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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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(N-NITROSO) PROPAFENONE INDUCED ADVANCED NODULAR MELANOMA-FIRST REPORTED CASE IN THE WORLD LITERATURE: THE INEXTRICABLE LINKS BETWEEN THE PHOTOCARCINOGENESIS, DRUG RELATED NITROSOGENESIS AND PHARMACO-ONCOGENESIS

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Abstract.

Onco-pharmacogenesis or pharmaco-oncogenesis of skin cancer is a concept , which could also be considered as an ″end product″ of drug-mediated Nitrosogenesis or of the permissive regime for carcinogens to be (un)controlled released in drugs. Their controlled distribution remains until 2025 as a forced and non-alternative and there is no indication of any possibility to introduce a full elimination regime against the already mentioned carcinogenic availability.

There are three main worrying facts that determine the need for these elimination regimes: 1) the clinicopathological correlations concerning the intake of a heterogeneous class of drugs and the subsequent development of relatively homogeneous tumours/ such as melanoma, 2) the recently proven mutagenic/ carcinogenic action of certain nitrosamines, but this time directly on human DNA, and 3) the fact that some of the nitrosamines are potent photocarcinogens that exert their genotoxic effects only after irradiation with UVA/ also recently proven/.

In addition to the rhetoric mentioned above, there is also an overlap in mutational patterns between the genes previously generally accepted to affect melanomas - p53 / RAS oncogenes , with those identified as target genes, but being affected ″mutationally″, by certain nitrosamines. The processes of photocarcinogenesis, nitrosogenesis and oncopharmacogenesis of skin cancer are inextricably linked and should not be considered and analysed unilaterally or in a semi-invasive manner. Cataloguing the type of nitrosamines and their precise concentration on drug leaflets and prescription/official websites with permanent access to clinicians and end-users remains the only safe and effective weapon in the fight against (un)controlled contamination.

The pharmaceutical industry and regulators remain the creators, the ‘parents’ of onco-pharmacogenesis, nitrosogenesis, and therefore the processes involved in the generation and progression of skin cancer.

The impossibility of establishing elimination regimes for certain mutagens and/or carcinogens already proven to be present in medicines remains a mystery. In practice, end consumers find themselves in a state of enforced tolerance of certain genotoxic substances that are not even declared as available.

Clinicians in the face of dermatologists/ dermatological surgeons remain the analysers and identifiers of these globalization processes.

Once again, we present a patient who took the antiarrhythmic (nitroso-) drug propafenone and developed a relatively short-term nodular melanoma with a subsequent fatal outcome. We comment on the role of drug-mediated nitrosogenesis and its relationship to photocarcinogenesis and onco-pharmacogenesis.

Key words. Oncopharmacogenesis, Nitrosogenesis, N-nitroso propafenone, nodular melanoma, p53, RAS.

Introduction.

Nitroso issues and human cancer in general is a topic whose semantics should definitely not be questioned [1,2]. In recent years, the mutagenic or carcinogenic action of a number of compounds, defined as nitrosamines or nitroso compounds, has been known and repeatedly demonstrated in humans within a number of clinicopathological correlations (after intake of nitrosamine-contaminated drugs of a heterogeneous class) [2,3].

The lack of formalisation and accurate cataloguing of these nitroso compounds in drug prescriptions to date, only suggests a worsening of the crisis affecting oncopharmacogenesis. The problematic lies precisely in the fact that the ″branch″ that controls and authorizes the disposition of carcinogens in drugs is also largely able to determine cancer incidence worldwide. In parallel, the following is happening : drug manufacturers and regulators are refusing to publicly declare which batches contain the carcinogens in question and are recommending that nitrosamine-contaminated preparations be taken by patients on a regular basis despite the presence of certain carcinogens in them [4]. The regulators' suggestions remain to date in the form of controlling the spread of carcinogens only [5,6], but not their definitive, complete elimination. The problem of polycontamination of polymedication within polymorbidity also remains unresolved.

We present another case of a patient who took the antiarrhythmic drug propafenone and developed a relatively short-term advanced melanoma followed by a fatal outcome. Issues are discussed concerning 1) nitrosogenesis, 2) onco-pharmacogenesis and their relationship to photocarcinogenesis and melanoma pathogenesis.

Case report.

We report an 80-year-old woman hospitalized for advanced melanoma of the skin, in the terminal stage. She reports severe weakness, increase in abdominal circumference, and swelling of the lower extremities for several months, which have increased in recent days. Lack of any micturition for 24 hours. Also reports heaviness in stomach, squeezing and discomfort behind sternum, rapid dry and irritating cough.

Because of persistent atrial fibrillation, she has been on therapy with propafenone 150 mg once daily, trimethadizine dihydroloride 35 mg once daily, and acenocoumarol 4 mg (as scheduled) for 10 years. The medication was stopped for

several weeks at the patient's own request. Six years ago she was scheduled for removal of a skin lesion localized in the area of the right facial half (cytologically proven as melanoma), and the patient refused surgical intervention. At that time, the lesion was significantly smaller in size and had less pronounced exophytic growth. According to the relatives, the pigmented lesion was approximately 8 years old.

Clinical and dermatoscopic findings were in favor of nodular melanoma (Figures 1-3), localized preauricularly on the left: lesion diameter of 3.5 cm, soft-elastic consistency, clear differentiation from healthy tissue, exophytic growth, lack of infiltration of bony structures in the immediate vicinity, gray-white areas of regression/disturbed, disintegrated melanocytic network.

Figures 1,2. *Advanced metastatic nodular melanoma with preauricular localization.*

Figure 3. *Advanced nodular melanoma which developed short-term within the potentially contaminated N -Nitroso propafenone intake.*

Instrumental diagnostics and paraclinic findings with evidence of massive peritoneal carcinosis, liver metastases, ascites, and septic shock. Exitus lethalis occurred prior to surgical removal of the lesion.

Discussion.

According to the current understanding of skin cancer pathogenesis, photocarcinogenesis undoubtedly remains one of the most serious or primary factors in this regard [7].

The concept of photocarcinogenesis has so far attempted (and successfully) to displace two other equally significant and, until recently, completely neglected phenomena/circumstances in clinical medicine: drug-mediated nitrosogenesis and the consequent pharmaco-oncogenesis of skin cancer [8-10]. The reluctance of regulators to eliminate carcinogens in drugs, and to formally label their presence, more clearly encapsulates the problematic, which has recently been given the definition: onco-pharmacogenesis or pharmaco-oncogenesis.

Melanoma remains, unfortunately, one of the most striking examples of side-effects occurring in the context of the medication of potentially/actually nitrosamine-contaminated drugs of a heterogeneous class [11,12].

According to recent literature data, certain nitrosamines are able to activate their genotoxicity specifically after UVA radiation [13]. This effectively makes photocarcinogenesis and nitrosogenesis two inextricably linked concepts/phenomena that have synergistic effects with respect to skin carcinogenesis. This connectivity and mutual potentiation appears to be made possible by the permanent intake of nitrosamines with drugs or in the context of the now familiar oncopharmacogenesis/ pharmaco-oncogenesis [2,11-12].

The ubiquity of nitrosamines in other compartments of our environment is also proving to be problematic and difficult to solve as a problem. However, this should not prevent their rapid or gradual, but in any case, systematic and consistent elimination, with a view to maximum prevention for the human population.

Nitrosogenesis is an integral part of onco-pharmacogenesis/ pharmaco-oncogenesis, and the persistence of this constellation is able to regulate in principle the occurrence/incidence of certain cancers at certain latitudes [15].

Calculation of the additional risk of developing a particular form of cancer could also be further modulated by the formation of nitrosamines within the drinking water chlorination process [16]. The resulting compounds, such as nitrosamine disinfection by-products (DBPs), are highly mutagenic, carcinogenic and gene toxic to the human genome [16].

Nitrosamines in tobacco and food are also a serious problem, and this additional risk calculation is difficult to virtually impossible [17,18].

Recently published data (2024), demonstrate carcinogenic transformation in almost all endocrine organs after application of N-Nitrosomorpholine (NMO) (in mice under experimental conditions) [19], thus bringing back to the agenda the topic of tissue-specific action of these carcinogens known for decades [20,21].

Another recently published scientific paper demonstrates the gene toxicity or mutagenic action of nitrosamines in cigarettes on human DNA [22]. In fact, this is yet another proof that nitrosamines are also human mutagens [22].

The occurrence of cutaneous tumours in areas exposed to solar radiation should not exclude nitrosamines in drugs as one of the most potent photo-carcinogens for the development of cutaneous melanomas, for example. The reason therefore is that certain nitrosamines appear to be at the same time potent photo-carcinogens that exert part of their genotoxic action after exposure to UVA radiation (similar to n-nitrosomorpholine) [13,14].

It is these facts that explain why a large proportion of tumors (keratinocytic, for example) of the periocular area, arise within the context of the intake of ACE inhibitors and hydrochlorothiazide [23], which according to the FDA list of 2023 belong to the group of potentially nitrosamine-contaminated drugs [4].

The genotoxicity of certain nitrosamines appears to be photo-mediated (needing photo-activation) [13] and, in practice, polydrug (intake)-dependent within the polymorbidity [8-12]. This intake ensures or guarantees that mediators of cutaneous carcinogenesis are taken daily and in appropriate doses.

The relationship between nitrosogenesis and photocarcinogenesis occurs in the context of pharmaconogenesis or the adjustable availability of mutagens/carcinogens in drugs.

This is what explains the overlap of many of the gene mutations responsible for melanoma and affected genes such as p53 [24-26]/RAS oncogenes [27-29] with those also induced by nitrosamines or their derivatives in humans [22].

This remains one of the most likely reasons that nitrosamines and their derivatives are not being formalized as type and concentration on drug package inserts. This act would allow their rapid identification as potent carcinogens and would undoubtedly highlight the need for their mandatory elimination from patients' 'drug menus'. Their compulsory presence, due to ridiculous explanations such as lack of alternative, remains for the moment the most powerful weapon for the regulation of human population numbers.

Another non-important issue concerns the short-term development of cancer after intake of potentially nitrosamine-contaminated drugs such as n-nitroso propafenone, catalogued in the FDA list of 2024 as a drug with a potential carcinogenic potency of 2 [4].

Combined intake of potentially contaminated polymedication (including propafenone) in the context of polymorbidity, has already been described as a possible inducer of keratinocytic forms of skin cancer [30]. The number and type of nitrosamines in a preparation would provide invaluable information about the multistep process of skin carcinogenesis only when catalogued and formally labelled.

Elimination regimens of already proven human carcinogens/ mutagens such as nitrosamines and their derivatives [22] should be a priority and mandatory for the simple reason that they cause cancer or melanomas. Moreover, they are relatively short-term [8-12]. Interesting remains definitely the fact that the intake of hypothetical carcinogens in drugs, result in the development of real tumors such as cutaneous melanomas (for example). Also of interest is the fact that some of these hypothetical carcinogens, are at the same time photocarcinogens or photo mutagens [22], known as nitrosamines or NDSRIs.

The refusal to formalize the presence of the type of a particular nitrosamine and its concentration on the packaging and prescriptions of contaminated and currently drug products is in all likelihood intended (and only) to keep the monopole on the persisting of contamination, guaranteeing billions monthly.

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