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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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FREQUENCY OF NEUROPATHIC PAIN FEATURES AMONG NEUROLOGICAL OUTPATIENTS AND THEIR IMPACT ON QUALITY OF LIFE: A CROSS-SECTIONAL SCREENING STUDY OF 1,705 PATIENTS

Elmira Amanova[1], Gaukhar Abassova[1], Gulnaz Kaishibayeva[2], Vitaliy Kovalchuk[3], Yessengeldi Ismailov[3], Marzhan Abdrazakova[1], Sandugash Alipbekova[1], Saule Tuktibayeva[1]*, Kanatzhan Kemelbekov[4]*, Adlet Yernazarov[1].

[1]Khoja Akhmet Yassawi International Kazakh-Turkish University, Turkestan, Kazakhstan.

[2]Kazakhstan's Medical University "KSPH"; Kazakh-Russian Medical University, Almaty, Kazakhstan.

[3]Society of Rehabilitation Medicine of St. Petersburg; Center for Medical Rehabilitation and Department of Rehabilitation for Patients with Central Nervous System Disorders, St. Petersburg State City Hospital No. 38 named after N. A. Semashko, St. Petersburg, Russian Federation.

[4]South Kazakhstan Medical Academy, Shymkent, Kazakhstan.

Abstract.

Background: Neuropathic pain (NeP) is a distinct pain phenotype arising from a lesion or disease of the somatosensory nervous system. It is more intense, more persistent and more resistant to conventional analgesia than nociceptive pain, and it degrades quality of life (QoL) disproportionately. Population estimates of chronic pain with neuropathic characteristics in Europe and North America range from roughly 6% to 10%, and 30–40% of all chronic pain is believed to have a neuropathic component. In Kazakhstan, however, no systematic registration of NeP exists, its share within the neurological caseload has never been quantified, and no unified diagnostic or therapeutic standard is in force. This study was designed to close that gap for the Turkestan region.

Methods: A descriptive, cross-sectional and analytical study was carried out in 2015–2024 in the Turkestan region of the Republic of Kazakhstan. Institutional approval was granted by the Local Ethics Committee of the Khoja Akhmet Yassawi International Kazakh-Turkish University (Protocol No. 2015-04/A). A two-stage screening design was applied to 1,705 consecutive adults who presented with an active pain complaint to outpatient neurologists across 30 urban and district polyclinics, an emergency hospital and a university clinic. The minimum sample size was estimated for a finite reference population of 53,030 registered nervous-system disease cases, assuming an expected proportion of 50%, a 95% confidence level and a ±5% margin of error (single-proportion formula with finite population correction), giving a minimum of 382 participants, which the achieved sample greatly exceeds. Screening used the standard painDETECT questionnaire (negative / uncertain / positive), interpreted as a screen-positive / probable neuropathic component rather than a confirmed diagnosis, and supported by DN4 only in the clinical subsample; it was combined with medical-record review and paraclinical verification (electroneuromyography, CT, MRI, radiography, Doppler ultrasound). Health-related QoL was measured with SF-36 and, in the clinical subsample, with EQ-5D; anxiety and depression with HADS; pain intensity with a visual analogue scale (VAS) and pressure-pain thresholds by algometry. Analyses (IBM SPSS Statistics 19) comprised proportions with standard errors and 95% confidence intervals, Pearson's χ^2 for categorical variables and Student's t-test or the Mann–Whitney test for continuous variables as appropriate, Spearman correlation, odds ratios and norm-based standardisation of SF-36 scales against population norms.

Results: A screen-positive painDETECT result (probable neuropathic component) was recorded in 48.2±1.21% of patients (95% CI 45.8–50.6%), an uncertain result in 10.1±0.73% and a negative result in 41.7±1.19%. This proportion refers to a selected clinical population and is not a general-population prevalence estimate. Central NeP predominated (62.8±1.17%) over peripheral NeP (37.2±1.17%), and central pain was more frequent among screen-positives (65.6±1.66% vs 59.6±1.84% in negatives, $p \leq 0.001$). Men were over-represented among screen-positives (56.9±1.73% vs 43.1±1.73%, $p \leq 0.001$) and among patients with central pain (61.4±1.49%), whereas peripheral pain prevailed in women (56.4±1.97%). Cases clustered in the socially active age band of 41–70 years. Screen-positives reported qualitatively different pain: electric-shock attacks in 61.9±1.69% vs 45.0±1.87% ($p \leq 0.001$), at least moderate numbness in 93.4±0.87% vs 54.5±1.87% ($p \leq 0.001$), severe burning in 11.1±1.10% (absent in negatives), and mechanical allodynia on examination in all screen-positive patients examined. Age showed the strongest (unadjusted, bivariate) association with pain intensity, followed by the underlying diagnosis, with sex and pain type contributing less; no multivariable adjustment was performed. Occupational hazards, comorbidity, type of labour in women and occupation in the 31–40 and 41–50 age groups were associated with a screen-positive result (weak, unadjusted bivariate correlations). On standardised SF-36 scores, screen-positives scored significantly lower for role–physical ($t=4.75$), role–emotional ($t=4.48$), mental health ($t=3.33$) and vitality ($t=2.63$; all $p \leq 0.001$); 91.2±0.99% rated their health as fair or poor and 92.7±0.63% were rarely or never happy.

Conclusions: Nearly every second neurological outpatient presenting with pain in the Turkestan region screens positive for a probable neuropathic pain component, most often of central origin, and this component is associated with a heavier symptom burden and a measurable loss of role, emotional and mental functioning. Because the design is cross-sectional and painDETECT is a screening tool, these findings identify associations rather than causal or confirmed-diagnostic relationships. Age-stratified screening with painDETECT (with DN4 confirmation) and targeted management of vulnerable groups (patients under 30 and aged 71–80 years) are the recommended practical steps for regional service planning.

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Key words. Neuropathic pain, prevalence, painDETECT, DN4, quality of life, SF-36, risk factors, screening, Kazakhstan.

Introduction.

Neuropathic pain is defined by the International Association for the Study of Pain as pain caused by a lesion or disease of the somatosensory nervous system [1,2]. Unlike nociceptive pain, which signals ongoing tissue injury and normally subsides once the injury heals, NeP reflects a maladaptive reorganisation of nociceptive processing itself: ectopic discharge in damaged afferents, loss of segmental inhibition, and central sensitisation of second-order neurons [3-5]. The clinical consequence is a pain that is spontaneous as often as it is evoked, that is described in unusual sensory terms (burning, electric shock, pins and needles, numbness), and that is accompanied by allodynia and hyperalgesia — pain from stimuli that are not normally painful at all.

The epidemiological picture remains incomplete. Population surveys using screening instruments place chronic pain with neuropathic characteristics at 6–10% of adults, and clinical series suggest that 30–40% of all chronic pain has a neuropathic component. Estimates vary widely because they depend on the instrument used, on the nosological mix of the sample, and on the age and sex structure of the population studied. What is consistent across studies is the disproportionate burden: patients with NeP report worse physical and mental functioning than patients with equally intense nociceptive pain, use more health-care resources, lose more working days, and carry a roughly two-fold excess of depression and anxiety [6-11].

Kazakhstan has no dedicated registration system for NeP. Neurological morbidity is recorded by ICD-10 category, which captures the underlying disease but not the pain phenotype, so a patient with post-herpetic neuralgia and a patient with uncomplicated herpes zoster are statistically indistinguishable. As a result, the volume of care that regional health services should plan for is unknown, screening is not standardised, and pathogenetically appropriate therapy is prescribed inconsistently. The Turkestan region — the most populous region of the country, with a mixed urban and rural population and a high share of manual labour — is an informative setting in which to quantify the problem [12-15].

This study had four objectives: to establish the share of neurological diseases and syndromes accompanied by NeP among outpatients presenting with pain, and to describe its structure by pain type, sex, age and ICD-10 class; to characterise the temporal course and sensory profile of pain in screen-positive patients; to identify medico-social and occupational factors associated with the presence of NeP; and (iv) to quantify the impact of NeP on health-related quality of life and emotional status, and to establish a scientific baseline to inform future pathogenetically targeted therapeutic strategies.

Materials and Methods.

Design and setting:

The study was designed as a descriptive cross-sectional and analytical screening study. It was performed within the research project "Neuropathic pain screening in the Republic of Kazakhstan". Data were collected in 2015–2024 in the Turkestan region by outpatient physicians managing patients with pain syndromes. The protocol was approved by the Local Ethics Committee of the Khoja Akhmet Yassawi International Kazakh-Turkish University (Protocol No. 2015-04/A) and conducted in strict accordance with the Declaration of Helsinki. Recruitment covered the Shymkent City Central Polyclinic and city polyclinics No. 1–12, the "Chapaevka" city polyclinic, the Shymkent City Emergency Hospital, the Clinic of the International Kazakh-Turkish University, and district polyclinics in Arys, Baydibek, Kazygurt, Maktaaral, Ordabasy, Suzak, Otyrar, Sayram, Saryagash, Abay, Tolebi, Lenger, Tyulkubas, Shardara, Turkestan and Kentau. The extended enrolment window (2015–2024) was adopted deliberately: neuropathic pain had never been systematically registered in the region, and a single-year sample would not have accrued enough cases across its predominantly rural, geographically dispersed catchment area. Consecutive recruitment over this period, under a standing research protocol, allowed an adequately powered sample to be assembled. The recruitment strategy (consecutive outpatients presenting with an active pain complaint), the diagnostic procedures (painDETECT screening combined with medical-record review and paraclinical verification) and the assessment instruments—together with their validated Russian-language versions—remained unchanged throughout the study period, and the same participating centres and trained neurologists were involved from the beginning to the end of data collection.

Participants and sample size:

A total of 1,705 respondents were enrolled: 934 men (54.8%) and 771 women (45.2%). Eligibility required an outpatient visit to a neurologist with an active pain complaint and a verified neurological diagnosis. Adults presenting without a pain complaint, and those with incomplete painDETECT screening data, were not included in the analytic sample. The minimum required sample size was calculated for the finite population of nervous-system diseases registered in outpatient facilities of the region — 53,030 cases according to “Medinform” data for 2015 — using the single-proportion formula with finite population correction, $n = [N \cdot z^2 \cdot p(1-p)] / [d^2(N-1) + z^2 \cdot p(1-p)]$, with $z = 1.96$ (95% confidence level), the most conservative expected proportion $p = 0.5$, and a margin of error $d = 0.05$. This yielded a minimum of 382 participants (≈421 after a 10% allowance for missing or incomplete responses), which the achieved sample of 1,705 substantially exceeds.

Participant flow and data completeness. During the study period, consecutive adults presenting with an active pain complaint were assessed for eligibility; those meeting the criteria and completing painDETECT screening constituted the 1,705 participants analysed here, whereas records with incomplete painDETECT data were excluded before analysis. painDETECT screening, SF-36 and HADS were obtained for the full cohort. DN4, EQ-5D, algometry and the Central Sensitization Inventory were administered only in the clinical subsample (see below). Secondary analyses were performed on complete-case data; participants with missing observations for a given secondary variable were excluded from that specific analysis only. A participant-flow diagram is recommended for the final published version to document the numbers assessed, excluded and included at each stage.

Screening and diagnostic instruments:

Screening for a neuropathic component was performed with the standard painDETECT questionnaire, which combines current, maximum (past four weeks) and average pain intensity on a 0–10 VAS, a pain-radiation scheme, a graphical description of the temporal course, and seven items on spontaneous and evoked phenomena. Scores were interpreted as 0–12 points — NeP unlikely ("negative"), 13–18 — indeterminate, a neuropathic component possible ("uncertain"), and 19–38 — high probability of a neuropathic component ("positive"). A positive painDETECT result was treated throughout as a screen-positive / probable neuropathic component and not as a confirmed diagnosis of neuropathic pain. The DN4 questionnaire (seven interview items plus three examination items; total ≥4 indicates NeP) was applied only in the clinical subsample rather than to the whole cohort; the full-cohort estimate of a neuropathic component therefore rests on painDETECT screening. Central sensitisation was assessed with the Central Sensitization Inventory (25 items; ≥40 points diagnostic). Diagnoses were confirmed against outpatient and hospital records and paraclinical findings: electroneuromyography, computed tomography, magnetic resonance imaging, radiography and Doppler ultrasound. Pain was classified as peripheral or central on the basis of the anatomical level of the confirmed somatosensory lesion, established from the clinical diagnosis, neurological examination and paraclinical findings: pain attributable to a lesion of the peripheral nervous system (peripheral nerve, plexus, root or dorsal root ganglion) was classed as peripheral, and pain attributable to a lesion of the central somatosensory pathways (spinal cord, brainstem or brain, e.g. post-stroke pain) as central; where features of both levels were present, the pain was assigned to the dominant, imaging- or examination-confirmed lesion. This anatomical classification refers to the level of the underlying neurological disorder and is distinct from 'central sensitisation' and from 'central neuropathic pain' as a confirmed diagnosis; the terms are not used interchangeably. All questionnaires were interviewer-administered by trained neurologists, using validated Russian-language versions of painDETECT, DN4, HADS, SF-36, EQ-5D and the Central Sensitization Inventory. The final assignment of each case to the central or peripheral category was made by the treating neurologist on the basis of the convergence of the clinical diagnosis, the neurological examination and the instrumental investigations (electroneuromyography, CT, MRI, radiography and Doppler ultrasound), and not on the questionnaire result alone; where the examination and imaging localised the causative somatosensory lesion to the central nervous system the pain was classed as central, and where they localised it to the peripheral nervous system it was classed as peripheral.

Quality-of-life and psychometric assessment:

Health-related QoL was measured with the SF-36 Health Status Survey across eight scales. Raw scale scores were transformed to a 0–100 metric and then converted to norm-based scores relative to the Russian general-population SF-36 norms reported by Amirdzhanova et al. (2008), rescaled to a mean of 50 and a standard deviation of 10 (norm-based scoring against external population norms rather than internal Z-standardisation of the study sample). In the clinical subsample QoL was additionally assessed with EQ-5D. Anxiety and depression were measured with HADS. Pressure-pain thresholds were measured with a Wagner FDK20 hand algometer (0–10 kg/cm²) at predefined points per condition, averaged over three measurements, and summarised as a pressure-pain threshold index.

Statistical analysis:

Data were processed in Microsoft Excel and IBM SPSS Statistics 19. Normality was tested with the Shapiro–Wilk test. Normally distributed continuous variables are reported as mean ± standard deviation and compared with Student's t-test; non-normal variables are reported as median with interquartile range and compared with the Mann–Whitney test. Categorical variables and proportions are reported as P±m with 95% confidence intervals and were compared with Pearson's χ^2 test (or Fisher's exact test where expected cell counts were small); categorical outcomes were not compared with the t-test. Associations were quantified with Spearman rank correlation and odds ratios. For the correlation analysis, binary variables were coded 0 = absent / 1 = present (occupational hazards, comorbidity, and a screen-positive neuropathic component: 0 = negative, 1 = positive) and ordinal variables (type of labour, occupation category) were coded in ascending order; the sign of each Spearman coefficient must therefore be read against this coding. Only unadjusted bivariate associations were examined — no adjusted multivariable model was fitted — so the reported associations are not adjusted for confounders, claims of independent association are avoided, and a multivariable regression with adjusted effect estimates and 95% confidence intervals is recommended for future work. The observed proportion of screen-positive patients refers to this selected clinical sample and was not extrapolated to the general regional population. A two-sided $p<0.05$ was considered significant.

Results.

Nosological structure of the sample:

The three leading ICD-10 classes among the 1,705 patients were diseases of the circulatory system (I00–I99) at 25.0±1.05%, diseases of the nervous system (G00–G99) at 22.9±1.02%, and certain infectious and parasitic diseases (A00–B99) at 17.5±0.92%. Circulatory disease was represented almost entirely by cerebrovascular disorders (I60–I69). Within nervous-system disease, inflammatory CNS disorders (G00–G09), extrapyramidal and movement disorders (G20–G26), demyelinating disease (G35–G37), mononeuropathies, radiculopathies and plexopathies (G50–G59) and other disorders of the nervous system (G90–G99) predominated. Among infectious causes, herpes zoster (B02) dominated. Neoplasms were mainly malignancies of the eye, brain and other CNS sites (C69–C72); endocrine disease was represented by diabetes mellitus (E10–E14); musculoskeletal disease by dorsopathies (M40–M54); and class XIX by injuries and their sequelae.

Proportion of patients with a screen-positive neuropathic component:

Screening with painDETECT classified 48.2±1.21% (95% CI 45.8–50.6%) of patients as screen-positive (probable neuropathic

component), 10.1±0.73% as uncertain and 41.7±1.19% as negative. In other words, almost one in two neurological outpatients presenting with pain showed characteristics of a probable neuropathic component. Because the study population consisted of patients presenting to neurological services with an active pain complaint, this figure represents the proportion of screen-positive patients within a selected clinical population; it should not be interpreted as the prevalence of neuropathic pain in the general population of the Turkestan region, and it was accordingly not extrapolated to the 53,030 registered nervous-system disease cases.

By pain type, 62.8±1.17% of cases were central and 37.2±1.17% peripheral. Sex distribution differed sharply between the two (Table 1): central pain accounted for 61.4±1.49% of men versus 38.6±1.49% of women ($p \leq 0.001$), whereas peripheral pain predominated in women (56.4±1.97% vs 43.6±1.97%, $p \leq 0.001$). Both types clustered in the 41–70-year band (79.1±1.61% of central and 66.4±1.44% of peripheral cases), but central pain was significantly more frequent at both extremes of age — 18.3±1.18% below 40 years and 15.3±1.10% above 70 years, against 9.6±1.17% and 11.3±1.26% for peripheral pain.

The cohort of primary interest is the screen-positive group (Table 2). Men were significantly over-represented in it (56.9±1.73% vs 43.1±1.73%, $p \leq 0.001$); the male share was also higher than in the uncertain (51.7±3.81%) and negative (53.0±1.87%) groups, though that difference did not reach significance. Age structure and the distribution of underlying diagnoses in the positive cohort did not differ materially from the negative and uncertain cohorts — an important observation, because it means the neuropathic component cannot be predicted from the ICD-10 label alone and has to be screened for. What did differ was the origin of pain: central-type disorders accounted for 65.6±1.66% of positives against 59.6±1.84% of negatives ($p \leq 0.001$).

Temporal course and sensory profile of pain:

The way pain unfolded over time distinguished the groups clearly (all comparisons $p \leq 0.001$ versus screen-negative patients). Among positives, the dominant pattern was attacks of pain with persisting pain between them (45.6±1.99%), followed by continuous pain with superimposed attacks (30.3±2.70%), attacks without interictal pain (12.4±1.45%) and continuous pain of mildly varying intensity (11.7±1.94%). The pattern also depended on sex ($\chi^2=11.8$, df=3, p=0.008).

The sensory profile was the most discriminating feature of all (Table 3). Sudden electric-shock-like attacks were reported by 61.9±1.69% of screen-positives against 45.0±1.87% of negatives ($\chi^2=43.9$, df=1, $p \leq 0.001$). Numbness of at least moderate severity was near-universal among screen-positives — 93.4±0.87% versus 54.5±1.87% ($\chi^2=310.4$, df=1, $p \leq 0.001$). Severe burning was reported by 11.1±1.10% of screen-positives and by none of the negatives. Pain provoked by light finger pressure on the painful area (mechanical allodynia), assessed on clinical examination in the examined subsample, was present in all screen-positive patients examined and was significantly less frequent in screen-negative patients (Table 3). Tingling or prickling depended on sex ($\chi^2=5.9$ vs χ^2crit=5.0, df=1, p=0.05): minor and severe grades were more frequent in men (10.3±1.41% and 41.5±2.28%) than in women (6.2±1.28% and 36.4±2.56%), whereas moderate and very severe grades were more frequent in women (34.5±2.53% and 18.9±2.08% vs 32.5±2.17% and 18.7±1.80%). Painfulness on contact with clothing or bedding and on exposure to cold or heat was likewise more pronounced in the screen-positive group.

When the factors associated with pain intensity and severity were ranked, age showed the strongest observed (unadjusted, bivariate) association in the screen-positive cohort, followed by the underlying diagnosis; sex and the central-versus-peripheral type of pain were less strongly associated. Because these are unadjusted bivariate associations, they should not be interpreted as independent determinants. This ordering matters clinically, because it suggests that the same nosological diagnosis may carry a different expected pain burden at different ages.

Medico-social and occupational factors associated with a neuropathic component:

By type of labour, 47.2±1.21% of the sample were engaged in manual work, 41.2±1.19% in mental work and 11.7±0.78% in mixed work. Taken across the whole sample, the type of labour was not associated with a screen-positive result (r=0.024, p=0.318, n=1,705), but the picture was not uniform by sex: in women the association was significant (r=0.091, p=0.012, n=771) while in men it was absent (r=-0.031, p=0.345, n=934). Occupation likewise showed no overall association (r=0.008, p=0.726) yet was significant within two age strata — 31–40 years (r=0.230, p=0.006, n=143) and 41–50 years (r=-0.111, p=0.040, n=342).

The most consistent factor was exposure to occupational hazards, which correlated with NeP in the sample as a whole (r=-0.144, $p \leq 0.001$, n=1,705), in men (r=-0.132, $p \leq 0.001$) and in women (r=-0.165, $p \leq 0.001$), and in every age group except 61–70 years and over 80 years. Forced working postures were reported by 58.8±1.19% of respondents and regular lifting of heavy weights by 19.6±0.96%. General features of the job such as shift pattern or workload showed no association (r=-0.013, p=0.587). All of these medico-social and occupational relationships represent unadjusted bivariate associations; because no multivariable model was fitted, they should be interpreted as correlates of a screen-positive result rather than as independent predictors of a neuropathic component.

The presence of a comorbid condition was also associated with a screen-positive result (r=-0.076, p=0.002, n=1,705), again significantly in women (r=-0.098, p=0.007) but not in men (r=-0.058, p=0.077). Arterial hypertension (29.1±1.10%) and osteochondrosis (25.7±1.06%) were the leading comorbidities. Sex, age, the underlying diagnosis and the type of pain were likewise associated with the likelihood of a screen-positive result; because these were unadjusted bivariate associations, they should not be interpreted as independent determinants.

Quality of life:

Self-rated health was poor across the whole sample: 65.6±1.15% described it as fair, 23.3±1.02% as poor, 10.0±0.73% as good and 1.1±0.25% as very good; not a single respondent rated it as excellent. The combined fair-or-poor rating was highest in screen-positive patients (91.2±0.99%), intermediate in the uncertain group (89.5±2.34%) and lowest in screen-negative patients (86.0±1.30%).

Table 1. *Distribution of respondents by sex and age according to the type of neuropathic pain (n=1,705).*

Characteristic	Central pain, n	Central pain, % (P±m)	Peripheral pain, n	Peripheral pain, % (P±m)
Men	657	61.4±1.49	277	43.6±1.97
Women	413	38.6±1.49	358	56.4±1.97
≤30 years	96	9.0±0.87	18	2.8±0.65
31–40 years	100	9.3±0.89	43	6.8±1.00
41–50 years	187	17.5±1.16	155	24.4±1.70
51–60 years	273	25.5±1.33	210	33.1±1.87
61–70 years	250	23.4±1.29	137	21.6±1.63
71–80 years	122	11.4±0.97	60	9.4±1.16
>80 years	42	3.9±0.59	12	1.9±0.54

Table 2. *Results of screening for a neuropathic pain component by sex, age, ICD-10 class of the underlying diagnosis and type of pain (n=1,705).*

Characteristic	Negative, n	Negative, %	Uncertain, n	Uncertain, %	Positive, n	Positive, %
Men	377	53.0±1.87	89	51.7±3.81	468	56.9±1.73
Women	334	47.0±1.87	83	48.3±3.81	354	43.1±1.73
≤30 years	52	7.3±0.98	8	4.7±1.61	54	6.6±0.87
31–40 years	51	7.2±0.97	11	6.4±1.87	81	9.9±1.04
41–50 years	127	17.9±1.44	29	16.9±2.86	186	22.5±1.46
51–60 years	212	29.8±1.72	55	32.0±3.56	216	26.3±1.54
61–70 years	167	23.5±1.59	41	23.8±3.25	179	21.8±1.44
71–80 years	84	11.8±1.21	19	11.0±2.39	79	9.6±1.03
>80 years	18	2.5±0.59	9	5.2±1.69	27	3.3±0.62
ICD-10 class I (I00–I99)	164	23.0±1.58	23	13.4±2.60	112	13.6±1.20
ICD-10 class II (neoplasms)	32	5.0±0.82	7	4.1±1.51	50	6.1±0.83
ICD-10 class IV (endocrine)	52	7.0±0.96	8	4.7±1.61	60	7.3±0.91
ICD-10 class VI (G00–G99)	169	24.0±1.60	39	22.7±3.19	183	22.3±1.45
ICD-10 class IX (circulatory)	168	24.0±1.60	46	26.7±3.37	212	25.7±1.52
ICD-10 class XIII (musculoskeletal)	50	7.0±0.96	15	8.7±2.15	86	10.5±1.07
ICD-10 class XIX (injury)	58	8.0±1.02	19	11.0±2.39	105	12.8±1.17
Other	18	3.0±0.64	15	8.7±2.15	14	1.7±0.45
Central pain	424	59.6±1.84	107	62.2±3.70	539	65.6±1.66
Peripheral pain	287	40.4±1.84	65	37.8±3.70	283	34.4±1.66

Table 3. *Temporal course and sensory characteristics of pain in screen-positive versus screen-negative patients.*

Pain feature	Screen-positive, n/N (%) [95% CI]	Screen-negative, n/N (%) [95% CI]	Test statistic	p-value
Temporal course – attacks with pain between attacks†	375/822 (45.6%) [41.7–49.5]	†	χ^2 (overall pattern)	≤0.001
Temporal course – continuous pain with superimposed attacks†	249/822 (30.3%) [25.0–35.6]	†	χ^2 (overall pattern)	≤0.001
Temporal course – attacks without interictal pain†	102/822 (12.4%) [9.6–15.2]	†	χ^2 (overall pattern)	≤0.001
Temporal course – continuous pain, slightly varying†	96/822 (11.7%) [7.9–15.5]	†	χ^2 (overall pattern)	≤0.001
Electric-shock-like attacks	509/822 (61.9%) [58.6–65.2]	320/711 (45.0%) [41.3–48.7]	χ^2=43.9 (df=1)	≤0.001
Numbness, moderate or worse	768/822 (93.4%) [91.7–95.1]	388/711 (54.5%) [50.8–58.2]	χ^2=310.4 (df=1)	≤0.001
Severe burning	91/822 (11.1%) [8.9–13.3]	0/711 (0.0%)	χ^2 / Fisher	≤0.001
Mechanical allodynia (pain on light finger pressure), examination subsample‡	all examined patients (100%)	significantly lower‡	χ^2 / Fisher	≤0.001

n/N denominators*: screen-positive N=822, screen-negative N=711; 95% CI computed as P±1.96×SE. † Temporal-course categories are mutually exclusive and describe the pattern distribution within screen-positive patients; the overall distribution of temporal patterns differed significantly between screen-positive and screen-negative patients (χ^2, p≤0.001), and category-level counts were not separately tabulated for the screen-negative group. ‡ Mechanical allodynia was assessed on clinical examination in the examined subsample: it was present in all screen-positive patients examined and was significantly less frequent in screen-negative patients.*

Table 4. *Spearman correlations between medico-social factors and the presence of a neuropathic pain component.*

Factor	Correlation coefficient	p	n
Occupational hazards, whole sample	r=-0.144	≤0.001	1,705
Occupational hazards, men	r=-0.132	≤0.001	934
Occupational hazards, women	r=-0.165	≤0.001	771
Comorbidity, whole sample	r=-0.076	0.002	1,705
Comorbidity, women	r=-0.098	0.007	771
Type of labour, women	r=0.091	0.012	771
Occupation, 31–40 years	r=0.230	0.006	143
Occupation, 41–50 years	r=-0.111	0.040	342
Type of labour, whole sample	r=0.024	0.318 (NS)	1,705
Features of the job, whole sample	r=-0.013	0.587 (NS)	1,705

Table 5. *Standardised SF-36 scale scores (population norm = 50, SD = 10) by screening result.*

SF-36 scale (standardised)	Negative, mean	Uncertain, mean	Positive, mean	Comparison positive vs negative
Physical functioning (PF)	50.12	52.89	49.29	NS
Role–physical (RP)	51.01	52.48	48.61	t=4.75, p≤0.001
Bodily pain (BP)	49.02	48.79	51.10	t=4.05, p≤0.001 (worse in negatives)
General health (GH)	48.99	51.88	50.49	t=2.87, p≤0.001 (worse in negatives)
Social functioning (SF)	50.44	43.90	50.89	NS
Role–emotional (RE)	50.95	52.33	48.69	t=4.48, p≤0.001
Mental health (MH)	50.87	50.46	49.15	t=3.33, p≤0.001
Vitality (VT)	50.70	50.24	49.35	t=2.63, p≤0.001

Role limitation followed the same gradient. Physical state restricted work or usual daily activity in 79.5% of positives against 65.9% of negatives and 71.1% of the uncertain group; emotional state restricted it in about 80% of positives. Social functioning was impaired "all or most of the time" in 60.7±1.70% of positives versus 55.2% and 39.0% in the negative and uncertain groups. Severe or very severe bodily pain over the preceding four weeks was reported by 49.4±1.74% of positives (34.3% and 42.9% in the other groups), and pain interfered strongly or very strongly with work in 62.5±1.69% (57.8% and 48.2%). Across the whole sample, 86.3±0.83% felt tired and 92.7±0.63% were rarely or never happy.

Standardised SF-36 scores (Table 5) confirmed the pattern statistically. Screen-positive patients scored significantly lower than screen-negative patients on role functioning due to physical state (t=4.75, p≤0.001), role functioning due to emotional state (t=4.48, p≤0.001), mental health (t=3.33, p≤0.001) and vitality (t=2.63, p≤0.001). Two scales moved in the opposite direction: bodily pain (t=4.05, p≤0.001) and general health (t=2.87, p≤0.001) were worse in the screen-negative group. A possible interpretation of this contrast is considered in the Discussion. No sex differences in QoL scores were found within the screen-positive cohort. The most vulnerable ages were under 30 and 71–80 years.

Discussion.

The central finding of this study is that 48.2±1.21% of neurological outpatients presenting with pain in the Turkestan region screen positive for a neuropathic component. That figure sits at the upper end of published clinical-series estimates of 30–40% and far above general-population estimates of 6–10%, which is expected for a sample recruited at the point of neurological care rather than from the community. It is nonetheless higher than several comparable outpatient series, and two features of the sample help explain it: the large share of cerebrovascular disease, which generates central post-stroke pain, and the substantial share of herpes zoster, in which post-herpetic neuralgia is the commonest complication. The predominance of central over peripheral NeP (62.8% vs 37.2%) is unusual compared with European series, where painful diabetic polyneuropathy and post-herpetic neuralgia — both peripheral — usually dominate, and it follows directly from that nosological mix [16-19].

The practical significance of the finding that the positive and negative cohorts have almost identical age and diagnosis structures cannot be overstated. It means that the neuropathic component is not predictable from routine registration data, and therefore cannot be estimated administratively — it must be screened for at the point of care. This is precisely why the absence of a registration mechanism in Kazakhstan translates into an unmeasured, and consequently unfunded, share of the neurological caseload [20-25].

The sensory profile results reproduce, in a Central Asian outpatient population, the phenotypic signature described in the international literature: electric-shock attacks, moderate-to-severe numbness, severe burning and universal mechanical allodynia. The observation that light finger pressure provoked pain in every screen-positive patient (mechanical allodynia) is compatible with central sensitisation but does not, on its own, establish it; it is consistent with the algometric finding of lowered pressure-pain thresholds in the clinical subsamples, although confirmation would require dedicated mechanistic testing. The finding that age, rather than the underlying diagnosis, showed the strongest observed association with pain intensity in this cross-sectional analysis argues for considering age-stratified rather than diagnosis-stratified treatment protocols; as no multivariable model was fitted, this association should not be interpreted as an independent or causal determinant.

The risk-factor analysis showed modest correlation coefficients, which is characteristic of multifactorial pain phenotypes, but the pattern is coherent. Occupational hazards — dominated by forced postures (58.8%) and weight lifting (19.6%) — were the only factor associated with NeP across virtually all strata, and both exposures are mechanistically plausible causes of radicular and entrapment injury. The sex-specific associations of labour type and comorbidity with NeP in women, absent in men, deserve dedicated study; differences in occupational structure, in comorbidity prevalence and in pain reporting are all candidate explanations [26-30].

The quality-of-life results give the clearest picture of the burden. The scales on which screen-positive patients were significantly worse — role functioning due to physical and emotional state, mental health and vitality — describe the capacity to carry out work and social roles and the emotional reserve to sustain them, rather than the raw intensity of the sensation. Conversely, bodily pain and general health were worse in the screen-negative group. Read together, these results raise the hypothesis — rather than demonstrate — that NeP may affect quality of life through a different route from nociceptive pain: not primarily by producing a more intense sensation at a given moment, but by eroding role performance, mood and energy over time. The reversed direction on bodily pain and general health may reflect the composition of the screen-negative group, which contains inflammatory and mechanical pain syndromes with continuous high-intensity nociceptive pain; this explanation is plausible but requires confirmation in longitudinal studies. A clinical service that measures success only by VAS reduction may therefore under-detect the harm associated with NeP. The finding that 92.7% of respondents were rarely or never happy and 86.3% felt tired, in a sample where no one rated their health as excellent, underlines how far this population is from the population norm.

Limitations.

Several limitations should be kept in view. First, the design is cross-sectional, so the associations with occupational and medico-social factors identify correlates rather than causes. Second, only unadjusted bivariate associations were examined; without a multivariable model adjusted for confounders, the reported factors cannot be regarded as independent determinants, and adjusted analyses are needed to confirm them. Third, recruitment was clinic-based: the sample represents patients who seek neurological care for pain, so the 48.2% figure is a proportion within a selected clinical population and should not be read as community prevalence. Fourth, painDETECT and DN4 are validated screening instruments, not diagnostic gold standards; DN4 and paraclinical confirmation were available only in the clinical subsample, so some misclassification of the full-cohort screening estimate is unavoidable, and the "uncertain" band (10.1%) is by definition unresolved. Fifth, the clinical subsample (in which DN4, EQ-5D, algometry and the Central Sensitization Inventory were applied) was not a random sample and assessors were not blinded to painDETECT status, so selection and information bias cannot be excluded. Sixth, the SF-36 comparison group consists of screen-negative pain patients rather than pain-free controls, which makes the contrast conservative for some scales and reverses the direction on bodily pain and general health. Finally, data collection spanned about ten years (2015–2024), during which diagnostic approaches, treatment availability, referral patterns and the organisation of neurological care may have changed; although the recruitment protocol, screening instruments and clinical-assessment procedures were kept standardised across the period and the participating centres remained the same, temporal heterogeneity cannot be fully excluded and may have influenced the results. In addition, the study was conducted in a single administrative region (Turkestan) and recruited exclusively from neurological outpatient services; both features may introduce selection bias and limit the generalisability of the findings to other regions of Kazakhstan and to patients with neuropathic pain who never reach neurological care. Regional, multi-centre studies with community-based sampling are therefore needed before these estimates are applied nationally.

Future Directions and Clinical Implications. The high proportion of a probable neuropathic component (48.2±1.21%) identified among neurological outpatients presenting with pain highlights a need for pathogenetically targeted therapy in the region. As the present study was a cross-sectional epidemiological screening study, it can characterise the burden and its correlates but cannot evaluate treatment efficacy. Well-designed, prospective, randomised controlled trials — with proper blinding, standardised titration and adherence to CONSORT reporting — are required to quantify the efficacy and safety of neuropathic-pain-specific agents (for example those acting on the α2δ subunit of voltage-gated calcium channels) within the Kazakhstani healthcare setting. Such interventional questions are best addressed in a separate, dedicated study rather than within this epidemiological report. We note, in response to the reviewers, that the interventional pregabalin sub-study included in the earlier version of this manuscript has been removed: its single-arm, non-randomised patient selection, short treatment duration and the absence of a dedicated interventional ethics approval did not meet the methodological standard required to support efficacy conclusions. The present report is therefore confined to cross-sectional epidemiological screening and presents no interventional treatment data; the efficacy and safety of pregabalin and other neuropathic-pain-specific agents will be evaluated in a separate, prospective, randomised and ethically approved trial.

Conclusion.

1. A screen-positive (probable) neuropathic component was identified in 48.2±1.21% of the neurological outpatients presenting with pain in this clinical sample — almost every second such patient — rather than pain attributable to primary tissue inflammation or trauma alone; this proportion refers to a selected clinical population and not to general-population prevalence. Central pain predominated (62.8%) over peripheral pain (37.2%).

2. The temporal course and sensory characteristics of pain differed significantly between the screening groups: screen-positive patients more often reported attacks of pain with persisting interictal pain and continuous pain with superimposed attacks, together with electric-shock-like attacks and moderate-or-worse numbness, as the typical patterns.

3. A screen-positive neuropathic component was associated with identifiable medico-social factors — type of labour in women, occupation in certain age groups, occupational hazards and comorbid disease — in unadjusted bivariate analysis; these associations require confirmation in adjusted, longitudinal studies before any causal interpretation.

4. Quality of life in patients with a neuropathic component differed substantially from that in patients with other types of pain: role functioning due to physical and emotional state, mental health and vitality were significantly lower. Patients under 30 and aged 71–80 years were the most vulnerable groups.

Practical recommendations.

• Use the proportion estimates obtained here (recognising that they reflect a selected clinical population, not the general population) to plan the volume of medical care for patients with neurological diseases accompanied by neuropathic pain.

• Develop individual treatment and rehabilitation programmes for the vulnerable groups identified, in particular patients under 30 and aged 71–80 years.

• Apply the quality-of-life findings differentially by sex and age within comprehensive rehabilitation.

• Create an electronic register of patients with neuropathic pain and of the physicians managing them, to monitor therapy and provide methodological and scientific support to practitioners.

• Incorporate these results into lecture material and case-based teaching for neurologists, rehabilitation specialists and general practitioners.

Declarations.

Ethics.

The study protocol was officially reviewed and approved by the Local Ethics Committee of the Khoja Akhmet Yassawi International Kazakh-Turkish University (Protocol No. 2015-04/A). The study was conducted in strict accordance with the Declaration of Helsinki. All participants gave informed consent before questionnaire administration and examination.

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Conflicts of interest.

The authors declare no conflicts of interest.

Data availability.

De-identified data supporting the findings are available from the corresponding author on reasonable request.

Correspondent authors: Kemelbekov Kanatzhan and Tuktibayeva Saule.

Author contributions.

All authors contributed to study conception and design, data acquisition or analysis, drafting or critical revision of the manuscript, and approved the submitted version.

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რეზიუმე

შესავალი (აქტუალობა): ნეიროპათიული ტკივილი (ნტ) არის ტკივილის განსხვავებული ფენოტიპი, რომელიც წარმოიქმნება სომატოსენსორული ნერვული სისტემის დაზიანების ან დაავადების შედეგად. იგი უფრო ინტენსიური, ხანგრძლივი და რეზისტენტულია ჩვეულებრივი ანალგეზიის მიმართ, ვიდრე ნოციცეპტური ტკივილი, და არაპროპორციულად აქვეითებს ცხოვრების ხარისხს (QoL). ევროპასა და ჩრდილოეთ ამერიკაში ნეიროპათიული მახასიათებლების მქონე ქრონიკული ტკივილის გავრცელება მოსახლეობაში დაახლოებით 6%-დან 10%-მდე მერყეობს, ხოლო მიჩნეულია, რომ ყველა ქრონიკული ტკივილის 30–40%-ს აქვს ნეიროპათიული კომპონენტი. ყაზახეთში, თუმცა, ნტ-ის სისტემატური რეგისტრაცია არ არსებობს, მისი წილი ნევროლოგიურ პაციენტთა ნაკადში არასოდეს ყოფილა რაოდენობრივად შეფასებული და არ მოქმედებს ერთიანი დიაგნოსტიკური ან თერაპიული სტანდარტი. მოცემული კვლევა დაიგეგმა ამ ხარვეზის აღმოფხვრის მიზნით თურკესტანის რეგიონისთვის.

მეთოდები: აღწერითი, ერთმომენტიანი (კროს-სექციური) და ანალიტიკური კვლევა ჩატარდა 2015–2024 წლებში ყაზახეთის რესპუბლიკის თურკესტანის რეგიონში. ოფიციალური ინსტიტუციური ნებართვა გაიცა ხოჯა ახმეტ იასავის სახელობის საერთაშორისო ყაზახურ-თურქული უნივერსიტეტის ადგილობრივი ეთიკის კომიტეტის მიერ (ოქმი №2015-04/A). ორეტაპიანი სკრინინგის დიზაინი გამოიყენა 1,705 თანმიმდევრულ ზრდასრულ პაციენტზე, რომლებმაც მიმართეს აქტიური ტკივილის ჩივილით ამბულატორიულ ნევროლოგებს 30 საქალაქო და რაიონულ პოლიკლინიკაში, გადაუდებელი დახმარების საავადმყოფოსა და საუნივერსიტეტო კლინიკაში. შერჩევის მოცულობა გამოითვალა 53,030 რეგისტრირებული ნერვული სისტემის დაავადების მქონე საკონტროლო პოპულაციასთან მიმართებით. სკრინინგისთვის გამოიყენეს სტანდარტული კითხვარი painDETECT (უარყოფითი / საეჭვო / დადებითი), რომელსაც კლინიკურ ქვენაკრებში მხარს უჭერდა DN4, და იგი შერწყმული იყო სამედიცინო ბარათების განხილვასთან და პარაკლინიკურ ვერიფიკაციასთან (ელექტრონეირომიოგრაფია, კტ, მრტ, რენტგენოგრაფია, დოპლეროგრაფია). ჯანმრთელობასთან დაკავშირებული QoL გაიზომა SF-36-ით, ხოლო კლინიკურ ქვენაკრებში — EQ-5D-ით; შფოთვა და დეპრესია — HADS-ით; ტკივილის ინტენსივობა — ვიზუალურ-ანალოგური სკალით (VAS), ხოლო ტკივილის წნევის ზღურბლი — ალგომეტრიით. ანალიზი (IBM SPSS Statistics 19) მოიცავდა პროპორციებს სტანდარტული შეცდომებით, სტუდენტის t-ტესტს, მან-უიტნისა და ვილკოქსონის ტესტებს, პირსონის χ^2, სპირმენის კორელაციას, შანსების შეფარდებას და SF-36 სკალების Z-სტანდარტიზაციას პოპულაციის ნორმებთან მიმართებით.

შედეგები: დადებითი painDETECT სკრინინგის შედეგი (ნეიროპათიული ტკივილის სავარაუდო კომპონენტი) დაფიქსირდა პაციენტთა 48.2±1.21%-ში, საეჭვო შედეგი — 10.1±0.73%-ში, ხოლო უარყოფითი შედეგი — 41.7±1.19%-ში. ცენტრალური ნტ ჭარბობდა პერიფერიულზე (62.8±1.17% 37.2±1.17%-ის წინააღმდეგ), ხოლო ცენტრალური ტკივილი კიდევ უფრო ხშირი იყო დადებითი შედეგის მქონე პირებში (65.6±1.66% უარყოფითი შედეგის მქონე პირთა 59.6±1.84%-ის წინააღმდეგ, $p \le 0.001$). მამაკაცები ჭარბობდნენ დადებითი შედეგის მქონე პაციენტებში (56.9±1.73% 43.1±1.73%-ის წინააღმდეგ, $p \le 0.001$) და ცენტრალური ტკივილის მქონე პაციენტებში (61.4±1.49%), ხოლო პერიფერიული ტკივილი ჭარბობდა ქალებში (56.4±1.97%). შემთხვევები კონცენტრირებული იყო სოციალურად აქტიურ ასაკობრივ ჯგუფში 41–70 წელი. დადებითი შედეგის მქონე პაციენტები აღნიშნავდნენ ხარისხობრივად განსხვავებულ ტკივილს: "ელექტრული შოკის" მსგავს შეტევებს 61.9±1.69%-ში 45.0±1.87%-ის წინააღმდეგ (χ^2=43.9, df=1, $p \le 0.001$), მინიმუმ ზომიერ დაბუჟებას 93.4±0.87%-ში 54.5±1.87%-ის წინააღმდეგ (χ^2=310.4, df=1, $p \le 0.001$), ძლიერ წვას 11.1±1.10%-ში (რაც საერთოდ არ აღინიშნებოდა უარყოფითი შედეგის მქონე ჯგუფში) და თითის მსუბუქი დაწოლით გამოწვეულ ტკივილს შემთხვევათა 100%-ში. ასაკი იყო ტკივილის ინტენსივობის წამყვანი დეტერმინანტი, რასაც მოჰყვებოდა ძირითადი დიაგნოზი, ხოლო

სქესსა და ტკივილის ტიპს ნაკლები წვლილი შეჰქონდა. პროფესიული მავნე ფაქტორები (r=-0.144, p≤0.001), კომორბიდობა (r=-0.076, p=0.002), შრომის ტიპი ქალებში (r=0.091, p=0.012) და პროფესია 31–40 (r=0.230, p=0.006) და 41–50 (r=-0.111, p=0.040) ასაკობრივ ჯგუფებში ასოცირებული იყო ნტ-თან. სტანდარტიზებული SF-36 ქულების მიხედვით, დადებითი შედეგის მქონე პირებმა მნიშვნელოვნად დაბალი ქულები აჩვენეს შემდეგ სკალებში: ფიზიკური როლი (t=4.75), ემოციური როლი (t=4.48), ფსიქიკური ჯანმრთელობა (t=3.33) და სიცოცხლისუნარიანობა (t=2.63; ყველგან p≤0.001); 91.2±0.99%-მა საკუთარი ჯანმრთელობა შეაფასა როგორც დამაკმაყოფილებელი ან ცუდი, ხოლო 92.7±0.63% იშვიათად ან არასოდეს იყო ბედნიერი.

დასკვნები: თურკესტანის რეგიონში ტკივილის ჩივილით მიმართული ყოველი მეორე ნევროლოგიური ამბულატორიული პაციენტი ატარებს ნეიროპათიული ტკივილის კომპონენტს, ყველაზე ხშირად ცენტრალური წარმოშობისას, და ეს კომპონენტი დამოუკიდებლად ასოცირდება სიმპტომების უფრო მძიმე ტვირთთან და როლური, ემოციური და ფსიქიკური ფუნქციონირების გაზომვად კარგვასთან. ასაკობრივად სტრატიფიცირებული სკრინინგი painDETECT/DN4 ინსტრუმენტებით და მოწყვლადი ჯგუფების (30 წლამდე და 71–80 წლის პაციენტები) მიზნობრივი მართვა წარმოადგენს რეკომენდებულ პრაქტიკულ ნაბიჯებს რეგიონული ჯანდაცვის დაგეგმვისთვის.

საკვანძო სიტყვები: ნეიროპათიური ტკივილი, გავრცელება, painDETECT, DN4, ცხოვრების ხარისხი, SF-36, რისკის ფაქტორები, სკრინინგი, ყაზახეთი.

Резюме

Актуальность: Нейропатическая боль (НБ) представляет собой особый фенотип боли, возникающий вследствие повреждения или заболевания соматосенсорной нервной системы. Она является более интенсивной, более стойкой и более устойчивой к традиционной анальгезии по сравнению с ноцицептивной болью, а также непропорционально сильно снижает качество жизни (КЖ). Популяционные оценки распространенности хронической боли с нейропатическими характеристиками в Европе и Северной Америке варьируют примерно от 6% до 10%, и считается, что 30–40% всей хронической боли имеют нейропатический компонент. Однако в Казахстане систематическая регистрация НБ отсутствует, ее доля в структуре неврологической заболеваемости никогда не поддавалась количественной оценке, и в настоящее время не действует единый диагностический или терапевтический стандарт. Данное исследование было разработано с целью восполнения этого пробела в Туркестанской области.

Методы: Описательное, одномоментное (кросс-секционное) и аналитическое исследование было проведено в 2015–2024 гг. в Туркестанской области Республики Казахстан. Официальное институциональное одобрение было предоставлено Локальным этическим комитетом Международного казахско-турецкого университета имени Ходжи Ахмеда Ясави (Протокол № 2015-04/A). Двухэтапный дизайн скрининга был применен к 1705 последовательно включенным взрослым пациентам, обратившимся с активными жалобами на боль к амбулаторным неврологам в 30 городских и районных поликлиник, больницу скорой медицинской помощи и университетскую клинику. Размер выборки был рассчитан по отношению к референсной популяции из 53 030 зарегистрированных заболеваний нервной системы. Скрининг проводился с использованием стандартного опросника painDETECT (отрицательный / сомнительный / положительный), поддерживаемого опросником DN4 в клинической субвыборке, и сочетался с анализом медицинских карт и параклинической верификацией (электронейромиография, КТ, МРТ, рентгенография, допплерография сосудов). Качество жизни, связанное со здоровьем, оценивали с помощью опросника SF-36, а в клинической субвыборке — с помощью EQ-5D; тревогу и депрессию — с помощью шкалы HADS; интенсивность боли — с помощью визуально-аналоговой шкалы (ВАШ), а пороги болевой чувствительности к давлению — методом альгометрии. Статистический анализ (IBM SPSS Statistics 19) включал расчет долей со стандартными ошибками, t-критерий Стьюдента, критерии Манна–Уитни и Вилкоксона, критерий χ^2 Пирсона, корреляцию Спирмена, отношения шансов и Z-стандартизацию шкал SF-36 относительно популяционных норм.

Результаты. Положительный результат по опроснику painDETECT (вероятный нейропатический компонент) был зафиксирован у 48.2±1.21% пациентов, сомнительный результат — у 10.1±0.73%, отрицательный результат — у 41.7±1.19%. Центральная НБ преобладала (62.8±1.17%) над периферической НБ (37.2±1.17%), причем центральная боль встречалась еще чаще среди пациентов с положительным результатом (65.6±1.66% против 59.6±1.84% у пациентов с отрицательным результатом, p≤0.001). Мужчины преобладали среди пациентов с положительным результатом (56.9±1.73% против 43.1±1.73%, p≤0.001) и среди пациентов с центральной болью (61.4±1.49%), тогда как у женщин преобладала периферическая боль (56.4±1.97%). Случаи заболевания концентрировались в социально активной возрастной группе от 41 до 70 лет. Пациенты с положительным результатом сообщали о качественно ином характере боли: приступы по типу электрического тока отмечались у 61.9±1.69% против 45.0±1.87% (χ^2=43.9, df=1, p≤0.001), онемение как минимум умеренной степени — у 93.4±0.87% против 54.5±1.87% (χ^2=310.4, df=1, p≤0.001), сильное жжение — у 11.1±1.10% (полностью отсутствовало у пациентов с отрицательным результатом), а боль, вызываемая легким давлением пальца, выявлялась в 100% случаев. Возраст показал наиболее сильную (нескорректированную, двумерную) ассоциацию с интенсивностью боли, за ним следовал основной диагноз, в то время как пол и тип боли вносили меньший вклад. Профессиональные вредности (r=-0.144, p≤0.001), сопутствующая патология (r=-0.076, p=0.002), характер труда у женщин (r=0.091, p=0.012) и род занятий в возрастных группах 31–40 лет (r=0.230, p=0.006) и 41–

50 лет (r=-0.111, p=0.040) были ассоциированы с НБ. По стандартизированным показателям SF-36 пациенты с положительным результатом имели значительно более низкие баллы по шкалам: ролевое физическое функционирование (t=4.75), ролевое эмоциональное функционирование (t=4.48), психическое здоровье (t=3.33) и жизнеспособность (t=2.63; для всех шкал p≤0.001); 91.2±0.99% оценили свое здоровье как удовлетворительное или плохое, а 92.7±0.63% редко или никогда не чувствовали себя счастливыми.

Заключение: Практически каждый второй амбулаторный неврологический пациент, обратившийся с жалобой на боль, в Туркестанской области имеет нейропатический болевой компонент, чаще всего центрального генеза, причём этот компонент независимо ассоциирован с более тяжёлым бременем симптомов и измеримым снижением ролевых, эмоциональных и психических функций. Возраст-стратифицированный скрининг с использованием опросников pain DETECT/DN4 и целенаправленное ведение уязвимых групп (пациенты до 30 лет и в возрасте 71–80 лет) являются практическими выводами для регионального планирования медицинской помощи.

Ключевые слова: нейропатическая боль, распространённость, painDETECT, DN4, качество жизни, SF-36, факторы риска, скрининг, Казахстан.