 dated January 28, 2021) and conducted in accordance with the principles of the Declaration of Helsinki (WMA, 2013). All participants provided written informed consent prior to enrollment.

Inclusion Criteria: Age between 18 and 50 years; Confirmed diagnosis of focal epilepsy (based on MRI and EEG data); No significant cognitive impairment (Mini-Mental State Examination, MMSE ≥ 26); Stable antiepileptic therapy maintained for ≥ 3 months prior to inclusion.

Exclusion Criteria and Group Allocation:

Participants presenting with psychotic disorders or dementia; pronounced non-epileptic speech disturbances; organic brain

pathologies of non-epileptic origin; or severe somatic or oncological comorbidities were excluded. The remaining patients were stratified into two equal cohorts (n = 30 each):

Group I: Left-hemispheric focal epilepsy

Group II: Right-hemispheric focal epilepsy

Each seizure focus was further classified by lobe (frontal, temporal, or parietal) based on MRI and EEG findings. This dual stratification (lateralization + lobar location) enabled a multifactor analysis of their respective impacts on psycho-emotional measures. The two groups were comparable in age, sex distribution, and epilepsy duration ($p > 0.05$).

Assessment Procedure:

All evaluations were conducted individually during a single morning session in a quiet neurological ward. Testing followed a fixed sequence of standardized instruments, with breaks provided as needed. The total assessment time was approximately 90 minutes.

Psychometric Instruments:

Hamilton Depression Rating Scale (HAM-D, Vartanov et al. adaptation): 0–24 points; thresholds: 0-7 = no depression, 8-13 = mild, 14-18 = moderate, ≥19 = severe.

State-Trait Anxiety Inventory (STAI, Hanin adaptation): 20-80 points; ≤30 = low, 31-44 = moderate, ≥45 = high reactive anxiety.

Patient Health Questionnaire-15 (PHQ-15): 0-30 points; 0-4 = minimal, 5–9 = moderate, ≥10 = high somatization

Emotional Reactivity Index (ERI, Nock et al. adaptation): 0-10 points; >6 denotes high emotional lability.

Depression Awareness Scale (DSM-5 adaptation): Expert rating 0-10; 0-3 = low self-awareness, 4-6 = partial insight, 7-10 = high insight.

Speech Productivity: Expert evaluation of coherence, rate, prosodic richness, and spontaneity on a 0-10 scale.

Scoring Procedure:

Raw scores from each psychometric instrument (HAM-D, STAI, PHQ-15, ERI) were first transformed to a common 0-10 metric using the linear formula

Transformed score= (Raw score-Min possible raw)/(Max possible raw-Min possible raw)×10.

Depression Awareness and Speech Productivity were rated directly on a 0-10 scale by the experts.

Each parameter (transformed score or direct 0-10 rating) was then independently assessed by three specialists (psychiatrist, clinical psychologist, neuropsychologist). If the two closest ratings differed by ≤ 2 points, their average was used; if all three ratings differed by > 2 points, the simple mean of all three was taken. These final 0-10 scores were used in all subsequent analyses.

Statistical Analysis:

Analyses were performed in IBM SPSS Statistics v.11. Normality was assessed via the Shapiro–Wilk test. Variables demonstrating normal distribution (HAM-D, STAI, Speech Productivity, Depression Awareness) were compared using independent-samples Student's t-test; non-normal variables (PHQ-15, ERI) employed the Mann-Whitney U-test. To examine combined effects of lateralization and lobar location, a one-way ANCOVA was conducted with lobe entered as a covariate. Statistical significance was set at $p < 0.05$. For each comparison, mean (M), standard deviation (SD), p-value, and-where appropriate-Cohen's d and 95 % confidence intervals were reported.

Example Shapiro–Wilk Results (W, p): HAM-D: $W = 0.97$, $p = 0.24$ (normal); STAI: $W = 0.96$, $p = 0.15$ (normal); Speech Productivity: $W = 0.98$, $p = 0.32$ (normal); PHQ-15: $W = 0.93$, $p = 0.02$ (non-normal); ERI: $W = 0.92$, $p = 0.01$ (non-normal); Depression Awareness: $W = 0.94$, $p = 0.03$ (non-normal). Accordingly, PHQ-15, ERI, and Depression Awareness were analyzed with the Mann–Whitney U-test (e.g., PHQ-15: $U = 45.5$, $p < 0.001$), confirming significant group differences ($p < 0.001$).

Results.

The study included 60 patients with epilepsy: 30 with left-hemispheric localization (Group I) and 30 with right-hemispheric localization (Group II).

The groups did not differ significantly in terms of sex, age, duration of the disease, or antiepileptic therapy regimens ($p > 0.05$). All participants were right-handed.

A comparative evaluation of baseline demographics and clinical variables revealed no significant intergroup differences (Table 1), confirming that both cohorts were well matched. This uniformity ensures that subsequent distinctions in psycho-emotional measures can be attributed to focus lateralization rather than to extraneous demographic or treatment-related factors.

Table 1. *Demographic and Clinical Characteristics of the Participants.*

Variable	Group I (Left-Hemispheric)	Group II (Right-Hemispheric)	p-value
Mean age, years (M ± SD)	34.7 ± 9.1	33.9 ± 8.8	0.71
Sex (M/F)	14 / 16	15 / 15	0.80
Disease duration, years	7.1 ± 3.5	6.8 ± 3.2	0.65
Stable AED use, months	9.5 ± 2.1	9.3 ± 2.4	0.72

Patient Characteristics and AED Regimens:

At study entry, participants were receiving one of several standard antiepileptic drug regimens (Table 2). Overall, 30 % of patients (18/60) were treated with carbamazepine at a mean daily dose of 650 ± 100 mg, 25 % (15/60) with sodium valproate at 1 200 ± 200 mg/day, 20 % (12/60) with lamotrigine at 200 ± 50 mg/day, and 25 % (15/60) with levetiracetam at 2 000 ± 500 mg/day. Additionally, 20 % of the cohort (12/60) received combination therapy with two AEDs; the most common combinations were carbamazepine plus lamotrigine (n = 6) and sodium valproate plus levetiracetam (n = 6). All patients had maintained a stable dose of their prescribed regimen (or combination) for at least three months prior to assessment, with no adjustments during that period, ensuring pharmacological comparability across groups and minimizing the impact of dose changes on psycho-emotional outcomes.

Patients with left-hemispheric foci exhibited a predominantly apathetic-anhedonic profile. Their mean score on the anhedonia-apathy items of the HAM-D was 7.5 ± 1.2-consistent with

Table 2. *Comparison of Psycho-Emotional Indicators Between Groups.*

Indicator	Left-Hemispheric Epilepsy (M ± SD; Median [IQR])	Right-Hemispheric Epilepsy (M ± SD; Median [IQR])	p-value	Cohen's d
HAM-D (Apathy + Anhedonia)	7.5 ± 1.2; 7.5 [6.7–8.3]	4.0 ± 1.3; 4.0 [3.1–4.9]	< 0.001	2.88
STAI (Reactive Anxiety)	5.0 ± 1.6; 5.0 [3.9–6.1]	9.0 ± 1.0; 9.0 [8.3–9.7]	< 0.001	2.89
PHQ-15 (Somatoform Complaints)	2.0 ± 1.0; 2.0 [1.3–2.7]	7.0 ± 1.5; 7.0 [6.0–8.0]	< 0.001	4.13
ERI (Emotional Lability)	3.0 ± 1.1; 3.0 [2.3–3.7]	8.0 ± 1.2; 8.0 [7.2–8.8]	< 0.001	4.24
Depression Awareness (DSM-5 Scale)	9.0 ± 0.8; 9.0 [8.4–9.5]	4.0 ± 1.6; 4.0 [2.9–5.1]	< 0.001	4.00
Speech Productivity	7.0 ± 1.3; 7.0 [5.7–8.3]	2.0 ± 1.1; 2.0 [0.9–3.1]	< 0.001	4.23

Notes: *For the HAM-D scale: ≥ 8 points indicates clinically significant depression [Hamilton, 1960]; for STAI: ≥ 45 points indicates high anxiety [Spielberger et al., 1983]; for PHQ-15: ≥ 10 indicates a high level of somatization [Kroenke et al., 2002]; for ERI: > 6 indicates high emotional reactivity [Nock et al., 2008]. (M ± SD) - mean values and standard deviations.*

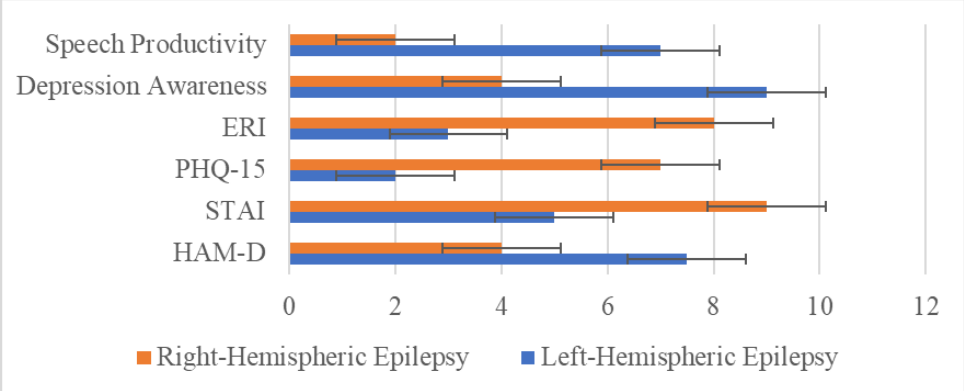

Figure 1. *Comparative Analysis of Psycho-Emotional Indicators in Patients with Left- and Right-Hemispheric Focal Epilepsy.* ***Note:*** *Error bars represent the min-max range.*

a moderate-to-severe depressive state-whereas the right-hemispheric group scored significantly lower (4.0 ± 1.3; $p < 0.001$; Cohen's $d = 2.88$), reflecting a shift toward anxiety–somatoform and affective-labile symptoms. Clinically significant depression (HAM-D ≥ 8) was present in 76.6 % of left-hemisphere patients, underscoring the role of lateralization in shaping depressive structure.

Conversely, right-hemisphere patients demonstrated markedly higher reactive anxiety (STAI 9.0 ± 1.0 vs. 5.0 ± 1.6 in left; $p < 0.001$; $d = 2.89$), with 83.3 % exceeding the STAI ≥ 45 threshold. This aligns with the right hemisphere's established involvement in fear and anxiety processing. They also reported more pronounced somatic complaints (PHQ-15 7.0 ± 1.5 vs. 2.0 ± 1.0; $p < 0.001$; $d = 4.13$), with 71 % scoring ≥10, indicating moderate-high somatization. Emotional reactivity (ERI) was substantially elevated in the right-hemisphere group (8.0 ± 1.2 vs. 3.0 ± 1.1; $p < 0.001$; $d = 4.24$), reflecting mood instability and rapid affective shifts. In contrast, left-hemisphere patients showed preserved insight (Depression Awareness 9.0 ± 0.8 vs. 4.0 ± 1.6; $p < 0.001$; $d = 4.00$), with 93.3 % demonstrating high self-awareness (≥7) compared to 86.7 % of right-hemisphere patients who exhibited low awareness (≤3).

Finally, speech productivity remained robust in the left-hemisphere group (7.0 ± 1.3), whereas the right-hemisphere cohort displayed a significant decline (2.0 ± 1.1; $p < 0.001$; $d = 4.23$), likely reflecting motivational and prosodic disturbances rather than primary language deficits.

Taken together, these findings delineate two distinct affective profiles: left-hemispheric epilepsy is characterized by classic depressive features with relatively intact speech, while right-hemispheric epilepsy is marked by heightened anxiety, emotional lability, somatization, and impaired self-insight. The large effect sizes across all measures emphasize the clinical importance of focus lateralization in determining the psycho-emotional status of focal epilepsy patients.

Discussion.

Our data demonstrate clear, lateralization-driven distinctions in the clinical profile of depressive symptoms among patients with focal epilepsy, affecting not only individual psychopathological features but also patterns of emotional regulation, bodily self-awareness, and metacognitive insight. Left-hemispheric epilepsy was characterized by predominant apathy and anhedonia alongside preserved awareness of one's mood disturbance, resembling a prototypical melancholic depression. Patients exhibited marked reductions in motivation and verbal engagement together with heightened self-reflection. This constellation likely reflects dopaminergic dysregulation within frontal-striatal networks and dysfunction of dominant frontal regions that underpin motivational drive [7,8]. The intact metacognitive capacity observed further suggests that localized left-hemisphere lesions spare broader self-monitoring circuits. Right-hemispheric epilepsy, by contrast, was associated with elevated anxiety, multiple somatic complaints, pronounced emotional lability, and poor insight into one's emotional state. These findings are consistent with valence-asymmetry theories positing that the right hemisphere specializes in processing negative affects such as fear and anxiety [3]. Dysfunction here may lead to overactivation of limbic structures (e.g., amygdala) and the "fight-or-flight" circuitry, fueling somatization and

blunted interoceptive awareness [5,11-13]. The reduced capacity for emotional insight likely arises from disrupted connectivity between orbitofrontal areas and viscerosensory regions (insula, anterior cingulate cortex), as supported by neuroimaging evidence.

Speech productivity further underscored hemispheric differences left-focus patients retained coherent, prosodically rich speech despite involvement of language regions, whereas those with right-hemisphere foci produced sparse, monotonous utterances. This pattern points to a deficit in emotive and motivational inputs to speech rather than primary language impairment, aligning with established roles of the right hemisphere in emotional prosody and spontaneous verbal expression [2,10]. Our observations dovetail with international studies. Mula and Sander (2016) found that left-hemispheric foci more often yield anhedonia and psychomotor slowing, while right-hemispheric foci correlate with anxiety and somatic complaints. Jansen et al. [4] and Tatum et al. [12] similarly reported greater emotional instability and diminished self-awareness in right-lateralized epilepsy. Together, these convergent findings bolster the concept of hemispheric specialization in affective regulation among epilepsy patients.

Clinical Significance and Recommendations.

Clinicians who account for the hemisphere of seizure onset can better anticipate the patient's dominant emotional disturbances. Left-hemisphere epilepsies typically present with profound motivational deficits, an inability to experience pleasure, and a form of depression marked by preserved self-insight. Such a profile often calls for energizing antidepressants alongside structured cognitive-behavioral therapy. Conversely, right-hemisphere foci are more often linked to heightened anxiety, mood instability, and somatic complaints, coupled with poor self-monitoring. In these cases, combining anxiolytic agents, targeted psychoeducation, and practices that enhance interoceptive awareness-such as mindfulness-based interventions-is advisable.

Study Limitations.

Several caveats merit consideration. The cohort was relatively small, and we did not employ a longitudinal design to track changes over time. Our findings rest exclusively on psychometric assessments, without complementary functional neuroimaging to validate neural correlates. Lastly, we did not isolate or control for the effects of antiepileptic medications on affective symptom severity, which could have introduced confounding.

Future Research Directions.

For future work, a prospective, longitudinal framework should be implemented, with multiple follow-up assessments to track changes in patients' emotional and psychological status. Research must also delineate how individual antiepileptic agents uniquely influence affective symptomatology. Including left-handed participants and those with bilateral seizure foci would broaden the applicability of findings. Finally, combining psychometric evaluations with electrophysiological measures (e.g., EEG) and advanced neuroimaging techniques (e.g., fMRI) will be crucial for mapping the neural circuitry that underpins hemisphere-specific depressive presentations in epilepsy.

Summary and Conclusion.

These results indicate that the hemisphere harboring the epileptic focus plays a decisive role in shaping depressive symptom patterns in epilepsy. Left-sided foci are most often linked to motivational deficits and loss of pleasure, yet patients maintain strong self-insight. By contrast, right-sided foci predominantly produce heightened anxiety, mood lability, and somatic concerns, coupled with impaired awareness of one's emotional state. Integrating these hemisphere-specific affective signatures into personalized care plans may enhance treatment response and improve long-term prognosis.

Conclusion.

The data from this investigation reveal that the side of seizure onset markedly shapes the depressive symptom profile in focal epilepsy. Patients with left-hemisphere foci tend to display diminished motivation, loss of pleasure, and lowered verbal output, yet they retain clear insight into their mood disturbances. In contrast, those with right-hemisphere foci more frequently experience intense anxiety, rapid mood fluctuations, and multiple somatic complaints, coupled with poor awareness of their emotional state-factors that can obscure the clinical picture.

These findings underscore that lateralization of epileptic discharges not only dictates the qualitative features of depression but also influences patients' self-monitoring capacity, stress-reaction patterns, and likely response to interventions. Accordingly, tailoring both pharmacological regimens and psychotherapeutic modalities to the hemisphere affected may optimize outcomes as part of a truly individualized neuropsychiatric treatment paradigm.

Practical Significance.

Establishes a basis for refining the detection of depressive syndromes in epilepsy by incorporating seizure-focus side into diagnostic algorithms. Justifies hemisphere-tailored therapies: activating antidepressants and cognitive interventions for left-sided foci, versus anxiolytics and insight-enhancing approaches for right-sided foci. Encourages coordinated care among neurologists, psychiatrists, neuropsychologists, and rehabilitation teams to address the complex needs of focal-epilepsy patients. Highlights the need to create brief, routine screening measures to gauge patients' emotional self-awareness in everyday practice.

Recognizing the side of epileptic activity as a key determinant of affective presentation can significantly improve the precision and efficacy of personalized treatment plans.

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Аннотация

Влияние латерализации эпилептического очага на структуру депрессивной симптоматики при фокальной эпилепсии

Несмотря на то, что диагностика и лечение фокальной эпилепсии в клинической практике уже давно стандартизированы, в реальной повседневной работе зачастую недооцениваются тревожные и депрессивные расстройства, сопутствующие этому заболеванию. Между тем именно депрессия и тревога играют ключевую роль в снижении комплаентности пациентов - они нарушают регулярность приёма противоэпилептических препаратов, что, в свою очередь, приводит к учащению приступов и усугублению нейровоспалительных процессов. Таким образом, формируется порочный круг: частые приступы усиливают депрессивную симптоматику, а депрессия - повышает риск новых приступов. Особенно важно, что латерализация эпилептического очага (левополушарная или правополушарная форма) может быть связана с различными эмоциональными и когнитивными нарушениями, включая преобладание апатии, тревоги, соматизации или снижение речевой активности. Выявление этих взаимосвязей не только расширяет понимание нейропсихиатрического профиля пациентов с фокальной эпилепсией, но и открывает путь к персонализированному подходу в диагностике и терапии коморбидных состояний, что особенно важно для повышения эффективности лечения и профилактики рецидивов. Целью данного исследования было изучить особенности депрессивной симптоматики у пациентов с фокальной эпилепсией в зависимости от латерализации эпилептического очага. Основной задачей являлось выявление различий в эмоциональном профиле пациентов с левополушарной и правополушарной формами эпилепсии, а также определение степени осознанности, тревожности, соматизации и речевой продуктивности при разных типах поражения. Особое внимание уделялось оценке взаимосвязи между латерализацией очага и преобладанием тех или иных аффективных проявлений, что имеет важное значение для персонализированного подхода к диагностике и терапии коморбидных расстройств у пациентов с эпилепсией.

Цель исследования: Оценить особенности депрессивной симптоматики у пациентов эпилепсией в зависимости от латерализации эпилептического очага.

Материалы и методы: В исследование включены 60 пациентов с подтверждённой эпилепсией, разделённые на две равные группы: с левополушарной (n = 30) и правополушарной (n = 30) формами. Для оценки психоэмоционального состояния использовались стандартизированные шкалы: HAM-D, STAI, PHQ-15, индекс эмоциональной реактивности (ERI), шкала осознанности депрессии и оценка речевой продуктивности. Каждый симптом оценивался по 10-балльной шкале.

Для статистической обработки данных использовались t-критерий Стьюдента и U-критерий Манна-Уитни в зависимости от нормальности распределения, проверенной по критерию Шапиро-Уилка. Статистически значимыми считались различия при уровне $p < 0.05$. Расчёты выполнялись в программе IBM SPSS Statistics v.11.

Результаты: У пациентов с левополушарной эпилепсией доминировали апатия, ангедония, высокая саморефлексия и сохранная речь. Средний уровень по шкале HAM-D составил 7.5 ± 1.2, при этом 76,6% имели клинически значимую депрессию (HAM-D ≥ 8). Осознанность состояния (DSM-5) также была высокой (9.0 ± 0.8).У пациентов с правополушарной эпилепсией преобладали тревожность (STAI 9.0 ± 1.0), соматоформные жалобы (PHQ-15: 7.0 ± 1.5), эмоциональная лабильность (ERI: 8.0 ± 1.2) и сниженная осознанность (4.0 ± 1.6). 83,3% пациентов демонстрировали высокий уровень тревожности, а у 71% отмечалась выраженная соматизация (PHQ-15 ≥ 10). Речевая продуктивность в этой группе была значительно снижена (2.0 ± 1.1), характеризовалась монотонностью и низкой спонтанностью. По всем показателям различия между группами были статистически значимыми ($p < 0,001$) с высоким размером эффекта (Cohen's $d > 2.8$), что подтверждает влияние латерализации очага на характер аффективных расстройств.

Вывод: Латерализация эпилептического очага оказывает существенное влияние на структуру

депрессивных проявлений. Полученные данные позволяют дифференцировать тип депрессии и адаптировать психофармакологическую и психотерапевтическую тактику. Результаты могут быть использованы в клинической практике для персонализации диагностики и терапии депрессии при фокусной эпилепсии с учётом латерализации очага.