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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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GAYET WERNICKE'S ENCEPHALOPATHY AFTER COVID-19 IN ELDERLY SUBJECTS IN TROPICAL ENVIRONMENTS: STUDY OF SIX (6) OBSERVATIONS IN CONAKRY

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Abstract.

Introduction: In sub-Saharan Africa, the COVID-19 pandemic has caused severe malnutrition in elderly populations with the appearance of vitamin deficiencies, in particular thiamine responsible for Gayet Wernicke's encephalopathy (EGW).

Patient and Methods: We present a series of six (6) patients hospitalized in the Neurology Department of the CHU Ignace Deen for the management of a brain syndrome with vigilance disorders after recovery from COVID-19, including oculomotor disorders, motor incoordination on a course of severe weight loss. The six patients underwent an evaluation of malnutrition by determining the WHO body mass index, the Detsky index, the serum albumin assay, the thiamine assay and a neuroradiological assessment (MRI) and an electroencephalogram (EEG) examination although this does not seem necessary for diagnosis.

Results: Study of nutritional status: weight loss greater than 5%, patients in Desky group B and C, plasma albumin<30 g/l, lowered thiamine and MRI neuroradiological data: by the existence of hypersignals in certain regions of the neocortex, certain gray nuclei, the mammillary bodies the thalamic nuclei close to the wall of the 3rd ventricle and the regions bordering the 4th ventricle sign Gayet Wernicke's encephalopathy syndrome.

Conclusion: This study shows a stereotyped clinical, biological, neuroradiological and evolutionary profile of Gayet Wernicke's encephalopathy in elderly subjects recovered from Covid-19 with proven malnutrition. These results are useful for the therapeutic and prognostic discussion.

Key words. Gayet-Wernicke encephalopathy (EGW), Covid-19, Thiamine, Conakry-Guinea.

Introduction.

Described by Karl Wernicke in 1881 [1] and linked to thiamine deficiency by Cambell and Russel [2], Gayet Wernicke's encephalopathy is a condition occurring during pathologies causing severe malnutrition, in particular a reduction in the intake of food and impaired assimilation [1]. It is most often manifested by ocular disorders, cerebellar ataxia and a confusional state although this triad is often not complete [3-7]. The appearance of the COVID-19 pandemic with partial or total containment measures has caused the emergence of Gayet Wernicke's encephalopathy in elderly populations, especially at risk from nutritional disorders, even after leaving the treatment centers of COVID-19 [8]. We report six patients with Gayet Wernicke encephalopathy observed in undernourished elderly subjects cured of COVID-19. The objective of this work is to re-evaluate this pathology from a clinical, biological and neuroradiological point of view in these elderly malnourished patients cured of COVID-19 in a tropical environment in a population at risk for diseases of nutritional origin. The interest of this work lies in the fact that these observations clearly illustrate Gayet Wernicke's encephalopathy, and the diagnostic difficulty it entails in a tropical environment. biological and neuroradiological findings in elderly malnourished patients cured of COVID-19 in a tropical setting in a population at risk for nutritionally related diseases. The interest of this work lies in the fact that these observations clearly illustrate Gayet Wernicke's encephalopathy, and the diagnostic difficulty it entails in a tropical environment.

Material and Methods.

The six patients were hospitalized in the neurology department of the University Hospital of Conakry from January 1, 2019, to January 12, 2021, the only specialized center in the country for the care of elderly and adult patients suffering from neurological conditions: strokes, neuro-infections , neurodegenerative and metabolic diseases.

The inclusion criteria were as follows:

- Patients aged 56 to 76 hospitalized for COVID-19 in the Donka COVID-19 treatment center and discharged cured attested by PCR serological tests.
- These patients presented, after their discharge 4 to 6 months, a semiology including confusional disorders, oculomotor disorders sometimes associated with impaired balance in a clinical context of undernutrition.
- A dietary survey was carried out in all patients, focusing on the number of meals, food diversification.
- Nutritional status was also assessed by determination of the World Health Organization body mass index (BMI), weight (in kg) / height squared (m^2) of the Detsky index [9] and the alumina dosage.

All six patients had a biological assessment NFS, VS, CRP, Fasting blood glucose, calcium, serum iron, ASAT, ALAT, Gamma-GT, free and conjugated bilirubin, ammonia, amylasemia, Lipasemia, urea, creatinine, ionogram, LDL-cholesterol, HDL-cholesterol, triglycerides, TP assay, TCK, 24-hour proteinuria.

The criteria for evoking protein-energy malnutrition in our patients were sought weight loss > 5% of body weight food intake <2/3 of needs, plasma albumin < 35g/l, normocytic anemia, and cholesterol < 1, 5g/l.

This semiology of EGW is linked to a thiamine deficiency (N: 70-130 mmol/l) apart from all other etiologies.

As part of the differential diagnosis, the following biological explorations were carried out:

- PCR on CSF: HSV (VZV, EBV, enterovirus, HHV6, HIV serology, cryptococci).
- Search for abnormal cells on CSF to exclude tumor causes gliomatosis and lymphoma.

The electrocardiogram was performed in all patients looking for high-output heart failure according to the criteria of Zipes et al [10] associated with chest X-ray.

- All patients underwent neuroradiological examinations: magnetic resonance imaging supplemented by an electroencephalographic examination, the results of which were classified into 3 types:

Type I

- EEG with predominance of alpha rhythms of parieto-occipital topography whose amplitude is greater than 40 µvolts without pathological rhythms.
- EEG with alpha dominance rhythms of small amplitudes up to 25 µvolts with tendency to flattening.

Type II

- EEG without dominance proper with the existence of irregular alpha rhythms without the presence of pathological waves.
- EEG with Theta rhythms of 4 to 6 cycles/second, especially temporo-parietal topography of low amplitude of 30 to 40 µvolts, isolated or sometimes grouped in the form of paroxysmal bursts.

Type III

- EEG with Theta and Delta rhythms showing abnormal patterns.
- EEG with slowing of alpha rhythms associated with bursts of Theta and Delta waves.

The therapeutic plan consisted in the institution of 100mg/day of thiamine parenterally for 15 days, then 10mg/day orally with dietary diversification: legumes, meats, whole grains and elimination of coffee, tea and shellfish.

The healing criteria retained are the disappearance of asthenia, vigilance disorders and the disappearance of the signs of EGW.

Results.

The analysis of the results of this study focused on the clinical, biological, neuroradiological and electrophysiological data.

Clinical data.

The documented clinical examination identified other symptoms associated with the elements of this triad.

These different disorders identified are more or less associated. The clinical examination also revealed signs of masked depression with anorexia, early satiety, with dysgeusia. In one patient (Nº6) neurological examination also showed unsystematic orofacial dyskinesia.

This table shows proven malnutrition in our patients.

Neuroradiological data.

The MRI performed in all our patients revealed hypersignals in T2 in the periaqueductal diencephalo-mesencephalic regions at the level of the mammillary bodies of the floor of the IV ventricle and in the median wall of the Thalamus (Figure 1A-D).

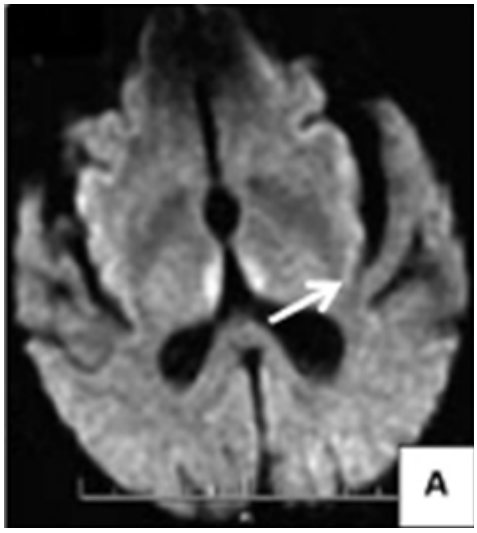

Figure 1A. *MRI: FLAIR sequence and diffusion showing hyperintense abnormalities affecting the median thalamus.*

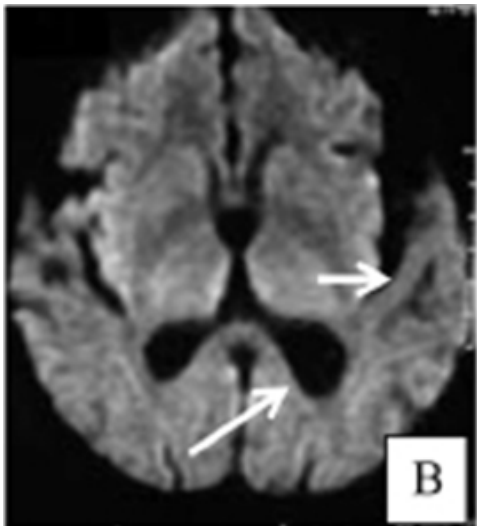

Figure 1B. *MRI: Flair sequence and diffusion: extension of the lesions appearing in hypersignal superior paravermian of the cerebellum.*

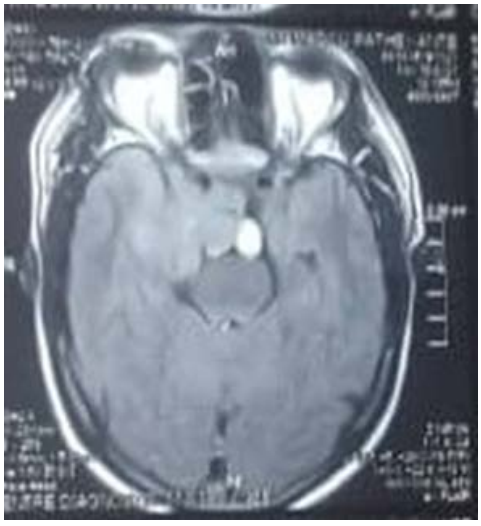

Figure 1C. *MRI: hyperintensities in T2 in the diencephalo-mesencephalic regions.*

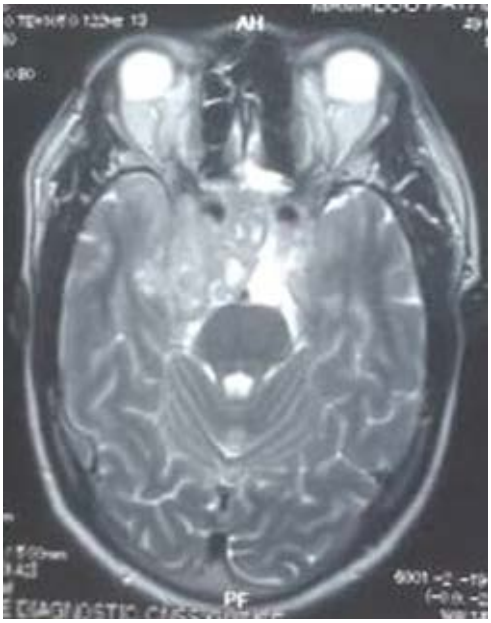

Figure 1D. *MRI: FLAIR sequence showing an extension of the lesions affecting the cerebellum and the mammillary bodies.*

Electroencephalographic data.

The analysis of the bioelectrical activity although not speaking in this pathology was evaluated in all our patients because of the confusional syndrome which can mimic an epilepsy with strictly cognitive connotations.

Our patients responded in this study to the criteria of STAGE I (patient 2, 3, 4.5) and Stage II (1.6) deemed non-specific.

Evolution.

Subjected to the notified treatment, the signs regressed in 4 patients with disappearance of oculomotor signs and incoordination disorders. Two patients died in an array of Shoshin beriberi with heart failure.

Discussion.

This study reports 6 (six) observations of Wernicke's Gayet encephalopathy diagnosed in the University Hospital of Conakry in patients presumed cured of COVID-19 but presenting with severe malnutrition. This series does not concern the neurological manifestations associated with COVID-19 in the acute phase of the disease as described by Meppiel and De Broucker [11], Jason kho et al. [8] and other series reviewed [12-15]. These patients presented Gayet Wernicke's semiology after 4 to 6 months leaving the center and successive serological tests did not identify a second or third episode of reinfestation, the PCR Covid-19 serologies being negative.

Gayet Wernicke's encephalopathy has been described in several pathologies associated with frequent nutritional deficiencies classically in tropical environments: starvation, food insufficiency, severe vomiting, anorexia nervosa, chronic gastro-duodenal pathologies, prolonged parenteral nutrition, HIV [16-18].

It has been well established since the publications of Chidlovski et al. [19] that elderly subjects are vulnerable to vitamin deficiencies, in particular thiamine. Evaluation of nutritional status according to BMI (Table III) demonstrates the existence of undernutrition for all patients, confirmed by the Detsky index [9], which is based on a globally subjective, purely clinical approach to the nutritional status and which made it possible to classify our patients in groups B and C; this series shows that the main cause of B1 deficiency in these patients lies essentially in a reduction in intake with a diet based essentially on white rice without intake of primary food sources of thiamine, legumes, beef, whole cereals. This situation is aggravated in three patients who are chronic tea drinkers,

It has been well established since the work of Sechi and Serra in 2007 [3] that thiamine stores are 18 days on average in humans. Thus, all situations of nutritional disorders, quantitative and qualitative reduction in food as observed in these patients, poverty of B1 (white rice), chronic gastrointestinal disorders lead to the emergence of neurological and cardiovascular disorders by B1 deficiency[16,21-23].

The physio pathological bases of thiamine deficiency have been the subject of several publications [3,24,25] although some aspects still remain unresolved. Thiamine would intervene as a co-factor in the enzymatic reactions which cleave alpha-ketoacids while also intervening in the biochemical reactions essential for the synthesis of DNA and RNA [25,26].

In general, apart from the genetic factors incriminated by certain authors, the appearance of the neurological syndrome, in particular Gayet Wernicke's Encephalopathy, is due to a low intake of B1, a reduction in the absorption and storage of thiamine diphosphate. and a change in energy expenditure [25,26].

The clinical pictures of GAYET Wernicke's encephalopathy observed in this study do not fundamentally differ from those described in the literature [3,16] with the presence of two associated entities: orthostatic hypotension and masked depression syndromes. The neurological manifestations observed in this study correspond to the known clinical and neuroradiological characteristics of this condition. Note, however, the existence of severe forms related to the importance of vegetative and depressive disorders.

In this series, the clinical, biological and neuroradiological approach made it possible to exclude neurological syndromes mimicking the picture of Gayet Wernicke's Encephalopathy: alcoholic cerebellar degeneration or Pierre Marie Foix Alajouanine syndrome, amnesic encephalopathies, systemic diseases in particular Behçet's disease (absence of orogenital aphtosis, bilateral papilledema without other associated anomalies), Sarcoidosis (no elevation of ACE, angiotensin-converting enzyme, salivary gland biopsy, no granules, no fibrous lesions in the thoraco-abdomino-pelvic scanner), meningoencephalitis PCR on CSF: HSV (VZV, EBV, CMV, enterovirus, HHV6) negative [27].

Tumor causes including gliomatosis and lymphomas and paraneoplastic causes were sought. The diagnosis in this study was based on the signs, the thiamine dosage and the neuro-radiological data correlated with those of the literature [4,5].

Table 1. *Clinical characteristics of 6 patients with EGW.*

No.	Sex	Age/year	Clinical signs	Neurological signs
1	M	58	Confusional syndrome, horizontal nystagmus	OTR hyporeflexia in all 4 limbs.
2	M	62	Confusional syndrome, bilateral VI paresis, cerebellar ataxia	Oscillation in Romberg position, Hyporeflexia of 4 limbs
3	F	59	Confusional syndrome, gaze paralysis, ataxia	Cerebellar static asynergy, Hyporeflexia in the limbs.
4	M	71	Confusional syndrome, bilateral VI paresis, bilateral incomplete ophthalmoplegia	OTR hypereflexia in all 4 limbs. Instability at the Romberg position
5	F	65	Confusional syndrome, vertical nystagmus, cerebellar syndrome	Vivid OTR to all 4 limbs. Babinski's cerebellar static asynergy
6	M	75	Confusional syndrome, vertical nystagmus and elemental ataxia abasia	OTR hypereflexia without pyramidal sign.

OTR: osteotendinous reflex.

Table 2. *Associated signs.*

Clinical signs	patients
VEGETATIVE SIGNS Orthostatic hypotension, with drop in blood pressure to 30mmHg when standing, Sweating, postural orthostatic tachycardia syndrome.	1,2,6
GASTROINTESTINAL DISORDERS Dry mouth, diarrhea sometimes constipation, gastroparesis, swallowing disorders	3.4
neuropsychiatric disorders Dizziness, drowsiness, dysphoric mood, disturbance in attention, anorexia	1,2,5,6
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Table 3. *Paraclinical data in 6 patients with EGW.*

N°	Thiamine N=70-130mmol	Albumin <25g/l N (35-48)	Lymphocytes <800/mm³	Weightloss >10⁰/pc	Cholesterol <0.5g/l	Diet
1	45	18	590	V degree	1.28	White Rice, Fish, Coffee
2	56	22	420	Degree IV	1.32	White Rice, Fish, Tea, Shrimps
3	48	21	630	V degree	1.42	White rice, meat
4	51	19	628	II degree	1.12	White rice, shrimps, fish, meat
5	58	22	542	V degree	1.32	White Rice, Fish
6	62	17	601	III degree	1.21	White Rice, Fish

This table shows proven malnutrition in our patients.

Conclusion.

This retrospective study of six (6) cases, characterized by classic semiology, functional disorders, ataxia, and oculomotor impairment increased by the presence of dysautonomia and masked depression syndrome reveals the presence and persistence of EGW in elderly patients assumed to be cured. of Covid-19. The existence of this semiology in these patients requires the initiation of treatment with thiamine.

Conflict of interest.

Authors have no conflicts of interest to declare.

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