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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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PREVALENCE OF FETAL CONGENITAL ANOMALIES IN PATIENTS ATTENDING TIKRIT TEACHING HOSPITAL

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Abstract.

Background: Children born with structural or functional defects were reported as congenital anomalies. The rate of these deficits has increasingly been reported globally with upregulated trends for unknown specific reasons. Congenital anomalies are reported as a clinical challenge for clinical settings due to handling, transportation, daycare, and staff requirements. The present study aimed to characterize such types of congenital anomalies in Tikrit governorate (Iraq). **Methods:** A total of 180 file records of newborn babies were allocated for those babies who have been admitted to the hospital after birth due to their requirement for help as a consequence of their diagnosis of congenital anomalies. These anomalies were counted and placed together for potential comparisons and determination of the highest percentage of them.

Results: The most common area for anomalies was the central nervous system (40%) followed by the musculoskeletal (22%), gastrointestinal system (16%), and heart (11%). The lowest proportion of congenital anomalies were those of the eye, face, ear (7%), and Skin (7%). **Conclusion:** Characterization of the frequency of anomalies and allocation of their causative factors are important to take further steps forward for the specification of the diseases and required treatments.

Key words. Congenital anomalies, pregnancy, neonate, birth defects.

Introduction.

Congenital anomalies are structural or function defects which diagnosed on or early after birth [1]. The presence of congenital anomalies increases the death potential and predisposes the individual to mortality. Congenital anomalies make individuals, society and healthcare suffer from increased requirements of daily care, healthcare clinics, and special treatment by the schools [2]. The congenital anomalies might be non-treatable or require lifelong medical care or even surgery [2]. Even surgical correction might not provide full treatment and eliminate the defects resulting in lifelong suffering and disability if the correction is halted [3].

Risk factors could be the causative of these anomalies including prenatal infection, environmental pollution, genetic mutation, metabolic derangements, radiation, and drugs are the major but might not be the only leading agents to congenital anomalies [4-8]. Nevertheless, no single causative agent could be stated that these agents are responsible for these anomalies [4-8], depending on the region or geographical location and also personal status including past medical and drug history, age of mother, association with chronic diseases [9-12].

The trends of anomalies mostly include central nervous system (CNS) anomalies, musculoskeletal (MSS) anomalies, gastrointestinal system (GIT) anomalies, cardiovascular (CVS) anomalies, and others [13-19]. The trends for each country or territory need to be specified and technically characterized [13,14]. The Middle East data is characterized by underestimation and unavailability of comprehensive records, and some patients are not reporting these anomalies. Therefore, the present study was conducted to confirm the frequency of the anomalies in Tikrit City (Iraq).

Methods.

The present study is a retrospective comparative analysis of congenital birth anomalies in Iraq. The study involves retrieving data from records of born babies extracted from the national birth registry database for those infants who have been admitted to the Special Care Baby Unit at the Tikrit Teaching Hospital (Tikrit City, Iraq), between 1st January 2022 and 31st December 2023.

The maternal data records were also collected including their past medical, surgical, family history, and past drug use history to exclude their impact on inducing congenital birth anomalies, if any. Moreover, patients' records were checked for potential radiation exposure. The conditions were numerically counted and presented as percentages for statistical analysis.

Results.

The samples of the patients enrolled in the present study encompass 180 mothers whose average age of 28.6±7 years. The majority of mothers (40%) were aged between 14 and 30 years, about 12% of the mothers were aged between 31 and 40 years, while only 8% were over 40. Of the 180 families, 100 resided in urban areas, while 80 were from rural areas. About 115 of the mothers were housewives, 40% were employed, and 25% were students. The most frequent type of pregnancy pattern is a singleton (n=174) versus 6 twin births (Table 1).

Table 1. *Differences in the demographic characteristics of cases.*

Variable	**Study group (*n* = 180)**	
Mother's age in years	28.6±7	
Residence	Rural	100
	Urban	80
Occupation	Employed	40
	Housewives	140
Pregnancy Pattern	Singleton	174
	Twin	6

The most frequent type of anomalies present in the studied sample were CNS anomalies with a percentage of up to 40% out of the total of the studied sample. The second most common in the rate is musculoskeletal anomalies with a frequency rate of 22%. GIT anomalies represented 16% out of the total of the studied sample. Heart defects represented 16% out of the total of the studied sample. Other types of anomalies (skin, eye, ear, and face) represented only 11% (Table 2).

Table 2. *The pattern of congenital anomalies at birth and their correlations with maternal characteristics in the maternity teaching hospital.*

Type of congenital anomaly	**Frequency** N(%)
Central nervous system	72(40)
Musculoskeletal	39(22)
Gastrointestinal tract	29(16)
Heart	21(11)
Skin	9(5)
Eye, face, ear	7(4)
Unclassified	3(2)
Total	180(100)

The most frequent type of CNS anomalies present in the studied sample were hydrocephalus with a percentage of up to 64% out of the total of the CNS anomalies. The second most common in the rate was meningocele with a frequency rate of 14%. Anencephaly represented 11% out of the total of the CNS anomalies. Spina bifida represented 11% out of the total of the CNS anomalies (Table 3).

Table 3. *Distribution of congenital anomalies according to the CNS.*

Central nervous system	**Frequency** N(%)
Hydrocephalus	46 (64)
Meningocele	10 (14)
Anencephaly	8 (11)
Spina bifida	8 (11)

The most frequent type of musculoskeletal anomalies present in the studied sample were clubfoot with a percentage of up to 41% out of the total of the musculoskeletal anomalies. The second most common in the rate were omphalocele and gastroschisis with a frequency rate of 18%. Abnormal hand represented 13% out of the total of the musculoskeletal anomalies. Syndactyly represented 8% out of the total of the Musculoskeletal anomalies. Polydactyly represented only 2% (Table 4).

Table 4. *Distribution of congenital anomalies according to the Musculoskeletal anomalies.*

Musculoskeletal anomalies	**Frequency** N(%)
Clubfoot	16 (41)
Omphalocele	7 (18)
Gastroschisis	7 (18)
Abnormal hand	5 (13)
Syndactyly	3 (8)
Polydactyly	1 (2)

The most frequent type of gastrointestinal anomaly present in the studied sample was Imperforate anus with a percentage of up to 35% out of the total musculoskeletal anomalies. The second most common in the rate was Esophageal atresia with a frequency rate of 28%. Pierre Robin syndrome represented 17% out of the total of the Musculoskeletal anomalies. Cleft lip and Tongue tie represented 10% out of the total of the Musculoskeletal anomalies (Table 5).

Table 5. *Distribution of congenital anomalies according to the Gastrointestinal anomalies.*

Gastrointestinal anomalies	**Frequency** N(%)
Imperforate anus	10(35)
Esophageal atresia	8(28)
Pierre Robin syndrome	5(17)
Cleft lip	3 (10)
Tongue tie	3(10)

Discussion.

The present study characterized the frequency of distribution of congenital anomalies among a total of 180 births in Tikrit Teaching Hospital. Most of these anomalies happen within the births of middle-aged women regardless of their living places whether rural or urban and employment status.

The most common pattern of anomalies was CNS, these include hydrocephalus, meningocele anencephaly, and Spina bifida. A similar rate of CNS anomalies was reported in two studies conducted in Erbil by Othman GO [20] and Ameen et al. [21], who have reported that up to 33% and 37.5%, respectively, of enrolled participants were having CNS anomalies with nearly similar CNS anomalies rate were reported as hydrocephalus, meningocele anencephaly, and Spina bifida. Nonetheless, Al-Alwani et al. have reported a lower rate of 25% when they include a larger sample size of 1000 participants [4]. Alternatively, a study conducted in Mosul City by Taboo ZA who has screened a sample of a total of 46775 cases and concluded that CNS is the most common but still a lower rate (7%) of CNS prevalence than the present study [5]. These findings confirm that larger sample sizes have potentially decreased the frequency of the presence of CNS anomalies which was further confirmed in a study conducted in Iran by Mashhadi et al. who included a sample of 10000 participants and confirmed that CNS anomalies represented by 26.67% of the total sample [22]. A three-year Ethiopian retrospective study conducted by Silesh et al. reported 28.1% CNS anomalies (sample size 3346 neonates) [23]. Dolk et al. [6] and Francine et al. [7] reported a very low rate down to 2.28% and 8.4% for every 1000 births.

The second most common pattern of anomalies was musculoskeletal anomalies, these include Clubfoot, Omphalocele, Gastroschisis, Abnormal hand, Syndactyly and Polydactyly. A similar rate of musculoskeletal anomalies was reported in two studies conducted in Erbil by Othman GO [20] and Ameen et al. [21], who have reported that up to 20% and 23.1%, respectively, of enrolled participants were having musculoskeletal anomalies with nearly similar musculoskeletal anomalies rate were reported as Clubfoot, Omphalocele, Gastroschisis, Abnormal hand, Syndactyly and Polydactyly. Nonetheless, Al-Alwani et al. have reported a higher rate of 28.8% when they include a larger sample size of 1000 participants [4]. Alternatively, a study conducted in Mosul City by Taboo ZA screened a sample of a total of 46775 cases and concluded that musculoskeletal is the most common but still a lower rate (6.2%) of musculoskeletal prevalence than the present study [5]. These findings confirm that larger sample sizes have potentially decreased the frequency of the presence of musculoskeletal

anomalies which was further confirmed in a study conducted in Iran by Mashhadi et al. who included a sample of 10000 participants and confirmed that musculoskeletal anomalies represented by 10.67% of the total sample [22]. A three-year Ethiopian retrospective study conducted by Silesh et al. reported 16.1% musculoskeletal anomalies (sample size 3346 neonates) [23]. Dolk et al. [6] and Francine et al. [7] reported a very low rate down to 4.61% and 8.4% for every 1000 births.

The GIT anomalies include Imperforate anus, Esophageal atresia, Pierre Robin syndrome, Cleft lip, and Tongue tie. A higher rate of GIT anomalies was reported in a study conducted in Erbil by Ameen et al. [21], who reported that up to 20.8% of enrolled participants were having GIT anomalies with nearly similar musculoskeletal anomalies rate were reported as Imperforate anus, Esophageal atresia, Pierre Robin syndrome, Cleft lip, and Tongue tie. Moreover, Al-Alwani et al. have reported a higher rate of 21.2% even with a larger sample size of 1000 participants [4]. Alternatively, a study conducted in Mosul City by Taboo ZA who has screened a sample of a total of 46775 cases and concluded that GIT is the most common but still a lower rate (4.9%) of GIT prevalence than the present study [5]. These findings confirm that larger sample sizes have potentially decreased the frequency of the presence of GIT anomalies which was further confirmed in a study conducted in Iran by Mashhadi et al. who included a sample of 10000 participants and confirmed that GIT anomalies represented by 5.33% of the total sample [22]. A three-year Ethiopian retrospective study conducted by Silesh et al. reported 20.1% GIT anomalies (sample size 3346 neonates) [23].

Finally, heart anomalies represented an important pattern in newborns. A nearly similar rate of heart anomalies was reported in a study conducted in Erbil by Othman GO [20] who have reported that up to 10%. A lower rate (5.4%) of heart anomalies reported by Ameen et al. [21]. Moreover, Al-Alwani et al. have reported a higher rate of 15.6% even with a larger sample size of 1000 participants [4]. Alternatively, a study conducted in Mosul City by Taboo ZA who has screened a sample of a total of 46775 cases concluded that heart is the most common but still a lower rate (2.78%) of heart prevalence than the present study [5]. These findings confirm that larger sample sizes have potentially decreased the frequency of the presence of heart anomalies which was further confirmed in a study conducted in Iran by Mashhadi et al. who included a sample of 10000 participants and confirmed that heart anomalies represented by 20.44% of the total sample [22]. A three-year Ethiopian retrospective study conducted by Silesh et al. reported 14.1% heart anomalies (sample size 3346 neonates) [23]. Dolk et al. [6] and Francine et al. [7] reported a different rate down to 7.3% and up to 16.66% for every 1000 births.

Conclusion.

Congenital anomalies are common in the Tikrit governorate and are typically equal to their global distribution. Special health care requirements might greatly impact the health settings and cost effectiveness might be negative due to lack of proper therapy. Decreasing air pollution and teratogen exposure through public campaign counselling and practical guidelines might lead to proper pregnancy with a subsequent lower rate of congenital anomalies.

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