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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 ВИНТИ 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 ВИНТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

### WEBSITE

[www.geomednews.com](http://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](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. Корректурa 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 computer-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.nlm.nih.gov/bsd/uniform_requirements.html)  
[http://www.icmje.org/urm\\_full.pdf](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 საქურაღებოლ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დაიცვათ 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 შედეგის 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 ფხიხლებში 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.

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## INTRAVITREAL INJECTION CONBERCEPT IMPROVES THE BEST-CORRECTED VISUAL ACUITY IN PATIENTS WITH WET AGE-RELATED MACULAR EDEMA

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### Abstract.

**Objective:** The aim of the study was to investigate the value of intravitreal injection conbercept on the best-corrected visual acuity in patients with age-related macular edema.

**Methods:** In this study, 114 patients (114 eyes) were treated with intravitreal injection of Conbercept in our hospital from August 2020 to January 2022. According to the clinical effect after treatment, they were divided into effective group (78 cases, 78 eyes) and ineffective group (36 cases, 36 eyes). All patients were continuously treated with intravitreal injection of Conbercept. The best corrected visual acuity (BCVA) was compared between the two groups.

**Results:** Before treatment, the BCVA was compared between the effective group and the ineffective group ( $P>0.05$ ). After 1, 2, and 3 times of treatment, the BCVA values of the effective group were lower than those of the ineffective group, and the BCVA changes of the effective group before and after treatment were greater than those of the ineffective group ( $P<0.05$ ).

**Conclusion:** The BCVA values of the effective group were lower than those of the ineffective group, and the BCVA changes of the effective group before and after treatment were greater than those of the ineffective group, suggesting that conbercept can improve the visual acuity of patients with macular edema caused by wet age-related macular degeneration.

**Key words.** Wet macular degeneration, macular edema, conbercept, visual acuity.

### Introduction.

Age-related macular degeneration is a clinical irreversible blinding eye disease, which exerts a serious impact on the visual function of the elderly [1]. Among them, wet age-related macular degeneration is mainly caused by choroidal neovascularization in the fundus of the patient, retinal pigment epithelium detachment, and severe damage to central visual acuity can be formed in a short time. With the progress of the patient's condition, wet age-related macular degeneration secondary to macular edema causes a large number of fluid leakage and accumulation in the outer plexiform layer of the retina. Antiangiogenic drugs can antagonize angiogenesis factors to reduce vascular permeability and inhibit neovascularization. Conbercept is a commonly used drug in clinic. Intravitreal injection can promote neovascularization regression and improve the therapeutic effect of macular edema [2]. Currently, there are many methods for clinical evaluation of the efficacy of macular edema, including the best corrected visual acuity, central retinal macular thickness and other indicators, but they are easily affected by patients, environment and other factors.

The aim of the study was to investigate the value of intravitreal injection conbercept on the best-corrected visual acuity in patients with age-related macular edema.

### Materials and Methods.

#### General information:

In this study, the data before and after treatment were compared and analyzed. 114 patients (114 eyes) in our hospital from August 2020 to January 2022 were treated with intravitreal injection of Compcept. According to the clinical effect after treatment, they were divided into effective group (78 eyes) and ineffective group (36 eyes).

Inclusion criteria: (1) The diagnostic criteria of wet age-related macular edema in patients with macular degeneration refer to the criteria in 'ophthalmology' [3]. (2) The age range of patients  $\geq 50$  years old. (3) Before treatment, the BCVA value of patients was 0.05 – 0.5. (4) Patients received intravitreal drug injection for the first time. (5) All subjects can regularly accept three courses of treatment. (6) The research program meets the requirements of the medical ethics expert group in our hospital, and the subjects signed informed consent. Exclusion criteria: (1) Eye tumor disease. (2) Patients also suffer from macular hole, glaucoma, cataract and other eye diseases. (3) Eye infections. (4) Severe allergic history. (5) Patients had previous history of ocular trauma and surgery. (6) Severe renal insufficiency, cerebrovascular and cardiovascular diseases.

#### Treatment methods:

The patients were treated with levofloxacin hydrochloride eye drops 3 days before operation, 4 times/d. One hour before injection, the compound topiramide eye drops were given. After the surface anesthesia was satisfied, the eyelid opening device was used to open the eyelid, and 0.05mL conbercept (Chengdu Kanghong Biological Technology Co., Ltd., batch number S20130012, 10mg/ml, 0.2ml/branch) was injected vertically into the flat part of the ciliary body at 4 mm from the edge of the corneoscleral edge. After the end of the application of cotton rods for 10s, tobramycin dexamethasone eye ointment was applied to the conjunctival sac of the patients. After the operation, levofloxacin eye drops were applied, 6 times/d, and 7d. Timely observation, understanding of patients with complications and give symptomatic treatment.

#### Observation indicators and detection methods:

Evaluation criteria of clinical efficacy: markedly effective was that macular edema symptoms completely disappeared after treatment, macular sclerosis leakage decreased by more than 50%, and visual acuity improved significantly; effective for macular edema symptoms and visual acuity improved, macular sclerosis leakage reduced by 10%~50%; invalid for visual acuity and macular edema were not significantly improved and macular sclerosis leakage less than 10%; this study will be markedly effective, effective assessment of patients as effective.

The best-corrected visual acuity (BCVA) of patients was evaluated by using the international standard logarithmic visual acuity chart (pupillary medical device factory).

The OPTOVUE frequency-domain optical coherence tomography (OPTOVUE) instrument was selected for detection. The central retinal thickness (CRT) was taken as the central retinal thickness (500µm) by using the macular map analysis software of the system. At the same time, the average retinal thickness was measured in the circumference range of 1mm and 3mm around the macular fovea, and the retinal pigment epithelium (RPE) bulge volume (1RV, 3RV) was recorded and analyzed with the macular as the center.

#### Statistical processing:

The systolic blood pressure and other measurement indexes of the patients in this study were tested by normal distribution, which were in accordance with the approximate normal distribution or normal distribution and expressed as ( $\bar{x}\pm s$ ). The student- t test was used for comparing baseline data and BCVA value between the two groups. Chi-square test was used for comparison between groups of enumeration data; the correlation between data is analyzed by linear model analysis; using professional SPSS21.0 software for data processing, test level  $\alpha=0.05$ .

#### Results.

##### Comparison of baseline data between the two groups of patients:

According to the clinical efficacy evaluation, 78 patients were effective, and 36 patients were ineffective. The age, BMI, systolic blood pressure, diastolic blood pressure, TG, TC, fasting blood glucose, gender and the distribution of affected side between the effective group and the ineffective group were compared ( $P>0.05$ ) Tables 1 and 2.

**Table 1.** Comparison of baseline data of patients in effective group and ineffective group.

Index	effective group	ineffective group	t/X <sup>2</sup>	P
Age (years)	67.51±5.52	68.33±5.52	-0.737	0.463
BMI (kg/m <sup>2</sup> )	23.81±1.66	24.02±1.66	-0.628	0.531
SBP (mmHg)	125.4±5.7	126.2±5.7	-0.697	0.488
DBP (mmHg)	75.1±5.0	77.0±5.0	-1.886	0.062
TC (mmol/L)	5.48±0.62	5.31±0.53	1.422	0.158
TG (mmol/L)	2.21±0.50	2.14±0.48	0.703	0.483
FPG (mmol/L)	5.49±0.62	5.62±0.67	-1.014	0.313
Gender			0.776	0.379
Male	43(55.13)	23(63.89)		
Female	35(44.87)	13(36.11)		
Ipsilateral distribution			1.738	0.187
Right	33(42.31)	20(55.56)		
Left	45(57.69)	16(44.44)	□	□

**Table 2.** Comparison of BCVA values between the effective group and the ineffective group.

Group	effective group	ineffective group	t	P
Before therapy	0.89±0.14	0.93±0.17	1.323	0.19
1 treatment	0.76±0.16	0.84±0.15	2.53	0.01
2 treatments	0.46±0.12	0.76±0.15	11.443	□0.01
3 treatments	0.32±0.08	0.60±0.11	15.364	□0.01
Difference before and after treatment	0.57±0.14	0.33±0.09	9.415	□0.01

#### Discussion.

The incidence of macular edema caused by wet age-related macular degeneration shows an increasing trend in clinical practice. The formation of macular edema is mainly caused by venous occlusion, which hinders the reflux of small veins after macular capillary, and finally causes leakage after endothelial cell injury. Therefore, the expression of vascular endothelial growth factor in patients is increased. After the destruction of vascular barrier, liquid leakage accumulates in the outer plexiform layer of the retina, which causes the formation of lesions [3]. In this study, Kangbaixipu was selected for treatment. This drug belongs to angiogenesis inhibitor, which can combine with vascular endothelial growth factor-A to reduce the proliferation of vascular endothelial cells and inhibit angiogenesis. Injection of liquid macromolecules into the vitreous cavity can hinder the entry of liquid macromolecules into the retina and promote the absorption of edematous exudative fluid. Therefore, the visual function of patients was improved [4]. In this study, after 1, 2 and 3 times of treatment, the BCVA values of the effective group were lower than those of the ineffective group, and the BCVA changes of the effective group before and after treatment were greater than those of the ineffective group, suggesting that conbercept can improve the visual acuity of patients with macular edema caused by wet age-related macular degeneration.

In summary, The BCVA value of the effective group was lower than that of the ineffective group, and the change in BCVA value of the effective group before and after treatment was greater than that of the ineffective group, indicating that Anmei can improve the vision of patients with visual impairment. Macular edema. Wet age-related macular degeneration may be the cause.

#### Ethical approval.

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee (name of institute/committee) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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#### Conflict of Interest.

All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

#### Informed consent.

Informed consent was obtained from all individual participants included in the study.

#### Data Availability.

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

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