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MH Samorita Medical College Journal

MH Samorita Med Coll J July 2024; 7(2): 56-102

Contents

MH Samorita Medical College Journal
(MH Samorita Med Coll J)

MH Samorita Medical College Journal
(MH Samorita Med Coll J)

INFORMATION FOR AUTHORS

Manuscript Preparation and Submission

Guide to Authors

MH Samorita Medical College Journal provides rapid publication (twice in a year) of articles in all areas of different subjects. The Journal welcomes the submission of manuscripts that meet the general criteria of significance and scientific excellence.

The manuscripts should be submitted addressing Editor-in-Chief.

The Journal of MH Samorita Medical College only accepts manuscripts submitted as triplicate hard copy with a soft copy.

Papers must be submitted with the understanding that they have not been published elsewhere (except in the form of an abstract or as part of a published lecture, review, or thesis) and are not currently under consideration by another journal (**International or National)** or any other publisher.

The submitting (Corresponding) author is responsible for ensuring that the submitting article has been signed by all the co-authors. It is also the authors' responsibility to ensure that the articles emanating from a particular institution are submitted with the approval of the necessary institutional requirement. Only an acknowledgment from the editorial board officially establishes the date of receipt. Further correspondence and proofs are sent to the corresponding author(s) before publication unless otherwise indicated. It is a condition for submission of a paper that the authors permit editing of the paper for readability. All enquiries concerning the publication of papers should be addressed to Editor-in-Chief (MH Samorita Med Coll J)

The cover letter

Cover letter is expected to be submitted along with manuscript. Use the cover letter to explain why the paper should be published in the Journal of MH Samorita Medical College. The cover letter should include the corresponding author's full address, telephone/ fax numbers and e-mail address.

Ethical aspects

- Ethical aspect of the study is considered very carefully at the time of assessment of the manuscript.
- Any manuscript that includes table, illustration or photograph that have been published earlier should accompany a letter of permission for re-publication from the author(s) of the publication and editor/ publisher of the Journal where it was published earlier.
- Permission of the patients and/or their families to reproduce photographs of the patients where identity is not disguised should be sent with the manuscript. Otherwise the identity would be blackened out.

Conditions for submission of manuscript

- All manuscripts are subject to peer-review.
- Manuscripts are received with the explicit understanding that they are not under simultaneous consideration by any other publication.
- Submission of a manuscript for publication implies the transfer of the copyright from the author to the publisher upon acceptance. Accepted manuscripts become the permanent property of the MH Samorita Medical College Journal (MHSMCJ) and may not be reproduced by any means in whole or in part without the written consent of the publisher.
- It is the author's responsibility to obtain permission to reproduce illustrations, tables etc. from other publications.

Article Types

Four types of manuscripts may be submitted.

Editorials: It should preferably cover a single topic of common interest.

Original Articles: These should describe new and carefully confirmed findings, and experimental procedures should be given in sufficient detail for others to verify the work and its volume should **not exceed 5000 words** or equivalent space including title, summary/abstract, main body, references, table(s) and figure(s).

Review Articles: Submissions of reviews covering topics of current interest are welcome and encouraged. Reviews should be concise and no longer than 4 to 6 printed pages (about 12 to 18 manuscript pages) and should **not exceed 5000 words**. It should be focused and must be up to date.

Case Reports: This should cover uncommon and/or interesting cases and should **not exceed 1000** words or equivalent space.

Review Process

All manuscripts are initially screened by editor and sent to selective reviewers. Reviewers are requested to return comments to editor within 3 weeks. On the basis of reviewers' comments the editorial board decides whether the articles are accepted or send for re-review the manuscripts. The MH Samorita Med Coll J editorial board tries to publish the manuscript as early as possible fulfilling all the rigorous standard journal needs.

I. Preparing a Manuscript for Submission to MH Samorita Med Coll J

Editors and reviewers spend many hours reading and working on manuscripts, and therefore appreciate receiving manuscripts that are easy to read and edit. The following information provides guidance in preparing manuscripts for the journal.

I A. Preparation of manuscript

Criteria: Information provided in the manuscript are important and likely to be of interest to an international readership.

Preparation

1. Manuscript should be written in English and typed on one side of A4 (290 x 210cm) size white paper.
2. Margin should be 5 cm for the header and 2.5 cm for the remainder.
3. Style should be that of modified Vancouver.
4. Each of the following section should begin on separate page :

- Title page
- Abstract
- Main body/Text: Introduction, Materials and Methods, Results, Discussion and conclusion (For an original article/ Systematic review)
- Acknowledgement
- References
- Tables and legends

Pages should be numbered consecutively at the upper right hand corner of each page beginning with the title page.

I A. 1. General Principles

- The text of observational and experimental articles is usually (but not necessarily) divided into the following sections: Introduction, Materials and Methods, Results, and Discussion(so-called "IMRAD" structure is a direct reflection of the process of scientific discovery.
- Long articles may need subheadings within some sections (especially Results and Discussion) to clarify their content. Other types of articles, such as case reports, reviews, and editorials, probably need to be formatted differently.
- Authors need to work closely with editors in developing or using the publication formats and should submit supplementary electronic material for peer review.
- Double-spacing all portions of the manuscript— including the title page, abstract, text, acknowledg- ments, references, individual tables, and legends— and generous margins make it possible for editors and reviewers to edit the text line by line and add comments and queries directly on the paper copy.
- If manuscripts are submitted electronically, the files should be double-spaced to facilitate printing for reviewing and editing.
- Authors should number on right upper all of the pages of the manuscript consecutively, beginning with the title page, to facilitate the editorial process.

I A. 2. Title Page

The title page should have the following information:

- The title should be brief, relevant and self explanatory. It should reflect the content of the article and should include all information that will make electronic retrieval of the article easy. Subtitles should not be used unless they are essential.
- Title should not be phrased as questions.
- The names of the authors should appear below the title that should include full names of all authors **(no initial).**

Example: Md MA Hamid **(correct form);** Hamid MA **(incorrect).**

The affiliations and full addresses of all authors should be mentioned in the title page.

- Contact information for corresponding authors: The name, mailing address, telephone and fax numbers, and e-mail address of the author responsible for correspondence about the manuscript.
- The name and address of the author to whom requests for reprints should be addressed or a Statement that reprints are not available from the authors.
- Source(s) of support in the form of grants, equipment, drugs, or all of these.

I A. 3. Abstract

Original Article: Structured abstracts are essential for original research. Structured abstract includes introduction, objective(s), materials and methods, results and conclusion. Should be limited to 250 words. The abstract should provide the introduction of the study and blinded state and should mention the study's purpose, basic procedures including selection of study subjects or laboratory animals, main findings (giving specific effect sizes and their statistical significance, if possible) and the principal conclusion. Because abstracts are the only substantive portion of the article indexed in many electronic databases, and the only portion that many readers read, it should accurately reflect the content of the article; so, authors need to be careful about that.

Review Article: is expected to contain background, objective(s), main information and conclusion in brief form. Without any subheading the content should be described in a single paragraph.

Case Study: needs to have background, case summary and conclusion. The content should be described in a single paragraph.

Do not put references in the abstract.

I A. 4. Main body

I A. 4 a) Original article

The body of the text should be divided into the following sections: i) Introduction, ii) Materials and methods, iii) Results, iii) Discussion and iv) Conclusion.

i) Introduction

Should not exceed **500 words**. This section includes background of the problem (that is, the nature of the problem and its significance). It should be very specific, identify the specific knowledge in the aspect, reasoning and what the study aim to answer. Only pertinent primary references should be provided and no data or conclusions should be included from the work to be reported. **Justificatio**n of the study and its **objective(s)** should be mentioned at the end of this section. All information given in this section must have references that to be listed in the reference section.

ii) Materials and methods

The Methods section should be written in such way that another researcher can replicate the study. The type of study (study design), study period, sampling technique, sample size, study population, data collection technique and tool as well as data handling, processing and data analysis should be briefly mentioned in this section.

ii a) Selection and Description of Participants

Describe selection of the observational or experimental participants (patients or laboratory animals, including controls) clearly, including eligibility (inclusion) and exclusion criteria and a description of the source population. Because the relevance of such variables as age and sex to the object of research is not always clear, authors should explain their use when they are included in a study report—for example, authors should explain why only participants of certain ages were included or why women were excluded etc. The guiding principle should be clarity about how and why a study was done in a particular way. When authors use such variables as race or ethnicity, they should define how they measured these variables and justify their relevance.

ii b) Technical Information

- Describe methods, apparatus (give the manufacturer's name and address in parentheses), and procedures in sufficient detail to allow others to reproduce the results.
- Cite references to established methods, including statistical methods. Provide references and brief descriptions for methods that have been published but are not well-known.

- Describe new or substantially modified methods, give the reasons for using them, and evaluate their limitations.
- Identify precisely all drugs and chemicals used, including generic name(s), dose(s), and route(s) of administration.
- For a systematic review article include a section describing the methods used for locating, selecting, extracting, and synthesizing data. These methods should also be summarized in the abstract.

ii c) Statistics

- Describe statistical methods with enough detail to enable a know- ledgeable reader with access to the original data to verify the reported results. When possible, quantify findings and present them with appropriate indicators of measurement error or uncertainty (such as confidence intervals).
- Cite references for the design of the study and statistical methods (standard for the work) when possible.
- Define statistical terms, abbreviations, and most symbols.
- Specify the computer software used.

iii) Results

Results should be described in past tense.

- Present results in logical sequence in the text, tables, figures and illustrations, giving the main or most important findings first. Maintain the sequence of results with the specific objectives selected earlier.
- Do not repeat all the data in the tables or illustrations in the text; emphasize or summarize only the most important observations.
- When data are summarized in the result section, give numeric results not only as derivatives (for example, percentages) but also as the absolute numbers from which the derivatives were calculated, and specify the statistical methods used to analyze them.
- Restrict tables and figures to those needed to explain the argument (relevant to objectives) and to assess supporting data. Use graphs as an alternative to tables with many entries; do not duplicate data in figures (graphs/ charts) and tables. **Example:** Age range of the studied respondents should be appeared **either in table or in figure**.
- Avoid nontechnical uses of technical terms in statistics, such as "random" (which implies a randomizing device), "normal," "significant," "correlations," and "sample."

iv) Discussion

The discussion must be described in **past tense.** This section should reflect the author's comments on the results.

- Emphasize the new and important aspects of the study and the conclusions that follow them in the context of the totality of the best available evidence.
- Do not repeat in detail data or other information given in the Introduction or the Results section.
- For experimental studies, it is useful to begin the discussion by briefly summarizing the main findings, then explore possible mechanisms or explanations for those findings.
- Compare and contrast the results with other relevant studies and potential argument for discrepancy and consistency should be given here.
- State the limitations of the study, and explore the implications of the findings for future research and for clinical practice.
- Link the conclusions with the goals of the study but avoid unqualified statements, not adequately supported by the data.
- In particular, avoid making statements on economic benefits and costs unless the manuscript includes the appropriate economic data and analyses.

v) Conclusion

It should be described in **present tense**. Conclusion should be the main message and the authors' impression from the results of the study. The article should be concluded briefly (**not more than 100 words**). Recommendation(s) can also be included in this section which should not exceed 30 words.

I A. 4 b) Review article

For a systematic review or meta-analysis the body of text should be divided into the following sections (Like an original article): i) Introduction, ii). Materials and methods, iii) Findings/Results, iii a) Main information about the topic, iv) Discussion and v) Conclusion. For a general review article section No. ii (Materials and methods) and iii (Findings/Results) iv) (Discussion) are not relevant. So, for a general review article section No. i). Introduction, iii a). Main Information about the Topic and v). Conclusion are required.

i) **Introduction**: should not exceed **500 words**. This section will include background of the topic. At the end of the review, why the author want to publish the topic on the article ie., the objective should be mentioned.

ii) **Material and methods**: How the review was done, what sorts of articles were searched, how they were searched, the total number of articles reviewed should be mentioned here. This section is not required for a general review article.

iii) **Results/findings**: The findings on the topic after reviewing the articles should be compiled, analysed and described here like an original research article. This section is not required for a general review article.

iii a) **Main Information about the Topic**: The main information about the topic should be described and discussed elaborately with the help of published literatures in this section but the subtitles should be relevant to the topic(Title) for a general review article. This section may not be required for a systematic review or meta-analysis.

iv) **Conclusion:** The article should be concluded briefly (**not more than 100 words**).

I A. 4 c) Case Report

The body of the text should be divided into the following sections: i) Introduction, ii) Case Report (Description of the case), iii) Discussion and iv) Conclusion.

i) **Introduction**: A brief description should be given on the topic of the case with the help of published literatures.

ii) **Case Report**

- The findings (history, clinical examination and investigations) should be described here.
- Management (if any) can also be given.

iii) **Discussion**

- The discussion should be started by briefly summarizing the main findings of the case reported, then possible explanations for those findings should be explored.
- The findings of the case should be compared with other relevant studies and potential argument for discrepancy and consistency should be given here.

iv) **Conclusion**

- The article should be concluded briefly (**not more than 100 words**).
- The main findings of the reported case should be emphasized which the readers can consider as a clue to suspect a diagnosis for a rare case in future.

I A. 5. Acknowledgement

Acknowledge advisor(s) and/or any one who helped the researcher(s)

- Technically
- Intellectually
- Financially

I A. 6. References

I A. 6 a) General Considerations related to References

- Although references to review articles can be an efficient way to guide readers to a body of literature, review articles do not always reflect original work accurately. Readers should therefore be provided with direct references to original research sources whenever possible.
- Abstracts should not be used as references. References to papers accepted but not yet published should be designated as "in press" or "forthcoming"; authors should obtain written permission to cite such papers as well as verification that they have been accepted for publication.
- Information from manuscripts submitted but not accepted should be cited in the text as "unpublished observations" with written permission from the source.
- Citing a "personal communication" should be avoided unless it provides essential information not available from a public source, in which case the name of the person and date of

communication should be cited in parentheses in the text. For scientific articles, obtain written permission and confirmation of accuracy from the source of a personal communication. Some but not all journals check the accuracy of all reference citations; thus, citation errors sometimes appear in the published version of articles. To minimize such errors, references should be verified using either an electronic bibliographic source, such as PubMed or print copies from original sources.

- Authors are responsible for checking that none of the references cite retracted articles except in the context of referring to the retraction. For articles published in journals indexed in MEDLINE, the ICMJE considers PubMed the authoritative source for information about retractions.

I A. 6 b) Reference Style and Format

➢ **Reference Style**

Author should follow **Vancouver style**.

- R**eference list** should appear at the end of the article and should be numbered consecutively in the order as they are cited in the text, which is done by **superscript** (single press of 'ctrl shift +') in numerical form **(citation number).**
- When **multiple references** are cited at a given place in the text, use a **hyphen** to join the first and last numbers that are **inclusive**. Use **commas** (without spaces) to separate **non-inclusive** numbers in a multiple citation.

  Example: 2,3,4,5,7,10,12 are abbreviated to **(2-5,7,10,12**).
- **Do not** use a hyphen if there is no citation numbers in between 2 numbers that support your statement.

  Example: 1-2 (**in correct form).** 1,2**(correct form)**
- As a general rule, citation numbers in the text should be placed **outside full stops and commas**, inside colons and semicolons (applicable for any part of the document).

  Example: Masud Alam,1 Selim Khan[2]

  Example: Over the past decades public health relevance of mental health condition 'in children and adolescents has been of growing concern'.[1-3,5,6]
- Identify references in text, tables, and legends by Arabic numerals in superscript.
- References cited only in tables or figure legends should be numbered in accordance with the sequence established by the first identification in the text of the particular table or figure.

➢ **Reference Format**

1. Citing a Book

The essential details required are (in order):

1.1 Name/s of author/s, editor/s, compiler/s or the institution responsible.

- Where there are **6 or less authors** you must list **all authors**.
- Where there are **7 or more author**s, only the **first 6 are listed** and **add "et al"** (after a **comma**).
- Put a comma and 1 space between each name. The last author must have a full-stop after their initial(s).

  Format: surname (**1 space**) initial/s (**no spaces or punctuation between initials**) (**full-stop OR if further names comma, 1 space**)

  Example: Smith AK, Jones BC, Bloggs TC, Ashe PT, Fauci AS, Wilson JD, et al.
- **When author/s is/are editor/s :**Follow the same methods used with authors but use the word **"editor"** or **"editors"** in full after the name/s. The word editor or editors must be in small letter. (**Do NOT** confuse with "ed."used for edition.)

  Example: Millares M, editor. Applied drug information: strategies for information management. Vancouver (WA): Applied Therapeutics Inc; 1998.

Sponsored by institution, corporation or other organization (including PAMPHLET)

E**xample**: Australian Pharmaceutical Advisory Council. Integrated best practice model for medication management in residential aged care facilities. Canberra: Australian Government Publishing Service; 1997.

1.2. Title of publication and subtitle if any

- Italics or underlining should be avoided.
- Only the first word of the titles (and words that normally begin with a capital letter) should be started with capital letter (except proper noun).

Format: title (**full-stop, 1 space**)

Example: Harrison's principles of internal medicine.

Example: Physical pharmacy: physical chemical principles in the pharmaceutical sciences.

Example: Pharmacy in Australia: the national experience.

1.3. Edition (other than the first)

Number of edition **other than first one** should be mentioned as **2nd, 3rd,10th ed.**

Example: Blenkinsopp A, Paxton P. Symptoms in the pharmacy: a guide to the management of common illness. 3rd ed. Oxford: Blackwell Science; 1998.

1.4. Place of publication (if there is more than one place listed, use the first one)

- The place name should be written in full.
- If the place **name is not well known**, add a comma, 1 space and the state or the country for clarification. For places in the USA, add after the place names the 2 letter postal code for the state. This must be in upper case. eg. Hartford (CN): (where CN=Connecticut).

Format: place of publication (**colon, 1 space**)

Example: Hartford (CN):

Example: Texas (NSW):

Example: Kyoto (Japan):

1.5. Publisher

The publisher's name should be spelled out in full.

Format: publisher (**semi-colon, 1 space**)

Example: Australian Government Publishing Service;

Example: Raven Press;

Example: Williams & Wilkins;

1.6. Year of publication

Format: year (full-stop, add 1 space if page numbers follow).

Example: 1999.

Example: 2000. p. 12-5.

1.7. Page numbers (if applicable).

- Abbreviate the word "page" to "p.".

Note: do not repeat digits unnecessarily

Format: p (**full-stop, 1 space**) page numbers (**full-stop**).

Example: p. 122-9 (**correct**); p. 122-129 (**incorrect**).

Example: p. 1129-57 (**correct**); p. 1129-157 (**incorrect**).

Example of citing a book: Lodish H, Baltimore D, Berk A, Zipursky SL, Matsudaira P, Darnell J. Molecular cell biology. 3rd ed. New York: Scientific American; 1995.

(*Name/s. Title. Edition(other than first). Place of publication: Publisher; year of publication. p. Page no*)

2. Citing a Chapter in an Edited Book (to which a number of authors have contributed)

- Name/s of author of the chapter
- Title of chapter followed by, In:
- Editor
- Title of book
- Series title and number (if part of a series)
- Edition (if not the first edition)
- Place of publication (if there is more than one place listed, use the first named)
- Publisher
- Year of publication
- Page numbers

(*Title of Chapter. In: Editor(s). Title of book and number. Edition (other than first). Place of publication: Publisher; year of publication. p. Page no*)

Example of citing a chapter in an edited book:

Porter RJ, Meldrum BS. Antiepileptic drugs. In: Katzung BG, editor. Basic and clinical pharmacology. 6th ed. Norwalk (CN): Appleton and Lange; 1995. p. 361-80.

3. Citing a Journal Article from a Print source

The essential details required are (in order):

- **Name/s of author/s of the article.**
  See step 1 of "Citing a book" for full details.
- **Title of article.**
  See step 2 of "Citing a book" for full details.

Example: Validation of an immunoassay for measurement of plasma total homocysteine.

- **Name of journal (abbreviated).**

- Abbreviate the name of the journal according to the style used in Medline.
- A list of abbreviations can be found at: http://w**ww.ncbi.nlm.nih.gov/entrez/query.fcgi?db=journals**

  Note: No punctuation marks are used in the abbreviated journal name.

Format: journal title abbreviation (1 space)

Example: Bang J Psychiatry

- **Year of publication (month or day should be omitted).**

Format: year (**semi-colon, one space**)

Example: 1996; 12(5): 127-33.

- **Volume number (and issue/part)**

  Format: volume number (**colon, one space**)

Example: 1996; 12(5): 127-33. Or
1996; 18: 1237-8.

- **Page numbers**

Note: Do not repeat digits unnecessarily

Format: page numbers (full-stop)

Example: 5310-5.

Example of citing a journal: Russell FD, Coppell AL, Davenport AP. In vitro enzymatic processing of radiolabelled big ET-1 in human kidney as a food ingredient. Biochem Pharmacol 1998; 55(5): 697-701.

Name(s). Title. Name of the Journal Year of publication; Volume Number (Session/Issue Number): Page Number.

- **No author given in article**

  Example: Coffee drinking and cancer of the pancreas [editorial]. BMJ 1981; 283: 628.

- **Journals with parts and/or supplements**

Examples

- **Volume with supplement**

  Environ Health Perspect 1994; 102Suppl 1: 275-82.

- **Issue with supplement**

  SeminOncol 1996: 23(1 Suppl 2): 89-97.

- **Volume with part**

  Ann ClinBiochem 1995; 32(Pt 3): 303-6.

4. Citing a Journal Article from Internet and Other Electronic Sources

This includes software and internet sources such as web sites, electronic journals and databases.

The **basic form** of the citations **follow the principles listed for print sources** (see above).

In the case of sources that may be subject to alteration it is important to acknowledge the **Date The Information Was Cited.** This is particularly true for web sites that may disappear or permit changes to be made and for CD-ROMS that are updated during the year.

4.1. Citing a Journal Article from the Internet

Note: Follow the same procedure for citing print journals as for electronic journals regarding date, volume pages and journal title

Format: Author/s (full-stop after last author, 1 space) **Title of article** (full-stop, 1 space)

Abbreviated title of electronic journal (1 space) **[serial online]** (1 space) **Publication year** (1space) **month(s)** - if available (1 space) **[cited year month (abbreviated) day]** - in square brackets (semi colon, 1 space) **Volume number** (no space) **Issue number** if applicable in round brackets (colon) **Page numbers or number of screens** in square brackets (full-stop, 1 space) **Available from** (colon, 1 space) URL:**URL address underlined**

Examples:

- Morse SS. Factors in the emergence of infectious disease. Emerg Infect Dis [serial online] 1995 Jan-Mar [cited 1999 Dec 25]; 1(1):[24 screens]. Available from:URL: http://www/cdc/gov/ncidoc /EID/eid.htm
- Garfinkel PE, Lin E, Goering P. Should amenorrhoea be necessary for the diagnosis of anorexia nervosa? Br J Psych [serial online] 1996 [cited 1999 Aug 17]; 168(4):500-6. Available from: URL:http://biomed. niss.ac.uk

4.2. Citing a Journal Article from WWW site

(If the author is not documented, the title becomes the first element of the reference.)

Format: Author (full-stop after last author, 1 space) **Title** (full-stop, 1 space) **[Online]** (full stop, 1 space) **Publication Year** (1 space) **[cited year month (abbreviated) day]** (semi colon) **Number of screens in square brackets or pages** (full-stop, 1 space) **Available from** (colon, 1 space)

URL: (no space) **URL address underlined**

Note: The number of screens is not necessary. Put a semi colon and 1 space after the cited date if no pages or screen numbers are listed.

When the date is approximated, indicate that by following the date with a question mark and inserting the statement in square brackets. Eg. [2001?]

Examples: National Organization for Rare Diseases [Online]. 1999 Aug 16 [cited 1999 Aug 21]; Available from: URL:http://www.rare diseases.org/

Royal College of General Practitioners.The primary health care team.[Online]. 1998 [cited 1999 Aug 22];[10 screens]. Available from:URL: http:// ww. rcgp.org.uk/informat/publicat/rcf0021.htmZand J. The natural pharmacy: herbal medicine for depression [Online]. [1999?] [cited 2001 Aug 23];[15 screens]. Available from:

URL:http://www.healthy.net/asp/templates/Article.asp?PageType=Article&Id=920

Important Points For Reference List

- For **online material**, please cite the **URL**, together with the **date you accessed** the website
- **Online journal** articles can be cited using the Digital Object Identifier **(DOI)** number

Samples of Reference List

A list of references contains details of those works cited in the text.

The references are listed in the same numerical order as they appear in the body of the text

1. Getzen TE. Health economics: fundamentals and flow of funds. New York (NY): John Wiley & Sons; 1997.
2. Millares M, editor. Applied drug information: strategies for information management. Vancouver, WA: Applied Therapeutics, Inc.; 1998.
3. Australian Government Publishing Service. Style manual for authors, editors and printers. 5th ed. Canberra: Australian Government Publishing Service; 1994.
4. Australian Pharmaceutical Advisory Council. Integrated best practice model for medication management in residential aged care facilities. Canberra: Australian Government Publishing Service; 1997.
5. Bennett GL, Horuk R. Iodination of chemokines for use in receptor binding analysis. In: Horuk R, editor. Chemokine receptors. New York (NY): Academic Press; 1997. p. 134-48. (Methods in enzymology; vol 288).
6. Coffee drinking and cancer of the pancreas [editorial]. BMJ 1981;283:628.
7. Morse SS. Factors in the emergence of infectious disease. Emerg Infect Dis [serial online] 1995 Jan-Mar [cited 1996 Jue 5]; 1(1):[24 screens]. Available from: URL:http:// www. cdc.gov/ ncidoc/EID/eid.htm

I A. 7. Conflict of interest

All authors are requested to disclose any actual or potential conflict of interest including any financial, personal or other relationships with other people or organizations.

It is important to be consistent when you are referencing.

I A. 8. Tables and Illustrations (Figures)

I A. 8 a) Tables

- In tables, capture information concisely and display it efficiently.
- Use tables /fig that are relevant to the study.
- Try to limit the number of tables/figures.
- Type or print each table with double-spacing on a separate sheet of paper. Number tables consecutively in the order of their first citation in the text and supply a brief title for each.
- Do not use internal horizontal or vertical lines. Give each column a short or an abbreviated heading. Authors should place explanatory matter in footnotes, not in the heading. Explain all nonstandard abbreviations in footnotes, and use the following symbols, in sequence:

  *, †, ‡, §, _, ¶, **, ††, ‡‡, §§, _ _, ¶¶, etc.
- Identify statistical measures of variations, such as standard deviation and standard error of the mean.
- Be sure that each table is cited in the text. If you use data from another published or unpublished source, obtain permission and acknowledge that source fully.

I A. 8 b) Illustrations (Figures)

Figures should be either professionally drawn and photographed, or submitted as photographic-quality digital prints. In addition to requiring a version of the figures suitable for printing, (for example, JPEG / GIF).

- Review the images of such files on a computer screen before submitting them to be sure that they meet their own quality standards. For x-ray films, scans, and other diagnostic images, as well as pictures of pathology specimens or photomicrographs, send sharp, glossy, black-and-white or color photographic prints, usually 127 _ 173 mm (5 _ 7 inches).
- Letters, numbers, and symbols on figures should therefore be clear and consistent throughout, and large enough to remain legible when the figure is reduced for publication.
- Photographs of potentially identifiable people must be accompanied by written permission to use the photograph.
- Figures should be numbered consecutively according to the order in which they have been cited in the text.

- If a figure has been published previously, acknowledge the original source and submit written permission from the copyright holder to reproduce the figure. Permission is required irrespective of authorship or publisher except for documents in the public domain.
- For illustrations in colour, MH Samorita Med Coll J accept coloured illustration when it seems essential. This Journal publish illustrations in colour only if the author pays the additional cost. Authors should consult the editorial board of the journal about requirements for figures submitted in electronic formats.

I A. 8 c) Legends for Illustrations (Figures)

- Type or print the legends for illustrations using double spacing, starting on a separate page, with Arabic numerals corresponding to the illustrations.
- When symbols, arrows, numbers, or letters are used to identify parts of the illustrations, identify and explain each one clearly in the legend. Explain the internal scale and identify the method of staining in photomicrographs.

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- Measurements of length, height, weight, and volume should be reported in metric units (meter, kilogram, or liter) or their decimal multiples.
- Authors should report laboratory information in both local and International System of Units (SI).
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I A. 10. Abbreviations and Symbols

- Use only standard abbreviations; use of nonstandard abbreviations can be confusing to readers.
- Avoid abbreviations in the title of the manuscript.
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- **General outline for article presentation and format**
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- Headings in title case (not ALL CAPITALS, not underlined)
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- References according to the journal's instructions – abide by the rules of Vancouver Style.
- **Language and grammar**
- Uniformity in the language
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- Not more than 200 words for case reports and 250 words for original articles
- Structured abstract including introduction, methods, results and conclusion are provided for an original article and introduction, case report and conclusion for case reports.
- Key words provided – arrange them in alphabetical order should be 3-5 in number.
- **Introduction**
- Word limit 150 -200 words
- Pertinent information only
- **Material and Methods**
- Study Design
- Duration and place of study
- Ethical approval
- Patient consent
- Statistical analysis and software used.
- **Results**
- Clearly present the data
- Avoid data redundancy
- **Discussion**
- Avoid unnecessary explanation of someone else' work unless it is very relevant to the study
- Provide and discuss with the literatures to support the study with references.
- Mention about limitation of the study
- **Conclusion**
- Give your conclusion
- Any recommendation
- **Acknowledgement**
- Acknowledge any person or institution who have helped for the study
- **Reference**
- Abide by the Vancouver style
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- Figures

Editorial

Reproductive Health Situations in Bangladesh

Alam MU

Reproductive health refers to the overall well-being of individuals in relation to the reproductive system. The World Health Organization defines it as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes[1]. Key areas of reproductive health for women include maternal health, family planning and menstrual hygiene management.

Maternal health involves the well-being of women during pregnancy, childbirth and the postpartum period. While most pregnancies and births occur without complications, they always carry some level of risk. Around 15% of pregnant women will develop potentially life-threatening conditions requiring skilled medical care, and some may need major obstetric interventions to survive[2]. Regular visits to healthcare providers during pregnancy are crucial for the health of the mother and her child. The percentage of women receiving at least four antenatal care visits varies greatly between nations. In Bangladesh 41% of women received the WHO recommended four or more antenatal care visits from a health care provider during their pregnancy. Only 21% of women received quality ANC, which includes four or more visits with at least one from a medically trained provider, measurement of weight and blood pressure, blood and urine tests, and information on potential danger signs. Women in urban areas are twice as likely to receive quality ANC compared to those in rural areas (33% versus 17%). Seventy percent of deliveries were attended by medically trained providers, with 56% of these births assisted by a qualified doctor. While 65% of deliveries in the last two years took place in health facilities, only 55% of mothers reported receiving postnatal care (PNC) from a trained provider within two days of delivery[3].

Bangladesh has made significant strides in reducing maternal and child mortality over the past two decades, particularly during the Millenium Development Goals (MDGs) period. The maternal mortality ratio (Per 100,000 live births) dropped from 574 in 1990/91 to 181 in 2015, coming close to the MDG target of 143[4]. With a maternal mortality ratio of 136 per 100,000 live births in 2023, Bangladesh is still far from meeting the SDG target of reducing maternal mortality to fewer than 70 per 100,000 live births by 2030[5].

Sixty four percent of currently married women aged 15 - 49 years in Bangladesh are using contraceptives. The majority (55%) use modern methods, while 9% use traditional methods. The oral pill is the most common contraceptive method (27%), followed by injectables (11%) and condoms (8%). Only 8% of women use long - acting reversible contraceptives or permanent methods[6]. The unmet need for family planning among currently married women aged 15 - 49 decreased from 12% in 2017 - 18 to 10% in 2022.

The total fertility rate (TFR) has remained stable at 2.3 since 2011. The percentage of women marrying before the age 18 dropped from 65% in 2011 to 50% in 2022, while 23% of women aged 15 - 19 have either had a child or are pregnant with their first child. Despite a decline in the fertility rate, early child bearing remains common, especially among the poor[3].

The average age of menarche in Bangladesh is 12.8 years for ever - married female adolescents and 12.9 years for unmarried female adolescents. However, fewer than one - fourth (23%) of ever - married girls and less than one - third (30%) of unmarried girls had knowledge about menstruation before they began menstruating. Despite the widespread use of disposable menstrual material, hygienic menstrual practices remain low. Only 9% of ever - married and 12% of unmarried adolescent girls practice proper menstrual hygiene[7].

Bangladesh would need to focus on increasing political commitment to reproductive health,

focusing interventions on high fertility and high MMR areas; addressing human resource constraints; and harnessing the use of technology.

(MH Samorita Med Coll J 2024; 7(2): 56-57)

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Original Article

Exploring the Association between Contraceptive Use and Women's Tolerance towards Domestic Violence: Evidence from MICS 2019 Survey

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Abstract

Introduction: *Access to contraception is crucial for preventing unintended pregnancies and promoting reproductive rights. In Bangladesh, the contraceptive prevalence rate (CPR) has increased over the decades. However, domestic violence (DV) remains a major concern. Women who experience DV are more likely to have unintended pregnancies and abortions. This study aimed to assess the relationship between contraceptive use and women's tolerance of DV in Bangladesh.*

Materials & Methods: *Data from the Bangladesh Multiple Indicator Cluster Survey (MICS) 2019 was used for the study. The sample size was 47,692 women aged 15-49 years; data were analyzed using STATA (version 17). A p-value of <0.05 was considered as significant. Logistic regression model was developed to examine the association between independent and dependent variables.*

Results: *The study found a contraception utilization rate of 66.5% among Bangladeshi women of reproductive age. Factors associated with contraceptive use included age (p=<0.001), residence (p=0.015), education level of the woman (p<0.001), marital structure (p<0.001), wealth index (p<0.001), and tolerance for domestic violence (p<0.001). Women with high tolerance towards domestic violence had higher odds (AOR: 1.1; 95% CI: 1.017-1.189; p = 0.017) of using contraception than women with no tolerance.*

Conclusion: *Programs and policies are needed to promote contraceptive use in Bangladesh. Efforts should target socioeconomic, cultural, and psychological factors and barriers which are faced by women exposed to domestic violence. By tackling these challenges, programs, and policies can effectively promote contraception use and improve women's reproductive health.*

Keywords: *Contraceptive use; Domestic Violence; Sexual health; Bangladesh*

(MH Samorita Med Coll J 2024; 7(2): 58-65)

Introduction

The well-being of individuals and the community highly depends on women's reproductive health and access to contraception.[1] Unintended pregnancies can be prevented, leading to a greater control over the reproductive rights, if individuals gain adequate access to contraceptives (CP). Additionally, high-risk pregnancies can be reduced, and maternal and child health can be promoted by ensuring proper access to contraception.[1] Improved gender equality and women's education, reduced poverty, etc., are known to be associated with the use of contraception.[2]

Family planning services are crucial to achieving sustainable development goals in low- and middle-income countries, as these countries account for most maternal and newborn deaths.[3] Family planning or

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contraceptive methods reduce unexpected pregnancies, unsafe abortions, HIV/AIDS, and other STDs.[4-7] Contraception helps to achieve demographic, socioeconomic, and environmental goals, especially in nations with high fertility rates.[6] More and more research is being conducted on family planning, showing how different factors at the individual, family, geographical, sociocultural, and healthcare system levels can affect how people either use contraceptives sub optimally or don't use these methods effectively.

In the Southeast Asian region the fertility rate is quite high, including in Bangladesh. In this country, 16.744 births will occur per 1000 people in 2023.[8] However, the proportion of couples using contraceptive methods, also known as the contraceptive prevalence rate (CPR), has risen dramatically in the recent years, from only 8.0% in 1975 to 62.4% in 2014.[9-10] This rising trend in contraceptive prevalence offers many benefits. One such benefit is the declining of the total fertility rate (TFR); from 6.3 children per woman in 1975 to 2.3 in 2014.[9] It also reduced newborn mortality rates from 88.0 deaths per 1000 live births in 1993-94 to 38.0 in 2014.[11-12] However, CPR and TFR advancements have stagnated recently. In 2017, the CPR was 62.0%, equal to 2014, while the TFR has been 2.3 children per woman since 2011.[10,13] In some cases, the challenges surrounding family planning are more complicated and linked to sociocultural structures, such as discrimination based on gender or domestic violence (DV).[14] These issues may be difficult to address through typical intervention strategies as they may be deeply ingrained in society. Women frequently experience domestic violence, although men can also be victims.[15]

The mistreatment of female family members within households is not uncommon and has been happening for a long time. The types of violence, both physical and psychological, differs greatly across societies and cultures. Bangladesh is no exception, and both urban and rural women have been significantly affected by domestic violence.[16] Over the past decade, many atrocious instances of domestic violence against women have led experts and professionals to recognize its detrimental effects on society as a whole and develop effective measures to address it.

Bangladesh has one of the highest rates of violence against women globally, with 50 to 70 percent of women in the country reporting abuse by their male partners.[17] In Bangladesh, domestic violence is a major concern affecting individuals from all walks of life in rural and urban areas. Usually, the spouse is the one who commits violence against their partner. Distressingly, this violence has become a deeply ingrained cultural norm in Bangladeshi society, handed down from generation to generation. The idea that domestic violence is more prevalent among rural women due to limited access to human rights organizations and lack of awareness of their rights, while urban women are less likely to be victims, is often discussed.[18] However, the probability of experiencing domestic violence is equal for women residing in rural as well as urban areas in Bangladesh.[19]

Domestic violence has been linked with an increased rate of unwanted childbirth, primarily through the restrictive practice of contraception by reproductive women. Studies suggest that tolerance towards DV may account for the limitation or nonuse of contraceptive methods among women of reproductive age. However, most of these studies have been conducted in the Western world and underdeveloped nations still lag in exploring such relationships.[20-22] This study aims to assess the relationship between contraceptive use and women's tolerance of domestic violence in Bangladesh.

Materials and Methods

Data overview

This study used nationally representative data from the Bangladesh Multiple Indicator Cluster Survey (MICS) 2019. Enumeration areas (EAs) were chosen as the primary sampling entities for the survey's two-stage sampling strategy. Initially, 3220 EAs were selected from 64 districts using a probability proportional to size method. In the second stage, 20 households were randomly selected from each cluster (EA), yielding a total sample size of 64,400 households, with approximately 1,000 households from each stratum. The MICS questionnaire for individual women (15-49 years) was then administered face-to-face to selected individuals in the household. All variables in this study were measured and recorded based on the responses of the individuals during interviews.[23]

Women aged 15 to 49 years were included in the present study from the survey's publicly accessible women dataset (wm file), then relevant variables

were merged from the households dataset (hh file), and household members dataset (hl file). A total of 47,692 women were considered for analysis after excluding individuals who did not provide explicit consent, pregnant women at the time of interview, and missing values for women on information regarding current contraceptive use, and tolerance towards domestic violence.

Operational definitions of the variables

Methods of contraceptive use

In our study data were collected on methods of contraceptive use by women of reproductive age. These methods included: male condoms, female condoms, diaphragm, foam or jelly, female sterilization, male sterilization, intrauterine device, injectables, implants, oral contraceptives, lactational amenorrhea method, periodic abstinence or rhythm, withdrawal, and "others." Women who did not use any of the aforementioned methods were categorized as "No" and coded as "0", and women who used at least one of these methods were categorized as "Yes" and were coded as "1".

Tolerance towards DV

Tolerance towards DV was another variable considered in our study. It was calculated using the participant's answer to 5 questions that asked if the participant thought "a man was justified for hitting his wife" in the following situations: 1. Going out without telling him, 2. Neglecting the children, 3. Arguing with him, 4. Refusing to have sex with him, and 5. burning the food. For each question, the options were: "Yes," "No," and "Don't know." These items were recoded using 0 for "No" and "Don't know" and 1 for "Yes." Then all five items were added to get a variable that showed the number of reasons for DV approved by each participant, which ranged from 0 to 5. Next, this new variable was categorized using 3 categories: "No tolerance" (if no reason was approved), "Low tolerance" (if 1-3 reasons were approved), and "High tolerance" (if 4-5 reasons were approved).

Access to media

Media access was assessed by reading newspapers, listening to the radio, and watching TV. A new variable, "Media access," was created using the summation of 3 variables: frequency of reading newspapers or magazines, frequency of listening to the radio, and frequency of watching TV. This variable had 3 categories: Poor access (0–3 score), Moderate access (4–6 score), and Good access (7–9 score).[24]

Marital structure

Marital structure was considered as such: Women whose husband had more than one wife were considered as having polygamous marriage, and women whose husband had only one wife were considered as having a monogamous marriage.

Statistical analysis

The present investigation employed STATA (version 17) to aggregate various datasets and conduct data analysis. We computed frequency distribution, percentage, mean, and standard deviation for descriptive statistics. Continuous data were presented as mean and standard deviation, whereas categorical variables were expressed as counts and percentages. Concerning inferential statistics, the Chi-square test was used to detect any association between categorical variables. Furthermore, we developed a logistic regression model, incorporating all significant variables identified by the chi-square tests, to assess the strength of association. The level of significance was set at $p<0.05$.

Results

The procedure used to select participants for this investigation is described in detail in Figure 1.

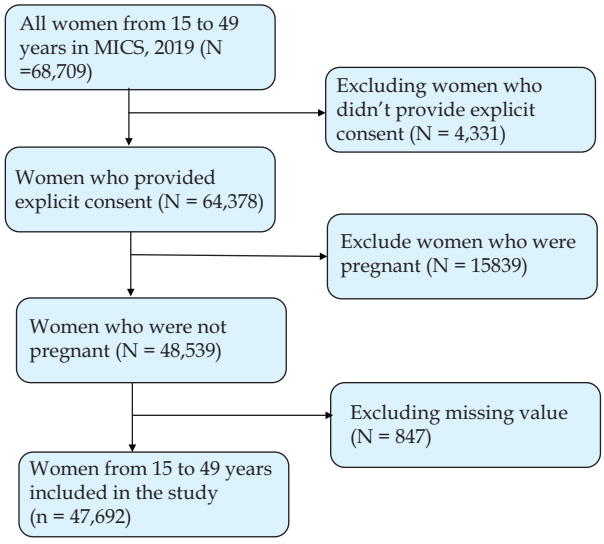

Figure 1: *Selection of women of reproductive age (15-49) from the MICS 2019, Bangladesh*

Table 1 shows the demographic characteristics of Bangladeshi women of reproductive age (15-49). The study enrolled a total of 47,692 individuals. Out of which, most (41.7%) belonged to 35-49 years age group. Most of the participants (80.2%) in this study were from rural areas and most (43.0%) had secondary education. Majority of the women (96.7%) had a monogamous marriage. Regarding the wealth index, most participants (21.0%) were from the poor quintile, and only 17.3 % were from the richest quintile. Poor media access was found among 94.8% of the study participants.

The study found that most (72.5%) had no tolerance regarding reasons for domestic violence. However, 7.1% of participants showed high tolerance. Regarding contraceptive use, most participants (66.5%) used contraceptive methods.

Table 2 shows that methods of contraception use was significantly associated with age group ($p<0.001$), residence ($p<0.015$), educational level of the women ($p<0.001$), marital structure ($p<0.001$), wealth index quintile ($p<0.001$), and tolerance towards DV ($p<0.001$).

Using binary logistic regression, a multivariate analysis of all factors' significance at 95% CI was conducted. It was found that age, area, educational level of the women, residence, and educational level of the women, marital structure, wealth index quintile, and tolerance towards DV were significantly

Table 1: Demographic characteristics of Bangladeshi women of reproductive age (15-49) (n=47692)

Characteristics	Frequency (n)	Percentage
Age group (n=47692)		
15-24 years	10251	21.5
25-34 years	17542	36.8
35-49 years	19899	41.7
Residence		
Urban	9460	19.8
Rural	38232	80.2
Educational level of the women		
Pre-primary or none	8822	18.5
Primary	12388	26.0
Secondary	20484	43.0
Higher secondary or more	5998	12.6
Marital Structure (n=47665)		
Polygamous	1543	3.2
Monogamous	46122	96.7
Wealth index quintile		
Poorest	9847	20.6
Poor	10022	21.0
Middle	9954	20.9
Rich	9600	20.1
Richest	8269	17.3
Media access (n=47672)		
Poor access	45214	94.8
Moderate access	2340	4.9
Good access	118	0.2
Tolerance towards DV		
No tolerance	34578	72.5
Low tolerance	9723	20.4
High tolerance	3391	7.1
Method of contraception		
No	15962	33.5
Yes	31730	66.5

DV: Domestic violence.

associated with the use of CP. The odds of CP use were 1.38 times higher among women in the age group 25-34 years compared to those in the age group of 15-24 years (95% CI: 1.31- 1.46, p-value<0.001). Regarding residence, women living in rural areas had 0.75 (95% CI: 0.71-0.79, p-value<0.001) times lower odds of using CP than women of urban areas. In respect to educational level, those who belonged to the primary education, secondary education, and higher secondary or more education had AOR of using CP 1.21 (95% CI: 1.14-1.29; p-value<0.001), 1.26 (95% CI: 1.19-1.34; p-value <0.001) and 1.22 (95% CI: 1.12-1.32; p-value<0.001) respectively, compared to the group pre-primary or none. Women in polygamous marriages had lower odds of using CP than those in monogamous relationships (AOR=0.58; CI: 0.52-0.64; p-value<0.001). Belonging to a higher quintile families decreased the odd of contraceptive use. Regarding tolerance towards DV, women with high tolerance had lower odds of (AOR: 1.10; CI: 1.02-1.19; p-value<0.017) compared to those who had no tolerance. (Table 3).

Table 2: Association between Contraceptive use and important characteristics

Characteristics	Methods of contraception		p-value
	No n (%)	Yes n (%)	
Age			<0.001
15-24 years	3644 (22.8)	6607 (20.8)	
25-34 years	5092 (31.9)	12450 (39.2)	
35-49 years	7226 (45.3)	12673 (39.9)	
Residence			0.015
Urban	3066 (19.2)	6394 (20.2)	
Rural	12896 (80.8)	25336 (79.8)	
Educational level of the women			<0.001
Pre-primary or none	3179 (19.9)	5643 (17.8)	
Primary	3923 (24.6)	8465 (26.7)	
Secondary	6665 (41.8)	13819 (43.6)	
Higher secondary or more	2195 (13.8)	3803 (12.0)	
Marital Structure			<0.001
Polygamous	694 (4.3)	849 (2.7)	
Monogamous	15261 (95.7)	30860 (97.3)	
Wealth index quintile			<0.001
Poorest	2904 (18.2)	6943 (21.9)	
Poor	2861 (17.9)	7161 (22.6)	
Middle	3391 (21.2)	6563 (20.7)	
Rich	3544 (22.2)	6056 (19.1)	
Richest	3262 (20.4)	5007 (15.8)	
Media access			0.151
Poor access	15091 (94.6)	30123 (95.0)	
Moderate access	826 (5.2)	1514 (4.8)	
Good access	41 (0.3)	77 (0.2)	
Tolerance of DV			<0.001
No tolerance	11741 (73.6)	22837 (72.0)	
Low tolerance	3166 (19.8)	6557 (20.7)	
High tolerance	1055 (6.6)	2336 (7.4)	

DV: Domestic violence.

Table 3: Binomial Multivariate logistic regression analysis of contraceptive use and significant independent variables

Predictor					95% CI	
		B	Sig.	AOR	Lower	Upper
Age	15-24 years	Ref				
	25-34 years	0.32	<0.001	1.38	1.31	1.46
	35-49 years	0.05	0.102	1.06	0.99	1.11
Residence	Urban			Ref		
	Rural	-0.29	<0.001	0.75	0.71	0.79
Educational level of the women	Pre-primary or none			Ref		
	Primary	0.20	<0.001	1.21	1.14	1.29
	Secondary	0.23	<0.001	1.26	1.19	1.34
	Higher secondary or more	0.19	<0.001	1.22	1.12	1.32
Marital Structure	Monogamous			Ref		
	Polygamous	-0.54	<0.001	0.58	0.52	0.64
Wealth index quintile	Poorest			Ref		
	Poor	0.03	0.349	1.03	0.97	1.10
	Middle	-0.26	<0.001	0.77	0.72	0.82
	Rich	-0.43	<0.001	0.65	0.61	0.69
	Richest	-0.65	<0.001	0.52	0.48	0.56
Tolerance of DV	No tolerance			Ref		
	Low tolerance	0.01	0.575	1.01	0.97	1.07
	High tolerance	0.10	0.017	1.10	1.02	1.19

DV: Domestic Violence; Reference category of dependent variable: No

Discussion

The present study was conducted with data derived from MICS 2019, Bangladesh. The study aimed to investigate the use of contraception among Bangladeshi women of reproductive age (15-49 years) and its association with tolerance to domestic violence and other factors. This study found that the overall rate of contraceptive use was 66.5%, which collaborates with another study conducted in Bangladesh, which reports that 66.8% of participants used contraceptives.[25]

In the current study, women in the age group of 25-34 years were more likely to use contraception than women in the age group of 15-24 years. It is likely because women aged 25-34 years are more likely to have already experienced pregnancy and likely to have high awareness regarding family planning. Our finding has exact similarity with another Bangladeshi study conducted on contraceptive use in employed and unemployed women.[26]

The current study also suggests that women who live in rural areas are less likely to use contraception than women who live in urban areas. Women from urban areas usually have more self-autonomy and awareness regarding contraceptive use than women from rural areas. Moreover, they have better access to healthcare and family planning. Similar findings were found in one study conducted in 2020.[26]

The study found that women with higher level of education use contraceptive method more than women with lower levels of education. This finding collaborates with the claim of another research conducted in 2000.[27] A higher level of education is known to increase awareness regarding the benefits of contraception and know-how regarding how to access them.

The current study indicates that women who are in monogamous marriages are more likely to use contraception than women who are in polygamous marriages. Women in polygamous marriages often suffer from an unstable household, lack of communication skills, and self-autonomy. A similar finding has been obtained in a study on polygamy with contraceptive use.[28]

The current study also reveals that women who belong to the wealthier quintiles were more likely to use contraception than those who belong to the poorer quintiles. It is because women in the wealthier quintiles have more access to healthcare services and information about contraception than their counterparts.

Women with a high tolerance towards domestic violence use fewer contraceptive methods than women without tolerance of domestic violence. This is because women with high tolerance towards DV usually suffer more atrocities of DV, making them vulnerable and unable to demand contraceptive access. A similar finding has been obtained from a study conducted in seven countries in West and central Africa.[2]

The study had several strengths and limitations. It utilized data from the MICS 2019 Bangladesh survey, a nationally representative survey. Also, the sample size used in this study was large. It also collaborates findings from several studies conducted in Bangladesh, adding to the existing knowledge. However, the study's cross-sectional design renders it unable to establish causality. Moreover, as the study uses self-reported data, the possibility of recall bias must be addressed.

Conclusion

The study's findings have implications for the development of programs and policies to promote the use of contraception in Bangladesh. The findings suggest that programs and policies should focus on increasing access to contraception for women regardless of their age, educational level, household area, wealth index, marital status, and tolerance towards domestic violence. In addition, the current study findings suggest that programs and policies should focus on rural areas and target vulnerable populations like women with moderate or high tolerance towards DV. Other barriers like fear of their partners, fear of expressing the desire to use contraception, and lack of access to health care services may also hamper the rate of contraceptive use. Addressing these barriers, programs, and policies can help increase the use of contraception and improve the reproductive health of women in Bangladesh.

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Original Article

Spectrum of Pediatric Renal Dieases in a Tertiary Care Hospital in Bangladesh

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Abstract

Introduction: *The pattern of kidney diseases varies in different population and is also influenced by genetic predisposition, geographic location and environmental background. There is limited information regarding the burden of kidney diseases in children mostly in developing countries.*

Objective: *The objective of this study was to find out the spectrum of renal diseases among pediatric population at a tertiary care hospital.*

Materials and Methods: *This was a retrospective observational study done in the Department of Pediatrics, Sir Salimullah Medical College Mitford Hospital, from January 2022 to December 2022. All cases of renal diseases of age group from 1 month to 12 years were included in this study. Renal diseases were categorized as per standard definitions.*

Results: *During the study period, renal disease accounted to be 475 cases (4.7%) of total pediatric admission. There were 283 males (59.5%) and 192 females (40.5%) with a male to female ratio of 1.4:1. Mean age was 6 years 8 month and most of the cases belonged to the age group 5-12years. Nephrotic syndrome was the most common renal disease, accounted for 53.3% (253cases), followed by urinary tract infection 26.7% (127cases) and acute glomerulonephritis 9.8% (46cases). Posterior urethral valve was the commonest congenital anomaly of kidney & urinary tract with 10 cases (2.1%). About 96.6% patients were discharged from hospital after recovery.*

Conclusion: *This study reflects a high burden of renal and urinary tract diseases among hospitalized children. The most common renal diseases were Nephrotic syndrome followed by urinary tract infection and acute glomerulonephritis. The commonest congenital anomaly was posterior urethral valve.*

Keywords: *Renal diseases, Nephrotic Syndrome, Urinary tract infection, Acute glomerulonephritis, Congenital Anomalies of Kidney & Urinary Tract*

(MH Samorita Med Coll J 2024; 7(2): 66-70)

Introduction:

Kidney diseases have become one of the important cause of morbidity and mortality among children worldwide.[1] There is increasing prevalence of chronic kidney disease (CKD) with an annual incidence rate of 8% globally.[2] In general, the

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prevalence of pediatric renal diseases varies between 1.2% to 16.5% of total pediatric admission.[3] The pattern of pediatric kidney diseases varies from one geographic region to another and also within the same country.[4,5] The variation is influenced by genetic predisposition, racial and environmental background.[6]

Spectrum of childhood kidney diseases start from Congenital Anomalies of Kidney & Urinary Tract (CAKUT) such as obstructive uropathy and other congenital urological manifestations to acquired kidney disorders such as glomerulonephritis, renal stone and urinary tract infections(UTI).[7]

An important noticeable feature regarding pediatric renal diseases that there is a difference in the occurrence of disease with age as well as variation in the manifestation of same disease at different phases of childhood: tubular disorders are predominant during infancy and early childhood, while majority of glomerular diseases are usually seen beyond the first few years of life.[8]

In children, a lot of signs of kidney diseases are either hidden or they mimic other systemic diseases such as growth retardation, failure to thrive, recurrent vomiting and respiratory distress could be the only signs of CKD or tubular disorder.[8]

A delay in the diagnosis of acute kidney injury(AKI) and CKD often contribute to the poor outcomes, as it is mostly seen in the developing countries. Identification of renal disorders at early stage with regular monitoring can retard the rapid progression. So, by knowing the pattern of the most prevailing renal diseases in a particular setting allows for a more focused preventive measures that will reduce the burden of renal diseases to some extent.

Due to the absence of a national registry, data regarding pediatric kidney diseases are scanty in Bangladesh. A study from a district hospital reported that, about 4.4% of hospital admission were due to renal related problems.[9] Therefore, the aim of this study was to see the spectrum of renal diseases among children.

Materials & Methods:

This retrospective observational study was conducted at the Department of Pediatrics, Sir Salimullah Medical College Mitford Hospital, Dhaka, Bangladesh from January 2022 to December 2022. All patients aged 1 month to 12 years diagnosed with renal disorders were enrolled. During the study period in patients with AKI, only peritoneal dialysis services were utilized. Children aged <1 month who were routinely seen by Neonatologists and patients who had inadequate data were excluded from this study.

The medical records of the patients were retrieved and reviewed to extract on the data which are- age at presentation, gender, presenting complaints, diagnosis, treatment modalities and disease outcome. Children readmitted for the same renal disorder were counted only once at the initial presentation. In the course of Nephrotic Syndrome(NS), during multiple visit and admission diagnosis was being changed from first to last visit like first attack NS became infrequent relapse nephrotic syndrome(IFRNS), frequent relapse nephrotic syndrome(FRNS), steroid dependent nephrotic syndrome(SDNS) or others. In that case, final diagnosis from the last visit was taken as diagnosis. The outcome variables included discharge with improvement, referred and death.

Ethical consideration:

Before conduction of the study, ethical approval was obtained from the Institutional Ethical Committee.

Statistical analysis:

Data obtained were analyzed using Statistical Package for Social Science (SPSS) version 22. Continuous variables were expressed as mean and standard deviation (SD). Qualitative variables were expressed as percentages. The incidence of childhood kidney disease was calculated as proportion of total number of pediatric admissions diagnosed with a kidney condition.

Results:

During the study period January 2022 to December 2022 total 10,105 patients were admitted. Among them 475 patients had kidney and urinary tract derangement.

Table 1: Age distribution of the study participants.

Age	Frequency	Percentage (%)
< 1 year	28	5.9
1-5 years	213	44.8
5-12 years	234	49.3
Total	475	100

Table-1 shows that, 28 patients(5.9%) belonged to age group <1 year, most of the cases 234 patients (49.3%) belonged to age group 5-12 years with mean age 6 years 8 months and 213 patients (44.8%) belonged to age group 1-5 years.

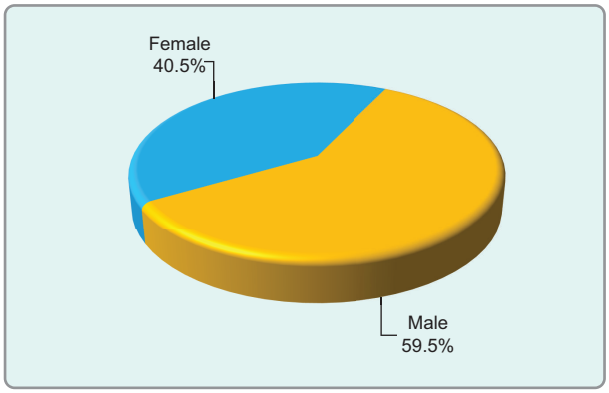

Figure-1: *Gender distribution of the study participants.*

Among the study participants 283(59.5%) were male and 192(40.5%) were female. Male to female ratio were 1.4:1(Fig.-1).

Table-2: Pattern of renal diseases.

Disease	Number	Percentage (%)
Nephrotic syndrome	253	53.3
Urinary tract infection	127	26.7
Acute glomerulonephritis (AGN)	46	9.8
Congenital anomaly of kidney & urinary tract	28	5.9
Acute kidney injury	11	2.3
Chronic kidney disease	4	0.8
Lupus nephritis	2	0.4
Renal tubular acidosis(RTA)	2	0.4
IgA vasculitis nephritis	1	0.2
Renal stone	1	0.2

Nephrotic syndrome was the most frequently encountered renal disease (53.3%) followed by UTI (2.7%), AGN (9.8%). Twenty eight children (5.9%) had congenital anomalies of kidney and urinary tract. AKI and CKD found in 2.3% and 0.8% cases respectively. Other cases were Lupus Nephritis(0.4%), RTA(0.4%), IgA vasculitis nephritis (0.2%), Renal stone(0.2%). (Table 2).

Table-3: Different varities of Nephrotic syndrome

Disease	Number	Percentage (%)
Infrequent relapse nephrotic syndrome	97	38.3
Nephrotic syndrome initial episode	73	28.8
Steroid dependent nephrotic syndrome	48	19
Frequent relapse nephrotic syndrome	29	11.5
Steroid resistant nephrotic syndrome	6	2.4

As shown in Table-3 among Nephrotic syndrome cases, infrequent relapse was present in 38.3% cases followed by initial episode in 28.8%, steroid dependent 19%, frequent relapse 11.5% and steroid resistant in 2.4% cases.

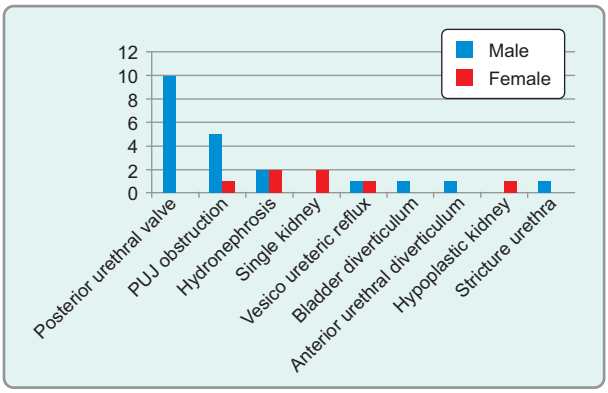

Figure-2: *Spectrum of congenital anomalies of kidney and urinary tract in study population*

There were 28 patients with CAKUT (Fig-2), among them most common causes were posterior urethral valve 10 cases. PUJ obstruction encountered in 6 cases, hydronephrosis 4 cases, single kidney 2 cases,

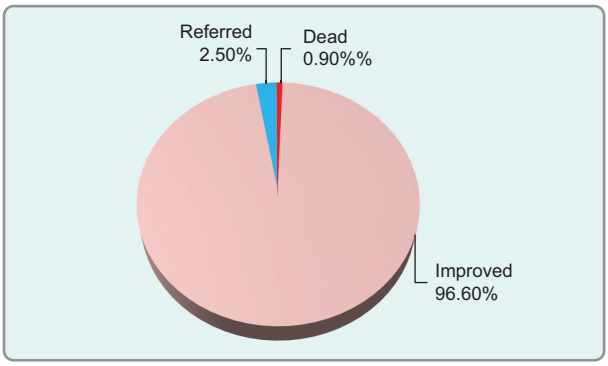

Figure 3: *Hospital outcome of the cases.*

VUR 2 cases. The boys with PUV were presented at earlier of age.

Four hundred fifty nine (96.6%) cases were discharged from hospital after clinical improvement. Four (0.9%) patients were expired due to AKI (1 patient) and nephrotic syndrome complicated with sepsis (3 patient). About 2.5% cases required referral in other sub specialities on account of need for surgical intervention(Fig.-3).

Discussion:

This study describes the pattern of renal diseases among the hospitalized children and their outcomes. The prevalence of renal disease in this study was 4.7% which was higher than 2.8% reported in Maharashtra[8] and 1.7% in Nigeria[10]. The higher prevalence of renal disease may be due to, it is a tertiary health care institution and there is a tendency to have more referrals. However, higher prevalence 5.8% and 6.9% has also been reported by Ali et al.[11] and Yadav et al.[12] respectively. Burden of Renal diseases among different countries differs due to difference in environmental factors, genetic predisposition, clinical and laboratory capacities to diagnose renal diseases.

Mean age of presentation in our study was 6 years 8 months and most of the cases belonged to the age group >5 years (49.3%) which closely corresponds to study done by Afroza et al.[13] and Tarannum et al.[14] The male:female ratio was 1.4:1 which was similar to other studies.[10,15]

Among the various renal diseases seen in this study, Nephrotic syndrome was found to be the most common kidney disease and occurred in 253 patients (53.3%). Similar result also found in other studies conducted in Maharashtra[8] and many other regions of the world.[13,14,16,17] The prominence of the symptoms of Nephrotic syndrome such as body swelling as well as reduction of urine output which may be very worrisome to the caregivers and causing them to present earlier in hospital facility with reduced chance of missed diagnosis. Among the Nephrotic syndrome cases infrequent relapse was predominant followed by initial episode, steroid dependent and frequent relapse. Only 6 cases had steroid resistance. These data were relatively similar to other studies.[8,13,14,16]

Urinary tract infection (UTI) was the second most prevalent renal disease in our study. The preponderance of UTI could be explained by the fact that most patients who presented with high fever were screened for UTI by urine analysis and also as the child grows older is able to express symptoms such as dysuria and loin pain that raises the index of suspicion and prompts him to investigate further. High prevalence of UTI was also reported in certain parts of Nigeria[10], Cameroon[18] and Kashmir.[19]

In our study AGN comprises 9.8% cases which was comparatively lower than other studies.[13,14] The post streptococcal glomerulonephritis remains the most common cause. Uncomplicated AGN usually managed in periphery, which may be attributed to the lower number of AGN in our study.

The prevalence of CAKUT in this study was 5.9%. CAKUT was the third common renal disorder reported in Kashmir[20] and Nepal.[21] Posterior urethral valve was the most common CAKUT reported in index study, this had been similarly reported in studies conducted in Nigeria[10], Dhaka[16], Nepal.[22]

It has been observed in this study that the number of AKI patients were relatively lower in comparison to other study.[14] The causes of AKI were sepsis mainly and Nephrotic syndrome in some cases. Increasing awareness, adequate hydration during diarrhoeal disease, immunization against rota virus which is the most common cause of acute watery diarrhea with its potential to cause AKI from severe dehydration may contribute to the lower incidence of AKI in this study.

Conclusion:

This study showed a high burden of renal diseases among children that were admitted in hospital. Nephrotic syndrome was the most common cause in this study followed by urinary tract infection and posterior urethral valve was the commonest congenital anomaly of kidney & urinary tract. Boys were presented more commonly with kidney disease than girls and most of the cases belonged to age group 5-12 years.

Conflict of interest:

The authors declare no conflicts of interest.

Acknowledgement:

All authors would like to acknowledge the participants for participation in this work.

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Original Article

Cardiovascular Complications in Diabetic Patients: An Epidemiological Perspective from Bangladesh

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Abstract

Introduction: *Cardiovascular disease (CVD) is a leading cause of mortality worldwide and has become a major public health concern, particularly in developing countries like Bangladesh. As the country undergoes an epidemiological transition, non-communicable diseases (NCDs) especially the "fatal four": cardiovascular diseases, cancer, chronic respiratory diseases and diabetes – are rising at an alarming rate. Diabetes mellitus, a significant contributor to CVD, is highly prevalent in Bangladesh. Institutions like BIRDEM and the Diabetic Association of Bangladesh (BADAS) play a crucial role in diabetic care and research with Bangladesh hosting one of the largest diabetic outpatient populations globally.*

Objective: *The study aims to evaluate the relationship between diabetes mellitus and cardiovascular disease and assess the demographic patterns among affected individuals.*

Materials and Methods: *This cross-sectional study was conducted among patients attending the outpatient department of Ibrahim Cardiac Hospital & Research Institute, Dhaka. A purposive sampling method was employed to select respondents. Data were gathered through face-to-face interviews using a structured questionnaire and were analyzed using SPSS software.*

Results: *Among the respondents, 40% were in the 45–54 age group, and 28.7% were aged 35–44. A significant 68.74% of participants were found to suffer from cardiovascular disease. These findings suggest a strong association between diabetes mellitus and CVD.*

Conclusion: *Although the precise cause of diabetes remains elusive, numerous risk factors have been identified. The study indicates a close link between diabetes and cardiovascular disease, underscoring the urgent need for integrated preventive and management strategies. Improved coordination among healthcare providers and lifestyle modifications among patients are essential to curb this dual burden of disease.*

Keywords: *Diabetes Mellitus, Cardiovascular Disease, Bangladesh, Epidemiological Transition*

(MH Samorita Med Coll J 2024; 7(2): 71-75)

Introduction

Cardiovascular disease (CVD) remains the leading cause of mortality worldwide, accounting for approximately 17.9 million deaths annually, which represents 32% of all global deaths [1].

Among the numerous risk factors contributing to CVD, Diabetes Mellitus (DM) is recognized as a significant and independent risk factor that doubles the risk of developing heart disease and stroke [2,3].

Type 2 diabetes mellitus (T2DM), the most prevalent form of diabetes, is associated with chronic hyperglycemia, which leads to microvascular and macrovascular complications, including nephropathy, retinopathy, neuropathy, and notably atherosclerosis a key contributor to cardiovascular events [4].

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The pathophysiological link between diabetes and CVD includes insulin resistance, oxidative stress, chronic inflammation, endothelial dysfunction, and lipid abnormalities, all of which promote atherosclerotic plaque development and vascular stiffness [5,6].

According to the World Health Organization (WHO), individuals with diabetes are two to four times more likely to develop cardiovascular complications compared to non-diabetic individuals [7].

Globally, the burden of diabetes is rising dramatically; the number of people with diabetes is projected to increase from 171 million in 2000 to 366 million by 2030, with a substantial proportion of this growth occurring in low- and middle-income countries [8].

Bangladesh, as a developing country, is witnessing an alarming increase in both diabetes and cardiovascular disease, fueled by urbanization, sedentary lifestyle, obesity, and unhealthy dietary habits [9].

Evidence suggests that about 50% of people with diabetes die of cardiovascular disease, primarily from coronary artery disease and stroke [2,10].

Given the shared risk factors and synergistic damage caused by DM and CVD, early detection, effective management of diabetes, and modification of cardiovascular risk factors are crucial in reducing morbidity and mortality in affected populations [3,11].

Hence, this study aims to explore the prevalence and interrelationship of cardiovascular disease among diabetic patients in Dhaka, Bangladesh, to inform better prevention and intervention strategies.

Materials & Methods:

The present study was a descriptive cross-sectional study conducted at Ibrahim Cardiac Hospital & Research Institute in Dhaka to assess the prevalence and association of cardiovascular disease (CVD) among diabetic patients. A total of 115 participants with diagnosed diabetes mellitus were selected through purposive sampling based on defined inclusion and exclusion criteria. Data were collected using a semi-structured questionnaire through face-to-face interview in Bangla or English, along with relevant clinical records. Variables included age, gender, BMI, fasting/random blood glucose levels, duration of diabetes, lifestyle factors, and documented history of CVD (e.g., myocardial infarction, angina, stroke). Ethical clearance was obtained from the Ethical Review Board of American International University Bangladesh (AIUB) and informed written consent was secured from all participants, with strict adherence to confidentiality and privacy. Data were analyzed using SPSS version 25 and supported by Epi Info and Microsoft Excel, with descriptive and inferential statistics (Chi-square test, logistic regression, ANOVA) applied to examine relationships. The findings were presented through tables for clarity and interpretation.

Results:

Table 1: Frequency distribution of respondents by age (n=115)

Age in year	Frequency	Percentage
25-34	9	7.80
35-44	33	28.70
45-54	46	40
55-64	20	17.40
65-above	7	6.10
Total	115	100

Table no. 1 shows that, 40% were in the age group of 45-54,28.70% respondents belonged to 35-44 years of age, 17.40% belonged to 55-64 years of age, 7.80% in the age of 25-34 and 6.10% belonged to 65 years and above.

Table 2: Frequency distribution of respondents by sex (n=115)

Sex	Frequency	Percentage
Male	74	64.35
Female	41	35.65
Total	115	100

Table no. 2 shows that most of the respondents (64.35%) were male where as 35.65%were female.

Table 3: Frequency distribution of respondents by smoking (n=115)

Smoking habit	Frequency	Percentage
Smoker	97	84.35
Non-smoker	18	15.65
Total	115	100

Table no. 3 shows that, majority (84.35%) of the respondents had history of smoking and 15.65% were non-smoker.

Table 4: Frequency distribution of respondents by type of diabetes (n=115)

Type of diabetes	Frequency	Percentage
Type-1	21	18.26
Type-2	77	66.96
Gestational	17	14 .78
Total	115	100

Table no. 4 shows that, majority (66.96%) of the people had Type-2 Diabetes Mellitus,14.78% had

Gestational DM and 18.26% had Type-1 Diabetes Mellitus.

Table 5: Frequency distribution of respondents by method of control (n=115)

Method of control	Frequency	Percentage
Oral Medicine	39	33.91
Insulin	42	36.52
Diet only	4	3.47
Discipline only	2	1.72
All of the above	11	9.56
Un-controlled	17	14.72
Total	115	100

Table no. 5 shows that, majority (36.52%) of the people controlled their Diabetes by insulin (33.91%), controlled by taking oral medication (9.56%), followed all methods (3.47%), by only diet control (1.72%), by maintaining discipline and rest (14.72%) had no control over their DM.

Table 6: Frequency distribution of respondents by regular checkup (n=115)

Checkup	Frequency	Percentage
Regular	66	57.39
Irregular	11	9.57
Never	48	41.74
Total	115	100

Table no. 6 shows that, majority (57.39%) of the respondents had history of regular checkup, 9.57% had irregular and 41.74% never had checkup.

Table 7: Frequency distribution of respondents by family history of diabetes (n=115)

Family History	Frequency	Percentage
Yes	89	77.39
No	26	22.61
Total	115	100

Table 7 shows that, majority (77.39%) of the respondents had family history of DM and rest 22.61% didn't have any family history of DM.

Table 8: Frequency distribution of respondents by having any complication (n=115)

Complication	Frequency	Percentage
Yes	82	71.30
No	33	28.70
Total	115	100

Table 8 shows that, majority (71.30%) of the respondents had any complication and 28.70% had no complication.

Table 9: Frequency distribution of respondents by having any cardiac complication (n=82)

Cardiac Complication	Frequency	Percentage
Yes	56	68.29
No	26	31.71
Total	82	100

Table no. 9 shows that, majority 68.29% of the respondents had cardiac complication and 31.71% had no complication.

Table No. 10: Frequency distribution of respondents by fluctuation in blood sugar level (n=115)

Fluctuation in blood sugar	Frequency	Percentage
Yes	73	63.48
No	42	36.52
Total	115	100

Table no. 10 shows that, majority (63.48%) had fluctuation in their blood glucose level and 36.52% of the respondents had constant glucose level in control.

Discussion

The present study investigated the prevalence of cardiovascular disease (CVD) among diabetic patients admitted to a tertiary-level hospital in Dhaka, with the aim of identifying demographic patterns, types of diabetes, treatment approaches, and associated complications.

The demographic distribution revealed that the majority of diabetic patients (40%) were in the 45–54-year age group, followed by 28.70% in the 35–44-year range, reflecting the typical mid-life age of diabetes onset and complication development. This trend is consistent with global data, where CVD risk increases notably after the age of 40 in diabetic patients[12].

Regarding gender distribution, males constituted 64.35% of the respondents, which aligns with studies indicating a higher prevalence of both diabetes and CVD among men compared to women, possibly due to lifestyle differences and hormonal protective effects in premenopausal women[13].

A significant proportion (84.35%) had a history of smoking, a well-established independent risk factor for both CVD and poor glycemic control in diabetic individuals[14]. Smoking exacerbates vascular inflammation and insulin resistance, further accelerating atherosclerosis in diabetic patients[15].

Among the study population, 66.96% were diagnosed with Type-2 Diabetes Mellitus (T2DM), which is the most common form of diabetes globally and is heavily associated with sedentary lifestyle, obesity, and poor dietary habits[16]. In contrast, 18.26% had Type-1 DM and 14.78% had Gestational DM, which, while less common, also present unique long-term cardiovascular risks, especially when not managed properly during pregnancy[17].

In terms of diabetes management, 36.52% of respondents controlled their diabetes with insulin, and 33.91% used oral medication, reflecting the standard treatment approach in Bangladesh. However, a concerning 14.72% reported having no control over their diabetes, suggesting a critical gap in patient education, accessibility, or motivation[18].

The study also revealed that 57.39% of respondents underwent regular checkups, while 41.74% never sought regular follow-up, a concerning statistic given that regular monitoring can significantly reduce complications related to both diabetes and cardiovascular conditions[19]. This gap may be attributed to economic constraints, healthcare accessibility, or lack of awareness.

A positive family history of diabetes was found in 77.39% of the participants, highlighting the genetic and hereditary component of the disease [20]. Family history, when combined with poor lifestyle practices, can accelerate the onset and severity of complications, including cardiovascular involvement.

Alarmingly, 68.29% of patients had cardiac complications, indicating the strong relationship between diabetes and cardiovascular disease. This finding is in line with WHO reports, which estimate that 50% of people with diabetes die from cardiovascular complications, including heart attacks and strokes[21]. In addition, 71.30% of the respondents reported complications such as neuropathy, nephropathy, or retinopathy, further emphasizing the systemic burden of uncontrolled diabetes[22].

Blood glucose fluctuation, another major contributor to vascular damage, was reported by 63.48% of the study population. Glycemic variability has been linked with increased oxidative stress and endothelial dysfunction, significantly heightening the risk for CVD events[23].

Overall, the study reflects the high burden of cardiovascular complications among diabetic patients in Dhaka and reflects similar trends observed globally. Effective disease management requires a multifactorial approach, including strict glycemic control, lifestyle modifications, regular screening, and patient education. Emphasis must also be placed on prevention strategies, especially in younger populations at genetic risk, to reduce the rising morbidity and mortality associated with diabetes-induced cardiovascular disease[24].

Conclusion

The findings of this study underscore the significant burden of cardiovascular complications among diabetic patients in a tertiary care setting in Dhaka. A majority of the patients were middle-aged males with Type 2 Diabetes Mellitus, many of whom had poor glycemic control, irregular medical follow-up, and lifestyle risk factors such as smoking. Alarmingly, more than two-thirds of the respondents

experienced cardiac complications, confirming the well-established association between diabetes and cardiovascular disease. This study highlights the urgent need for early screening, regular monitoring, patient education, and comprehensive lifestyle intervention strategies to reduce morbidity and mortality. Strengthening primary prevention, especially among high-risk individuals with a family history of diabetes, alongside ensuring access to affordable and continuous care, is essential for combating the dual epidemic of diabetes and cardiovascular disease in Bangladesh.

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Original Article

Autopsy-Based Forensic Analysis of Head Injuries and Fatal Outcomes in Road Traffic Accident

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Abstract:

Introduction: *The skull is the most vulnerable region of the body in fatal road traffic accidents (RTA), making head injuries a major cause of death worldwide.*

Objective: *This study aimed to evaluate autopsy based Forensic analysis of head injuries and fatal outcomes in road traffic accident.*

Materials and Methods: *This retrospective study included 160 head injury cases from road traffic accidents (RTA), autopsied at the Dhaka Medical College mortuary between January and December 2022. Data were collected from postmortem reports,challan and inquest reports after obtaining permission from the respective department and the data were then analyzed and presented in tables and figures.*

Results: *Among road traffic accidents (RTA) victims, pedestrians accounted for the largest proportion, 54 (33.8%) cases. Males predominated 111, (70%), with the majority aged 21–30 years. The most common scalp injury was contusion, observed in 64 (45%) cases. Skull fractures were mainly located in the cranial vault, with linear fractures being the most frequent, 51 (48%), commonly affecting the temporal region 43, (40%). At the base of the skull, the middle cranial fossa was most frequently affected, 21 (52.5%) cases.. Among intracranial hemorrhages, subdural hemorrhage was the most common, accounting for 42 cases (26%). Regarding brain injuries, coup injuries predominated, with 107 cases (67%) compared to 53 cases (33%) of contrecoup injuries, the highest incidence being observed in the frontal lobe with 21 cases (15%).*

Conclusion: *Skull fractures and intracranial hemorrhages were the main contributing factors to fatalities. These findings highlight the importance of implementing preventive measures to reduce road traffic accidents.*

Keywords: *Fracture Skull, Head Injury, Intracranial Hemorrhages, Road Traffic Accident*

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Introduction

Road traffic accidents (RTA) constitute a significant threat to public safety and human life, ranking among the major global hazards. The incidence of such accidents is steadily increasing, with head injuries remaining a leading cause of mortality. The head is often the primary target in assaults involving blunt trauma. When a victim is pushed or falls to the ground, the head frequently strikes a hard surface. The brain and its coverings are particularly vulnerable to blunt trauma, which might rarely be lethal if applied to other regions[1]. Among all regional

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injuries, head injuries are the most frequent and significant in forensic practice. They represent a morbid condition caused by structural alterations to the skull, scalp, and/or internal organs resulting from mechanical forces[2]. Head injuries can be classified as closed or penetrating. A closed head injury typically results from falls, automobile accidents, or assaults, whereas a penetrating injury involves gunshot wounds or stab injuries. The use of improvised explosive devices in military warfare has created a distinct category of injury, known as blast injury, which is unique in its pattern and considerations[3].Traumatic brain injury (TBI) is among the most devastating types of head injury, affecting individuals of all ages. However, the majority of road traffic injuries (RTI) occur in young adults, who are the most active demographic. TBI is a leading cause of death and disability worldwide[4]. Acute epidural hemorrhage (EDH) generally results from rupture of the middle meningeal artery. Subdural hemorrhage (SDH) occurs due to tearing of cortical veins or injury to the dural sinuses, and is more common than EDH. Severe impact to the head can cause skull fractures, which, depending on their location and severity, may damage the brain, blood vessels, or other vital structures within the skull, potentially leading to fatal outcomes. Among all skull fractures, approximately 70% are linear or fissure fractures, which are typically caused by forcible contact with a broad, resisting surface such as the ground, a blow from an object with a broad striking surface, or a fall onto the feet or buttocks[5]. Poor traffic control, reckless driving, and similar factors are major contributors to the rising incidence of road traffic accidents, resulting in an increasing number of head injuries.

Materials and Methods:

This retrospective study was conducted at the mortuary of Dhaka Medical College. A total of 2,231 autopsies were performed between January and December 2022. Among these, 1,530 cases were related to road traffic accident (RTA) fatalities. Of these road traffic accident (RTA) cases, 854 involved head injuries combined with other injuries, while 676 were due to other types of injuries. Out of the 854 combined cases, 160 were identified as cases of isolated head injury. All information was collected from challans, inquest reports, and autopsy reports from the Department of Forensic Medicine and Toxicology. Statistical analysis was performed using SPSS version 23, and data were summarized by using frequencies and percentages.

Inclusion Criteria:

All fatal head injury cases autopsied at the Dhaka Medical College mortuary between January and December 2022.

Exclusion Criteria:

1. Cases with combined head and other organ injuries.
2. Cases with unreliable or incomplete data sources.

Ethical Considerations:

Ethical approval was obtained from the relevant legal authorities, and strict confidentiality of all collected data was maintained.

Results:

Among 160 head injury cases, pedestrians accounted for the largest number, 54 (33.8%) cases. This was followed by motorcyclists, 47 (29.3%); drivers, 28 17.5%); car occupants, 19 (11.9%); and bicyclists, 12 (7.5%) (Figure1). In the present study, the maximum number of fatalities occurred in the 21–30 years age group, 49 (30.6%), followed by 31–40 years, 36 (22.5%). Males predominated, 111 (70%), compared to females, 49 (30%) (Figure2). Scalp injuries were observed in 142 (88%) cases, whereas 18 (12%) cases showed no such injury. Contusions were the most

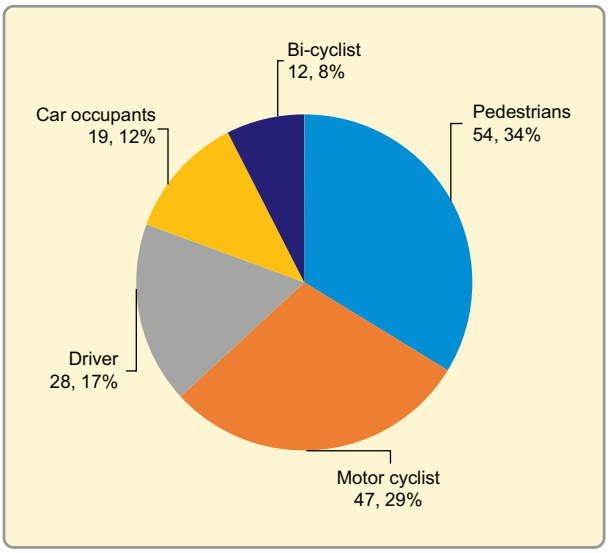

Figure 1: *Distribution of Head Injury Cases in Road Traffic Accidents (RTA)*

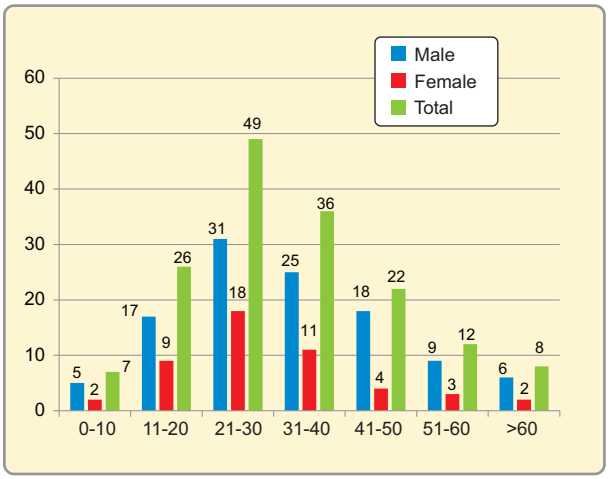

Figure 2 *Distribution of subjects by age and gender.*

common, 64 (45%) cases, followed by lacerations, 47 (33%), and abrasions, 31 (22%). Injuries were most frequently observed in the frontal region of the scalp, 51 (40%) cases, followed by the temporal region, 43 (29.1%); the parietal region, 34 (23%); and the occipital region, 14 (8%) (Table1). Skull fractures were predominantly located in the cranial vault, less frequently at the base of the skull, and occasionally involved both regions simultaneously.

In the cranial vault, linear fractures were the most common, 51 (48%) cases, followed by comminuted fractures, 33 (31.2%) cases, and depressed fractures, 12 (11.3%) cases. Fractures were most frequently observed in the temporal region, 43 (40.6%) cases, followed by the parietal region, 34 (32%), and the frontal region, 19 (18%) (Table2). In the majority of cases, linear fractures of the cranial vault and skull base predominated over other fracture types.

Considering the fossae at the base of the skull, the middle cranial fossa was most frequently affected, 21 (52%) cases, followed by the posterior cranial fossa, 12 (30%), and the anterior cranial fossa, 7 (17%) (Table3). Among intracranial hemorrhages, subdural hemorrhage was the most common, 42 (26%) cases, followed by subarachnoid hemorrhage, 32 (21%), and epidural hemorrhage, 25 (15%). Of the 160 cases in this study, the vast majority, 107 (67%), had coup injuries, while 53 (33%) had contrecoup injuries. Among contrecoup injuries, the frontal lobe exhibited the highest incidence, 24 (15%) cases, followed by the occipital lobe, 12 (7.5%); the left parietal lobe, 11 (7%); and the right parietal lobe, 6 (4%) (Table-4))

Table 1: Distribution of scalp injuries by location

Location	Site	Contusion	Abrasion	Laceration	Total injury	%
Frontal		23	12	16	51	*36%
Parietal	R	08	05	07	20	14%
	L	06	03	05	14	10%
		14	08	12	34	*24%
Temporal	R	11	05	08	24	17%
	L	10	03	06	19	13%
		21	08	14	43	*30%
Occipital		6	3	5	14	*10%
Total	160	64(45%)	31(22%)	47(33%)	142	100%
			142(88%)	100%		
		No injury	18(12%)			

Table 2: Distribution of skull vault fractures by location

Type	Frontal	Parietal	Temporal	Occipital	Total fracture	%
Fissure/ Linear	09	18	24	-	51	48%
Depressed	3	5	4	-	12	11.3%
Comminuted	7	11	15	-	33	31.2%
Non specific	-	-	-	-	3	2.8%
Multiple	-	-	-	-	7	6.7%
Total	19(18%)	34(32%)	43(40.6%)		106(66.2%)	100%

Table -3: Type and distribution of the basal fracture

Type of fracture	Anterior cranial fossa	Middle cranial fossa	Posterior cranial fossa	Total	%
Linear	5	13	7	25	62%
Comminuted	2	8	3	13	33%
Hinge	-	-	2	2	05%
Total	7(17.5%)	21(52.5%)	10(25%)	40(25%)	100%

Table: 4: Types of Intracranial hemorrhages with distribution of coup & contre coup injuries

Intra cranial injury/brain hemorrhage		No of cases	Percentage (%)
Epidural hemorrhage		25	15.5
Subdural hemorrhage		42	26
Subarachnoid hemorrhage		32	21
Intracerebral hemorrhage		12	7.5
Intra ventricular hemorrhage		6	3.5
Brain stem lacaration		2	1.2
Coup injury		107	67
	Frontal lobe	24	15
Contre coup injury	Occipital lobe	12	08
	Left parietal lobe	11	07
	Right parietal lobe	06	4

Discussion

According to the World Health Organization (WHO), approximately 1.3 million people die each year as a result of road traffic accidents (RTA), and millions more sustain serious non-fatal injuries, often leading to long-term disability and socioeconomic burden[6]. In our study, males predominated over females, and the highest number of fatalities occurred in the 21–30 years age group. Other studies,[7,8] reported similar findings, corresponding to our results. Adults are more likely to move outdoors for work-related purposes, which increases their exposure to traffic risks. In this study, pedestrians were the most common victims. The higher incidence of pedestrian injuries may be attributed to frequent traffic violations, such as using mobile phones or wearing Bluetooth devices while crossing streets, and reluctance to use footbridges and zebra crossings. In our study, the most common injuries were scalp contusions, with the frontal region of the scalp being the most frequently affected site. Other studies[9-11] also supported these findings. This may be because the frontal area is usually the most vulnerable site, as it is the prominent and most accessible part of the skull for direct impact. In this study, the majority of victims' skull fractures involved the cranial vault alone, followed by those involving the base of the skull. Other studies[12] also found that fractures of the cranial vault alone were the most common. In our study, regarding the cranial vault, linear fractures predominated and were most frequently found at the temporal site, followed by comminuted fractures. Other studies[13,14], however, identified comminuted fractures as the most prevalent type of skull fracture among their study populations, which does not correspond with the findings of this study. Findings of this study indicate that linear fractures were the most prevalent type of basal skull fractures, followed by comminuted fractures. These results are consistent with those of other studies[12]. In this study, the middle cranial fossa had the highest incidence of basal skull fractures, which aligns with the observations of previous studies[12-14] .The author concluded that the larger

area of lateral impact and the relative thinness of this part of the base of the skull, compared to the anterior and posterior cranial fossae, may be the cause for the higher frequency of fractures. Chattopadhyay et al.[15] also reported that the middle cranial fossa is the most susceptible to mechanical injury. Another study noted that fractures of the posterior cranial fossa are less common than those of the middle cranial fossa, as the occipital bone, being the thickest cranial bone, requires greater force to fracture[16]. One study concluded that subdural hemorrhage was more common than subarachnoid hemorrhage[17], which is consistent with our findings. However, another study found that subarachnoid hemorrhage was more common than subdural hemorrhage, which does not correspond with the results of this study[16] . In the current study, a small percentage of contrecoup injuries were noted where the frontal region showing the highest incidence. In contrast, another study[17] did not report any contrecoup injuries. The frontal areas may have a higher prevalence of contrecoup lesions due to the abundance of bony projections arising from the base of the anterior cranial fossa.

Conclusion:

The findings of our study regarding the pattern of skull fractures aligns with findings from other research, indicating that road traffic accidents remain a leading cause of fatal head injuries worldwide. To reduce such fatalities, improvements in road construction and maintenance, strict enforcement of traffic laws, enhanced traffic monitoring, and deterrence of reckless driving are essential. Furthermore, legal measures should be strengthened, including amendments to existing provisions such as Sections 279 and 304 of the Penal Code, to ensure stringent penalties for violations.

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Original Article

Trend of NICU Admissions and Their Outcome in a Tertiary Care Hospital in Dhaka, Bangladesh

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Abstract

Introduction: *Neonatal period is very much sensitive specially to adopt themselves to the environment to maintain temperature, tolerate feeding, to escape from different infections. So they are vulnerable to morbidities and mortalities. For this reason it is essential to know the pattern of diseases of neonates admitting at NICU and their outcomes. The trends of diseases are changing with time and place. So periodic review about neonatal admission and their management and outcome help to improve the treatment strategy and policy making among the health care providers to specific institutes.*

Objective: *Aims and objective of this study was to determine the trends of diseases of NICU admitted neonates and their outcome at NICU after admission at MH Samorita Hospital and Medical College, a tertiary care hospital in Dhaka, from 01.08.2016 to 31.12.2019.*

Materials & Methods: *Retrospective data from the medical records of all neonates admitted during the study period were reviewed and analyzed for age, weight, sex, reason for admission, duration of hospital stay, diagnosis and final outcome.*

Results: *The total number of neonates admitted during the study period was 306;182 were male (59%) and 124 were female (41%). A total of 205 patients (67%) were born in the hospital while 99(33%) were born at home .The majority were admitted during the first 48 hours of life (72%).A total of 3(1%) patients born <750 gm, 9 patients (2%) weighed <1000 gm; 31(10%) weighed 1000-1500 gm, and 100 (33%) between 1600-2499 gm,150 patients were between 2500-3499 gm, 13 patients born 4000-5000 gm. Prematurity, Neonatal Sepsis and Perinatal Asphyxia were the main reasons for admission (57%, 18.3% and 8.5%, respectively), followed by Neonatal Jaundice (6.8%). Among total of 306 patients, 244 (79.8%) were improved and discharged, 20 left against medical advice (6.5%), 18 were referred for urgent cardiac & surgical intervention (5.8%) and 24 (7.8%) died.*

Conclusion: *Prematurity, neonatal infection and birth asphyxia were the major causes of neonatal morbidity and mortality.*

Keywords: *Prematurity, Low Birth Weight ; Neonatal infection; Neonatal Jaundice; Perinatal Asphyxia*

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Introduction

The first month of life is the most crucial period for child survival. Despite progress over the past two decades, in 2017 alone, an estimated 6.3 million children and young adolescents died and 2.5 million of those children died in the first month of life. The risk of dying is highest in the first month of life. An estimated 2.5 million newborns died in the first month of life in 2017 - approximately 7,000 every day -about 36 percent died the same day they were born, and close to three-quarters of all newborn died in the first week of life.[1]

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Neonatal mortality was estimated at 18 deaths per 1,000 live births globally. In Bangladesh neonatal mortality rate fell gradually from 93.7 deaths per 1,000 live births in 1968 to 18.4 deaths per 1,000 live births in 2017.[2] Inspite the considerable improvement in health sector in Bangladesh, the achievement remains vulnerable. The global community recognizes the crucial need to stop preventable child deaths, making it an essential part of the Global Strategy for Women's, Children's, and Adolescent's Health (2016-2030)[3] and the third Sustainable Development Goal (SDG)[4] to ensure healthy lives and promote wellbeing for all people at all ages. It is a challenge for Bangladesh to maintain momentum and achieve the target of Sustainable Development Goal (SDG) 3 of reducing the neonatal mortality rate (NMR) to 12 per 1000 live births by 2030.[5] To achieve the target of Sustainable Development Goal (SDG) 3 it is important to recognize the neonatal disease pattern. In the developed countries, the main cause of mortality and morbidity in the neonatal period are non-preventable causes such as congenital abnormalities, but in the developing countries the preventable causes such as Infections, Jaundice, Birth Asphyxia and Pneumonia are predominant.[6,7] Disease trend in neonatal intensive care unit is a sensitive indicator of the availability, utilization and effectiveness of mother and child health services in the community. Disease pattern changes between different places and time to time even at the same place.[8] Therefore, regular reviewing of pattern of the disease in any particular setting is important for providing better services to the patients. This study was performed to document the disease pattern and outcome of patients admitted to neonatal intensive care unit. By doing this study in the neonatal intensive care unit (NICU) disease-wise morbidity and mortality will help to recognize the limitation of our settings and measure the requisite of resources to reduce morbidity and mortality.

Materials and Methods

This retrospective study was conducted in the Neonatal Intensive Care Unit (NICU), MH Samorita Hospital & Medical College, Department of Pediatrics, Dhaka, Bangladesh from 01.08.2016 to 31.12.2019. A total of 306 neonates admitted at NICU in MH Samorita Hospital & Medical College, both inborn and out born were included in this study. Neonates, who were kept under observation, considered healthy after evaluation in NICU were excluded from the study.

Data of all neonates admitted into the neonatal unit were collected from the admission, discharge and death registers using a pretested structured questionnaire prepared in English. Data extracted included: The age of neonate on admission, sex, weight on admission and at birth, Gestational age, mode of delivery, place of delivery, history of birth asphyxia, main final diagnosis, and date of discharge, and outcomes (discharge, death or left against medical advice) and cause of death. The data were subjected to statistical analysis according to standard procedure. SPSS version 20 for Windows (SPSS Inc, Chicago, IL, USA) software was used for data recording and analysis. Since it was a descriptive study, percentage and frequencies were determined. Approval for the study was obtained from the Institutional Ethical Review Committee.

Operational Definition

Diagnosis of disease was based on clinical presentation and supportive laboratory results. Prematurity was described as live born neonates delivered before 37 completed weeks. For mothers who did not know dates of their last menstrual period, the new Ballard score was used to estimate the gestational age.[9] Birth weight was classified using WHO weight classification.[10] Sepsis and meningitis were diagnosed according to the report of isolating the pathogenic organism from the blood or cerebral spinal fluid; other diagnoses depended on history, physical examination, and other supportive investigations. Birth asphyxia was diagnosed whenever a neonate had an APGAR score <6 in the fifth minute and/or was unresponsive to stimuli or convulsion not explained by other causes.[11] For babies born outside health facilities with unknown APGAR scores, details were obtained from the patient party: if he/she did not cry immediately after birth; had respiratory distress, floppiness, loss of consciousness, presence of convulsion, and loss of neonatal reflexes. In this study, radiologic examination including X-ray was performed inconsistently; however, for the diagnosis of RDS, clinical criteria were used and risk factors like premature infant with signs and symptoms of rapid labored, grunting type of breathing manifesting immediately or within a few hours after delivery and

with sub costal retraction, cyanosis, and decreased air entry in bilateral lung field or those who had chest X- ray examination with characteristic findings for RDS were also included. Both early onset neonatal sepsis (EONS) and late onset neonatal sepsis (LONS) were defined after assessing the risk factors for infection including prematurity, maternal infection during labor, and clinical signs and symptoms suggestive of infection. Neonates who presented to the NICU with a diagnosis of sepsis within 72 hours of birth are labeled as EONS, while those who came after 72 hours of birth are labeled LONS. Anthropometric assessment was carried out using Lubchenco curve.[12]

Results

The total number of neonates admitted during the study period was 306.There were 182 males (59.4%) while 124 (40.6%) were females, male babies outnumbered their female counterpart with a ratio of 1.4:1. Both inborn and outborn neonates were admitted. Of the 306, 205 (67%) were born in the hospital while 101 (33%) were born at home. The mode of delivery was mostly lower uterine caesarean section (LUCS) 238 (77.7%), normal vaginal delivery (NVD) was 68 (22.2%) (Table 1). The majority of the newborns (71%) were admitted during the first 24 hours of life (Figure 1). Among the 306 neonates more than half 174 (56.8%) were premature. Regarding the birth weight of these babies, 143 (46.7%) babies were low birth weight (<2500 gm), among them 3 patients were categorized as ILBW 3(0.98%), ELBW 9(2.9%) and VLBW 31 (10.1%), normal birth weight 115(37.5%), LGA 13 (4.24%) (Table1). Among the preterm neonates most common complication were respiratory distress syndrome 43(24.7%), neonatal jaundice 39(22.4%), sepsis 56(32.1%), apnea of prematurity 20(11.4%) (Table 2). Next to prematurity neonatal infections and perinatal asphyxia were the common causes of admission to the neonatal unit. The major causes of infections were sepsis (18.3%), pneumonia (13%) and meningitis (5.2%) (Table 2). Other causes of admission were Neonatal jaundice 18(6.8%), congenital heart disease 7(2.28%), Transient Tachypnea of Newborn 6(2.32%), Surgical problems 6(1.96%), Meconium Aspiration syndrome 2(0.76%) and Multiple congenital malformation (0.38%) (Figure 2).

Analysis of outcome showed that out of 306 neonates, 244 cases (79.8%) were improved and discharged to home, 20 cases (6.5%) left the hospital against medical advice (LAMA), 24 expired (7.8%) and 18 patient of complex congenital heart disease & Surgical problems (5.8%) were referred for urgent cardiac & surgical intervention (Figure 3). The leading cause of death were prematurity (50%), followed by birth asphyxia (21%) and sepsis (29%) (Table 3).

Table 1: Demographic Characteristics of the admitted neonates

Variables	Attributes	Frequency (number)	Relative Frequency (%)
Gender	Male	182	59.4
	Female	124	40.6
Place of delivery	Hospital	205	67
	Home	101	33
Mode of delivery	LUCS	238	77.7
	NVD	68	22.2
Number of gestation	Singleton	255	83.3
	Twins	45	14.7
	Triplets	6	2
Gestational age	<34weeks	69	22.5
	34-36weeks	105	34.3
	37-42weeks	132	43.13
Birth Weight	<750gm	3	0.98
	<1000 gm	9	2.94
	1000-1500 gm	31	10.1
	1600-2499 gm	100	32.6
	2500-3499gm	115	37.5
	3500- 4500 gm	13	4.24

Table2: Disease pattern of the neonatal admissions

Diagnosis		(N=306)	%
1. Prematurity		174	56.8
With sepsis		56	32.1
With Respiratory Distress Syndrome		43	14.3
With asphyxia		22	12.6
With jaundice		39	22.4
With apnea of prematurity		20	11.4
With necrotizing enterocolitis		11	6.3
2. Neonatal infections		56	18.3
Sepsis	Early onset	21	37.5
	Late onset	35	62.5
Pneumonia		40	13.0
Meningitis		16	5,2
3. Perinatal asphyxia Hypoxic ischemic		26	8.5
Encephalopathy	Stage I	16	61.5
	Stage II	7	26.9
	Stage III	3	11.5
4. Neonatal Jaundice		18	6.8
5. Congenital Heart disease		7	2.28
6. Surgical problems		6	1.96
7. TTN		6	1.96
8. Meconium aspiration syndrome		2	0.65
9. Multiple congenital malformation		1	0.32

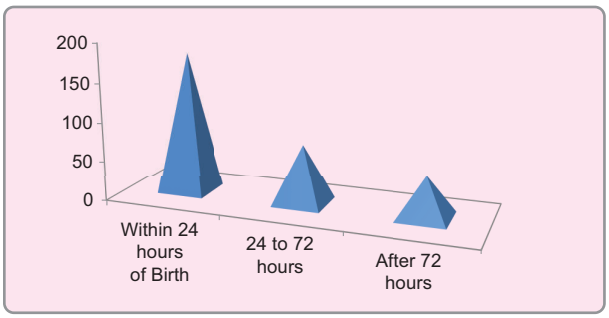

Figure 1: *Neonatal admission according to age in hours.*

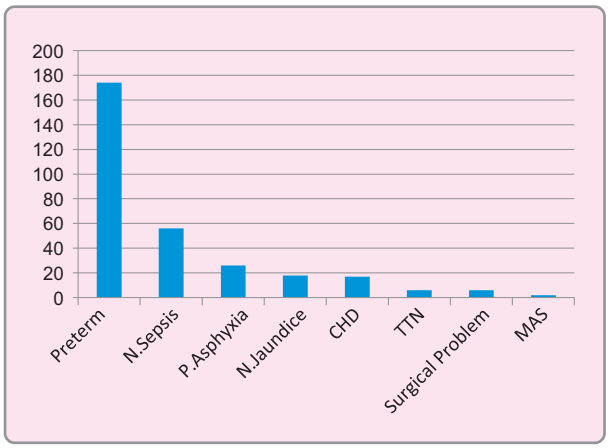

Figure 2: *Causes of neonatal admissions:*

Table 3: Major causes of Neonatal deaths (n=24)

Causes	Deaths n(%)	Case fatality rate (%)
Prematurity with its complications	12	50
N.sepsis	7	29
Perinatal Aspyxia	5	21

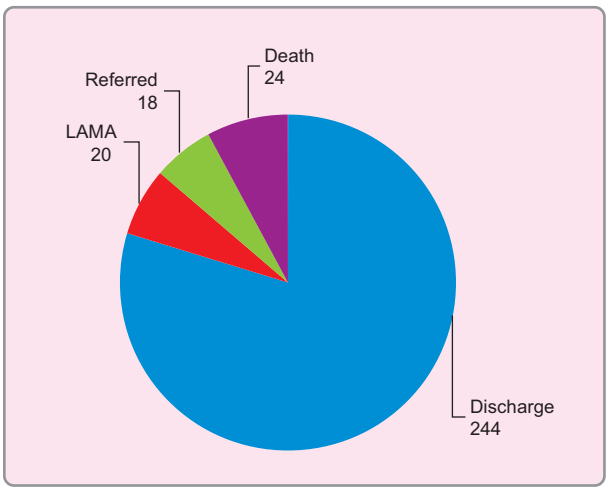

Figure 3: *Outcome of admitted neonates*

Discussion

Achieving the ambitious neonatal survival goals requires ensuring universal access to safe, effective, high quality and affordable care for neonates. It also requires an understanding of the levels and trends in neonatal mortality as well as the under lying causes of neonatal deaths. This study assessed the causes and outcomes of neonatal admissions in the MH Samorita Hospital & Medical College. The study revealed that more male neonates 62.6% were admitted compared to female neonates 37.4%, representing male to female ratio of 1.4:1. Some studies have reported similar observation.[13,14] While others archived the contrary.[15] The preponderance of male neonates to suffer various conditions which usually result in admission cannot be explained by this study. However, this has been partly attributed to relatively well developed lungs in female neonates at the time of birth compared to males, as surfactant markers such as lecithin, phosphatidyl glycerol, and phosphatidyl inositol appear much early in females than males.[16] In addition, a recent study has established the genetic influence in neonatal infection, revealing that x chromosome linked diseases are predominant in males than females.[17] Additionally, cultural and social factors could contribute to male babies getting more attention by parents than females. Although the sex of a baby is non modifiable, this factor is significant from a program planning perspective, in that male infants may require greater attention.

The present study revealed that about three-fourth of the newborns (72.2%) were admitted within the first two days of life; an observation which has been reported by similar studies conducted elsewhere.[18-20] Among the 306 neonates more than half 174(56.8%) were premature and rest 132(43.2%) were term. Prematurity was the leading cause of admission in our NICU. This data is similar to studies conducted by Elizabeth et al.[21] and Rahim F *et al.*(58%).[22] Some other studies found different findings[23-25]. Although there are numerous factors associated with prematurity and low birth weight, the major contributors are low socioeconomic status, maternal infection, maternal under nutrition, and anemia.[26]

For more than 25 years, LBW has been observed to be one of the major risk factors for neonatal admissions in multiple studies conducted in many developing countries.[27] In this study, LBW was

found in 46.7% of patients; this can be compared to 55.4% in Karachi[28] and 41.2% in Peshawar.[29] Percentage of ELBW was 2.9%, VLBW 10.1%,LBW 32%, findings are very similar with the study conducted by Veena Prasad, Nutan singh[25] and Bhagat Baghel, Anurup Sahu.[30] Among the preterm LBW neonates most common complications were respiratory distress syndrome 43(30.3%), neonatal jaundice 34(24%), sepsis 32(22.5%), apnea of prematurity 13(9.15%), perinatal asphyxia 12(8.45%) and necrotizing enterocolitis 8(5.6%) similar to Quddusi *etal.*[31]

Prematures are not only the principal contributors to neonatal morbidity and mortality but they are the ones who experience more health problems and consumed more health resources.[32]

Next to prematurity neonatal infections and perinatal asphyxia were the common causes of admission to the neonatal unit, at 20% and12.02%, respectively among the term neonates similar to Preety Raikwar *et al.*[33] and Sridhar PV.[34] The major causes of infections were sepsis (65.4%), pneumonia (19.2%) and meningitis (15.4%). Neonatal sepsis is a global problem and has no boundaries. The variation in neonatal sepsis between developed and developing countries would be the degree of prevalence, as higher prevalence rates are recorded in developing countries.[35]

In this study, birth asphyxia was 12%, as compared to 13% of neonates in the study conducted in Pakistan[36], 16.52% in Peshawar[28] and 38% in a study in DSH.[23] The important risk factors for birth asphyxia reported from a study conducted in Hyderabad, India include the lack of antenatal care, poor nutritional status, antepartum haemorrhage, maternal toxaemia and having a home delivery.[37] Other causes of admission were Neonatal jaundice 18(6.8%), congenital heart disease 7(2.7%),Transient Tachypnea of Newborn 6(2.32%),Surgical problems 6(2.6%), Meconium aspiration syndrome 2(0.76%) and Multiple congenital malformation (0.38%). Higher incidences of jaundice in neonates have been reported from other studies in Bangladesh and Nigeria (30.71% and 17.25%, respectively).[38]

Analysis of outcome showed that out of 262 neonates, 244 cases (79.7%) were improved and discharged to home, 20 cases (6.5%) left the hospital against medical advice (LAMA), 24 expired (7.8%) and 18 patient of complex congenital heart disease& surgical problems (5.8%) were referred for urgent cardiac& surgical intervention. Neonates who did not survive, the leading causes of death were prematurity and LBW (50%), followed by neonatal infections (29%) and birth asphyxia (21%) similar to Syed R A and Tekleab AM.[36] In this study case fatality rate was highest in perinatal asphyxia (19.2%). Higher incidences have been reported in developing countries partly due to the level of quality of prenatal, perinatal, and obstetrics and gynecological care in general. The burden of perinatal asphyxia is huge, as it is responsible for over 42 million disabilities adjusted lives.[20] Approximately 23% and 8% of birth asphyxia associated deaths occur in neonates and children under the age five years old respectively. Looking critically at these studies, it is obvious that prematurity, birth asphyxia and sepsis are among the leading cause of neonatal admission, which are largely consistent with the global pattern of neonatal mortality. These highlight the fact that many causes of neonatal deaths may be preventable. Obviously, the causes of these conditions are multi factorial and will need a multifaceted approach to curbing their contributions to neonatal deaths.

Conclusion

Prematurity, Neonatal infection, birth asphyxia and neonatal jaundice were the major causes of neonatal admissions in our study and prematurity and perinatal asphyxia with hypoxic ischemic encephalopathy Stage III were the major causes of death. Diversity in mortality rates are important because they permit inferences about quality of care and existing facilities in health care.

Conflict of Interest: None

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Review Article

Escherichia Coli as an Organism of Resistant UTI: A Review

Mazumder RC[1], Sarker S[2], Sarker GM[3]

Abstract

Background: *Escherichia Coli (E.coli) bacteria normally lives in the intestine of healthy people and animals. E.coli contain a variety of amino acids, sugars and dipeptides, as well as pH, temperature and redox state. Major receptors, such as those for aspartate (Tar) and serine (Tsr), are highly abundant and number several thousand molecules per cell. Most types of E.coli are harmless or causes relatively brief diarrhoea. Recent studies suggest an increasing antimicrobial resistance by Escherichia coli causing urinary tract infection(UTI). Escherichia Coli is the most resistant and powerful pathogen for urinary tract infection now a days. Every physician and surgeon has experienced resistant UTI by E.coli. Some medication, personal hygiene and rational use of antibiotic can decrease the rate of E.coli resistant UTI.*

Keywords: *Urinary Tract Infection(UTI), Escherisia coli(E.coli), Resistant.*

(MH Samorita Med Coll J 2024; 7(2): 88-93)

Introduction

Cultures are not routinely recommended in certain patient populations (e.g. non-pregnant women). In some cases over 40% of the bacteria that cause UTIs are resistant to some of the antimicrobials used with this increasing risk for relapse and treatment failure. E. coli is the most common cause of bacteraemia in high-income countries, and the burden of E. coli bacteraemia is substantial, especially among the elderly[1]. To enable the implementation of effective mitigation and prevention strategies, we need to understand better the epidemiology and risk factors of invasive E. coli infections[2]. There is growing evidence showing that increases in the rates of E. coli bacteraemia are being driven predominantly by community-onset infections particularly infections of the urinary tract yet we do not know how and which specific factors increase the likelihood for progression to more serious illness requiring hospitalization, and ultimately death, after treatment for UTI in the community[3].

This review describes the epidemiology of the use of trimethoprim, nitrofurantoin, amoxicillin/clavulanic acid, amoxicillin and ciprofloxacin for UTI in the community, characterizes the population using these antimicrobials and patterns of use, and examines how prior use of antimicrobials is associated with antimicrobial resistance in bloodstream infections and deaths[4].

Nowadays antimicrobial resistance has been identified as a problem for the treatment of illnesses. In the near future it can result in repeated prescriptions, lingering symptoms, complications, a greater need for broad-spectrum antibiotics, and mortality[5].

The amount of antibiotic resistance observed in various species is directly correlated with the dosages of prescribed antibiotics. However, the connection between the use of antibiotics and the emergence of resistance might be complicated. Locally, there is widespread recognition of the link

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between community antimicrobial usage and resistance[6].

However, there may be an unbalanced relationship between declines in community prescription and declines in resistance. Gram-positive resistance has been shown to decline in response to primary care stewardship, but there is less evidence to support the relationship between decreased antibiotic usage and decreased resistance in Gram-negative bacteria[7]. According to prescribing data for UTIs, a significant drop in community antimicrobial use (20%) was associated with just a modest drop in amoxicillin or amoxicillin/clavulanic acid resistance (1%); similar sized effects were observed for trimethoprim usage and resistance[8]. The genetic makeup of the organisms, the manner in which the resistance determinants are transmitted and spread as a result of co-selection by other medications, and the level of co-selection all play a significant role in these minor decreases in resistance despite significant reductions in prescribing[9].

The degree of bacterial fitness cost and how the resistance determinants are distributed due to co-selection by different medicines[10]. A significant aspect in the population dynamics of the resistant and sensitive bacterial populations is the durability of mobile genetic elements (plasmids and integrons) carrying resistance genes. Because of the aforementioned, each drug-bug combination will respond to modifications or restrictions in drug use quite differently[11].

Patients who are given an antibiotic for a UTI are more likely to develop resistant infections, which can last for up to 12 months after the antimicrobial is stopped[12]. It has been demonstrated that the amount of antimicrobial administered is inversely linked with the amount of time required to acquire resistance[13].

Transmission

Most available information on E.coli relates to serotype O157:H7, since it is easily differentiated biochemically from other E. coli strains[14]. The reservoir of this pathogen appears to be mainly cattle. In addition, other ruminants such as sheep, goats, deer are considered significant reservoirs, while other mammals (such as pigs, horses, rabbits, dogs, and cats) and birds (such as chickens and turkeys) have been found infected[15].

E. coli O157:H7 is transmitted to humans primarily through consumption of contaminated foods, such as raw or undercooked ground meat products and raw milk[16]. Faecal contamination of water and other foods, as well as cross-contamination during food preparation (with beef and other meat products, contaminated surfaces and kitchen utensils), will also lead to infection. Examples of foods implicated in outbreaks of E. coli O157:H7 include undercooked hamburgers, dried cured salami, unpasteurized fresh-pressed apple cider, yogurt, and cheese made from raw milk[17].

An increasing number of outbreaks are associated with the consumption of fruits and vegetables (including sprouts, spinach, lettuce, coleslaw, and salad) whereby contamination may be due to contact with faeces from domestic or wild animals at some stage during cultivation or handling[18].

Risk Factors

- Age. Older adults and young children are more likely to experience serious complications from E. coli.
- A weakened immune system. People with weakened immune systems are more susceptible to E. coli infections.
- Season. E. coli infections are more likely to occur during the summer months, June to September, for unknown reasons.
- Low stomach acid levels. Medications that help decrease your stomach acid levels can increase your risk of E. coli infection.
- Certain foods. Drinking unpasteurized milk or juices and eating undercooked meat can increase your risk of E. coli.

Pathogenesis and Immune Response

The species Escherichia coli comprises several pathotypes that are responsible for a wide range of disorders in addition to playing a significant role in the normal intestinal microflora of people and other mammals[19]. At least six separate pathotypes are responsible for causing enteric illnesses like diarrhea or dysentery, while other pathotypes are responsible for extra-intestinal diseases including meningitis and urinary tract infections[20].

Numerous eukaryotic cellular functions, including cell signaling, ion secretion, protein synthesis, mitosis, cytoskeletal function, and mitochondrial function, are impacted by the virulence factors of E. coli[21].

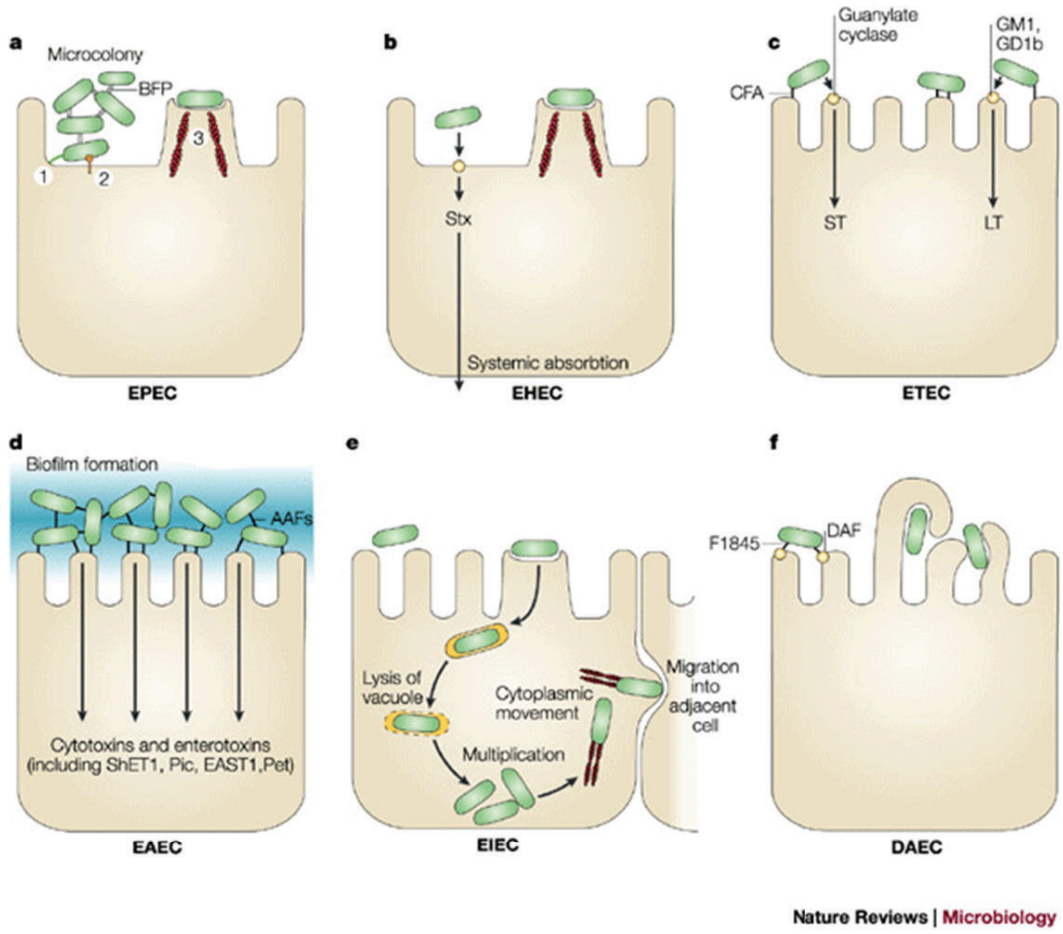

Figure 1: *Pathogenic schema of diarrhoeagenic E.coli*

The six recognized categories of diarrhoeagenic E. coli each have unique features in their interaction with eukaryotic cells. Here, the interaction of each category with a typical target cell is schematically represented[22]. These descriptions are largely the result of in vitro studies and might not completely reflect the phenomena that occurs in infected humans. a | EPEC adhere to small bowel enterocytes, but destroy the normal microvillar architecture, inducing the characteristic attaching and effacing lesion[23]. Cytoskeletal derangements are accompanied by an inflammatory response and diarrhoea. 1. Initial adhesion, 2. Protein translocation by type III secretion, 3. Pedestal formation. b | EHEC also induce the attaching and effacing lesion, but in the colon[24]. The distinguishing feature of EHEC is the elaboration of Shiga toxin (Stx), systemic absorption of which leads to potentially life-threatening complications. c | Similarly, ETEC adhere to small bowel enterocytes and induce watery diarrhoea by the secretion of heat-labile (LT) and/or heat-stable (ST) enterotoxins[25]. d | EAEC adheres to small and large bowel epithelia in a thick biofilm and elaborates secretory enterotoxins and cytotoxins. e | EIEC invades the colonic epithelial cell, lyses the phagosome and moves through the cell by nucleating actin microfilaments. The bacteria might move laterally through the epithelium by direct cell-to-cell spread or might exit and re-enter the baso-lateral plasma membrane[26]. f | DAEC elicits a characteristic signal transduction effect in small bowel enterocytes that manifests as the growth of long finger-like cellular projections, which wrap around the bacteria. AAF, aggregative adherence fimbriae; BFP, bundle-forming pilus; CFA, colonization factor antigen; DAF, decay-accelerating factor; EAST1, enteroaggregative E. coli ST1; LT, heat-labile enterotoxin; ShET1, Shigella enterotoxin 1; ST, heat-stable enterotoxin[27].

Pathogenic E. coli virulence factors are typically encoded on genetic components including plasmids, bacteriophages, transposons, and pathogenicity islands that may be deployed into other strains to produce new virulence factor combinations[28].

Clinical Manifestations

E. coli bacteria often dwell in the intestines of healthy humans and animals. Most E. coli strains are either innocuous or very briefly cause diarrhea. However, other strains, including E. coli O157:H7, can cause vomiting, severe stomach pains, and bloody diarrhea[29].

E. coli can be spread by contaminated food or drink, particularly raw vegetables and undercooked ground beef. E. coli O157:H7 infections in healthy persons often resolve within a week. A life-threatening kind of renal failure is more likely to affect young kids and elderly individuals[30].

E. coli O157 symptoms and signs: Three to four days following contact to the germs, H7 infections often start. However, you might get sick as soon as a day after exposure or up to a week later[31]. Some warning signs and symptoms are: from mild and watery to severe and bloody, diarrhea can vary, abdominal pain, discomfort, or tightness, some people experience nausea and vomiting[32].

Laboratory Findings

Laboratory diagnosis of E. coli infections is based on

a) Isolation of E. coli by culture.

b) Demonstration of toxins of diarrheagenic E. coli.

The preferred material for diagnosing a UTI brought on by uropathogenic E. coli is urine. Urine samples taken midstream after a clean empty are often used for culture. In some situations, catheterized urine and urine obtained by suprapubic aspiration are also employed. Since urine provides a favorable environment for the growth of coliforms and other urinary pathogens, the specimen should be sent right away to a microbiology lab for processing. The specimen has to be chilled if a delay of more than 1-2 hours is inevitable. Feces or rectal swabs for gastroenteritis, blood for septicemia, cerebrospinal fluid (CSF) for meningitis, sputum for pneumonia.

Definitive diagnosis is based on the isolation of E. coli from various clinical specimens by culture. Urine culture is a very useful procedure for diagnosis of UTI. Stool culture is widely used to isolate diarrheagenic E. coli. Culture of blood, CSF, and other specimens is also carried out depending on the clinical diseases caused by E. coli, as mentioned earlier. Bodily fluids such pus from wounds, biliary, or peritoneal abscesses brought on by E. coli are examples of additional specimen[33].

Treatment

Typically, antibiotics are the first line of defense against urinary tract infections. What medication is used and how long you need to take it for are determined by your health and the type of bacteria discovered in your urine.

Simple Infection

Commonly prescribed drugs for straightforward UTIs include:

Sulfamethoxazole with trimethoprim

Fosfomycin

Nitrofurantoin

Cephalexin

Ceftriaxone

Fluoroquinolones are a class of antibiotics that aren't frequently suggested for treating straightforward UTIs. Cipro, levofloxacin, and other medications are among them. For the treatment of simple UTIs, the hazards of these medications often exceed the advantages[34].

Frequent Infection

Low-dose antibiotics. It might take them for six months or longer.

Diagnosing and treating when symptoms occur. It will also be asked to stay in touch with your provider.

Taking a single dose of antibiotic after sex if UTIs are related to sexual activity.

Vaginal estrogen therapy if reached menopause.

Some E. coli strains are a typical component of the microbial communities in the gut, but if they enter the urinary system, they can result in a urinary tract infection (UTI)[35].

UTIs are frequently treated by doctors using a variety of medications. Depending on the kind of bacteria found in the urine, a particular antibiotic may be administered among the medications used to treat UTIs[36].

Conclusion

The following ideas ought to serve as the foundation to reduce patients' needless exposure to antibiotics, (1) antibiotics should be used when there is evidence of a bacterial infection; (2) ABU treatment should be avoided (if there is no risk factor); (3) cultivation should be done before using antibiotics and using appropriate antibiotics (if possible, considering using nitrofurantoin, fosfomycin, or pivmecillinam as first-line antibiotics) should be performed according to regional susceptibility data to decrease the chance of "collateral damage"; (4) the use of appropriate antibiotic doses, not underdoses, to potentially reduce mutant formation; and (5) the use of antibiotics for appropriate durations to reduce recurrence (appropriate de-escalation with repeated culture).Finally, the use of nonantimicrobial prophylaxis could effectively reduce the total amount of antibiotic consumption.

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Case Report

Potassium Channel Subfamily T Member 1 - Related Epilepsy: A Case Report from Bangladesh

Akther KU[1], Islam MR[2*]

Abstract:

Pathological mutation of potassium channel subfamily T member 1 (KCNT1) gene causes an autosomal dominant disorder characterised by secondarily generalised seizures/migratory focal seizure, cyanosis, and dysmorphic features. We report the case of a five-month old female with pathological KCNT1 variant who presented with focal clonic seizures followed by new types of seizure appeared in the form of focal tonic that migrated from right side to left side of body with global developmental delay. The seizures were refractory to most anti-epileptic drugs but showed some response to Valproic acid. This case demonstrated that Epilepsy of infancy with migrating focal seizures is a grave infantile epileptic encephalopathy which is refractory to antiepileptic drugs and can present with a wide spectrum of neurogenic symptoms.

Keywords: *KCNT1 - Potassium channel subfamily T member 1; EIMFS- Epilepsy of infancy with migrating focal seizures; EOEE- Early-onset epileptic encephalopathy.*

(MH Samorita Med Coll J 2024; 7(2): 94-98)

Introduction:

KCNT1 encodes a ligand-gated potassium channel, which is activated by intracellular sodium binding (also called SLACK, SLO2.2, KC4.1). KCNT1 has several functions, which include regulating neuronal firing rate, contributing to the slow hyperpolarization after repetitive firing, and it also has an important role in neuronal response to hypoxia.[1-3] Pathological mutation of KCNT1 gene causes an autosomal dominant disorder characterized by nocturnal frontal lobe epilepsy (ADNFLE) in children and adults, an early-onset epileptic encephalopathy (EOEE) in infants and children, and the most severe form, epilepsy of infancy with migrating focal seizures (EIMFS) in neonates and infants.[4,5] Clinical presentation of KCNT1 gene includes developmental delay, mild to moderate intellectual delay, secondarily generalized seizures/ migratory focal seizure, eye deviation, bilateral twitching of eyes, frothing from the mouth, cyanosis, and dysmorphic features such as sloping forehead, long philtrum, thin upper lip and long slender fingers.[4,6,7] Very few cases of KCNT1 mutation have been reported worldwide. To contribute to the limited existing cases, we report a case of KCNT1- related epilepsy from Bangladesh.

Case Report:

Aliza, 6 month-old-girl, third issue of her non-consanguineous parents, hailing from Laxmipur got admitted with the complaints of repeated episodes of seizure since third day of age and no neck control yet. Seizure was initially focal clonic followed by focal tonic involving right upper & lower limbs which persisted for 1-2 minutes occurred 5-6 times per day. Subsequently new types of seizure appeared in the form of migratory focal seizure, persisting for 1-2 minute, 7-8 times per day, associated with autonomic features. Regarding birth history she was delivered at term by normal vagina delivery with birth weight was 2.9 kg and cried immediately after birth. Then she developed seizure on third day and had history of 07 days NICU admission. Patient had global developmental delay. Developmental age was around 6 weeks. On examination, she was conscious, not interested to surroundings, vitals were within normal limit, anthropometrically well thriving except microcephaly. Motor examination of nervous system revealed tone & deep tendon reflexes (DTR) are normal in all 4 limbs, planter bilateral extensor,

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no involuntary movements. Other systemic examination revealed normal findings. Her metabolic screening panel was normal. MRI of brain showing mild cortical atrophy, EEG report showed epileptiform discharges arising from the fronto-parieto-temporo-occipital region and Genetic study showed Pathogenic mutation of KCNT1 – (Disease-Developmental and Epileptic Encephalopathy). Finally diagnosed as a case of Epilepsy of infancy with migrating focal seizure (KCNT1 positive) with Global developmental delay.

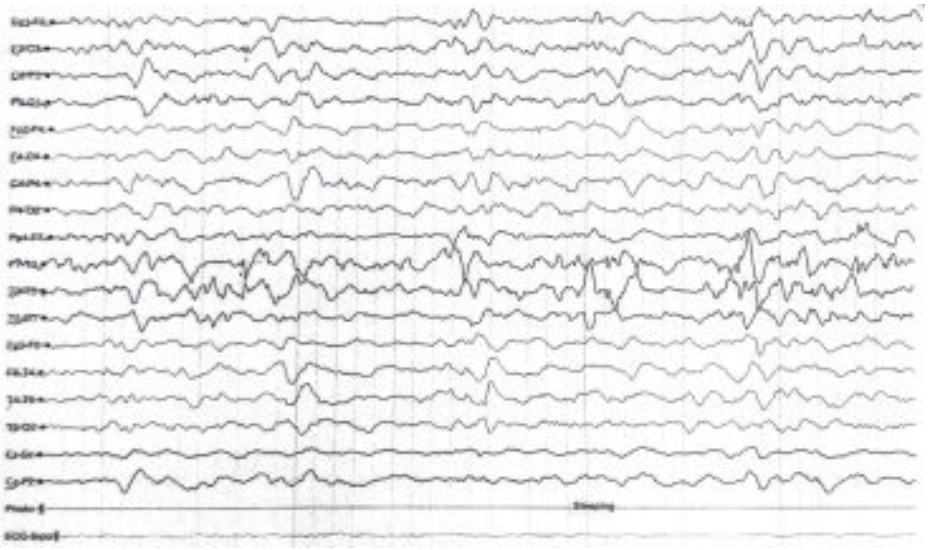

Figure 1: *Epileptiform discharges were arising from the fronto-parieto-temporo-occipital region*

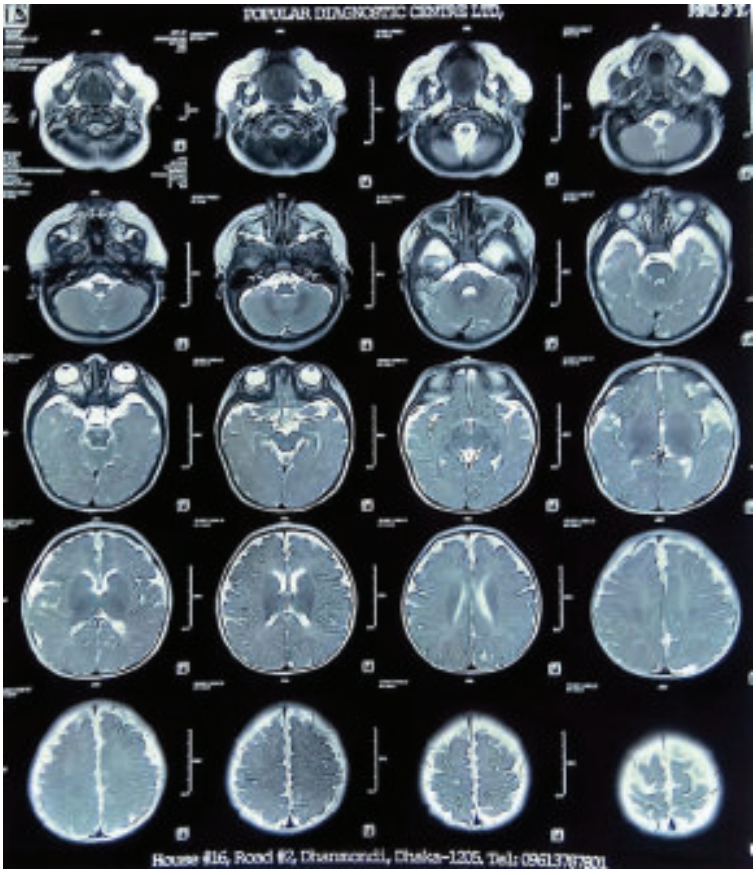

Figure 2: *Showing mild cortical atrophy*

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MEDGENOME

DNA TEST REPORT - MEDGENOME LABS

Full Name / Ref No:	ALIZA (200320)	Order ID/Sample ID:	1296426/9134512
Gender:	Female	Sample Type:	Blood
Date of Birth / Age:	5 month	Date of Sample Collection:	10th May 2025
Referring Clinician:	Dr. Kanij Fatema, Genetics Solutions, Dhaka Bangladesh	Date of Sample Receipt:	13th May 2025
		Date of Order Booking:	14th May 2025
		Date of Report:	2nd June 2025
Test Requested:	Whole Exome Sequencing		

CLINICAL DIAGNOSIS / SYMPTOMS / HISTORY

Baby Aliza, born of a non-consanguineous marriage, presented with clinical indications of multiple episodes of seizures since day 3 of life, neonatal spasm in the form of neonatal convulsion, later focal seizure, followed by generalized tonic-clonic seizures associated with upward rolling of eyes with lip smacking, and cyanosis. On evaluation, vesicular breath sound, slightly distended abdomen, centrally placed umbilicus, increased tone in upper and lower limb, exaggerated DTR, and bilateral plantar extensor. Baby Aliza is suspected to be affected with epilepsy and has been evaluated for pathogenic gene variants.

RESULTS

LIKELY PATHOGENIC VARIANT CAUSATIVE OF THE REPORTED PHENOTYPE WAS DETECTED

SNV(s)/INDELS

Gene# (Transcript)	Location	Variant	Zygosity	Disease (OMIM)	Inheritance	Classification$
KCNT1 (+) (ENST00000371757.7)	Exon 15	c.1421G>A (p.Arg474His)	Heterozygous	Developmental and epileptic encephalopathy 14 (OMIM#614959) / Epilepsy nocturnal frontal lobe, 5 (OMIM#615005)	Autosomal dominant	Likely Pathogenic (PM1,PM2,PP3,PP5)

Parental testing is recommended, and classification of the variant may change based on segregation analysis.

COPY NUMBER VARIANTS CNV(s)

No significant CNVs for the given clinical indications that warrants to be reported was detected.

VARIANT INTERPRETATION AND CLINICAL CORRELATION

Page 1 of 6
Name/Sample ID: Aliza (200320)/9134512

CAP ACCREDITED

Figure 3: *Showing KCNT1 Positive in Exon 15*

The patient was unresponsive to first-line Phenobarbital, Levetiracetam and vitamin-D supplements and second line Topiramate and Clonazepam. After Genetic analysis Valproic acid was then added to the regimen. The dose of anti-seizure medication (ASMs) was increased. However, neither ASMs nor ketogenic diet (KD) could control her seizures. Currently, the child is on KD along with ASMs but her seizures are not in control and she is not achieving her milestones (global delay) according to age.

Discussion:

KCNT1 gene has an autosomal dominant pattern of inheritance and encodes for the pore-forming alpha subunit of a voltage dependent sodium activated

potassium channel also known as SLACK (sequence like a calcium activated K + channel).[4] Particularly the frontal cortex, it is the largest potassium channel subunit with the highest concentration of channels in the central nervous system.[6] KCNT1 has several functions including the regulation of neuronal firing rate, slow hyperpolarization following repetitive firing, and neuronal response to hypoxia.[8] KCNT1 mutation was first reported in 2012 and to date several de novo mutations have been identified in children.[4] Functional studies have shown that mutations in the gene are mostly missense gain-of-function mutations that result in constitutional activation of potassium channels with enhanced potassium current through the channels and loss of inhibition leading to epileptogenesis.[9] Hence, pathogenic variants of KCNT1 have emerged as an important cause of epilepsy in recent years with a wide range of phenotypic spectrum: autosomal dominant nocturnal frontal lobe epilepsy (ADNFLE) in children and adults, an early-onset epileptic encephalopathy (EOEE) in infants and children, and the most severe form, epilepsy of infancy with migrating focal seizures (EIMFS) in neonates and infants.[10,11] To the best of our knowledge, this is the first reported case of KCNT1-associated epilepsy from Bangladesh. Epilepsy of infancy (EIMFS) is a rare calamitous epileptic encephalopathy and to date only around 100 patients have been reported worldwide with half of them having KCNT1 mutations.[4] The present report describes a five month-old female with focal clonic seizures since third day of birth. Data from previous studies in USA report the mean age of seizure onset to be < 6 months (EIMFS, 97%) with secondarily generalized seizures being the most common type (EIMFS, 57%).[8] Case reports from Asian countries such as India and Japan report an even earlier age of onset of two months and mostly epileptic spasms or focal seizures.[4,6] No statistically significant relation with gender has been established so far. Our findings show a mixed pattern with the age distribution more similar to data from Asian population, while type of seizure is consistent with features seen in studies from USA. Ictal features such as eye deviation, bilateral twitching of the eyes, frothing from the mouth, and cyanosis seen in this case correspond with features observed in previously reported cases that describe night-time 'gagging.[6] In this case of KCNT1 mutation, the child had global developmental delay which corresponds with many previously reported cases from other populations showed a mental developmental regression and psychomotor retardation from early infancy.[12] Presentation of KCNT associated epilepsy from Asian countries revealed subtle dysmorphism amongst affected individuals with features such as sloping forehead, long philtrum, thin upper lip, and long slender fingers.[4] Our case differs in these findings with the patient presenting with no dysmorphic features. However, findings such as normal anthropometric measurements are consistent with previous literature. One of the key features of EIMFS is its refractoriness to treatment rendering this type as the most fatal. For patients with KCNT1 related EIMFS, the most commonly prescribed therapies are Levetiracetam (96 percent), Phenobarbital (96 percent), Ketogenic diet (93 percent), Topiramate (79 percent), and Valproic acid (68 percent).[8] In our case, therapy with Phenobarbital, Topiramate, Levetiracetam, and Clonazepam did not yield any results. Similar type of unresponsiveness to treatment has also been noted in other cases.[7]

Conclusion:

This is the first genetically confirmed reported case of KCNT1 mutation from Bangladesh. We infer from this case that EIMFS is a grave infantile epileptic encephalopathy which is refractory to anti-epileptic drugs and can present with a wide spectrum of neurogenic and cardiogenic symptoms.

Disclaimer: None.

Conflict of Interest: None.

Source of Funding: Self funding

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Abstract From Current Literatures

(MH Samorita Med Coll J 2024; 7(2): 99-101)

Predictors of poor neurodevelopmental outcomes in neonates with clinically observed seizures: A prospective observational study in a tertiary care hospital of Bangladesh

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- PMID: 38708367
- PMCID: PMC11068513
- DOI: 10.1016/j.ebr.2024.100665

Neonatal seizures can lead to long-term neurodevelopmental problems. This study aims to identify predictors of poor developmental outcomes in neonates with seizures to aid in early intervention and referral for follow-up and rehabilitation. This observational study was conducted in the Department of Neonatology and Institute of Paediatric Neuro disorder and Autism, Bangabandhu Sheikh Mujib Medical University. Among 75 study cases of neonatal seizure, 23 died, and 46 were followed-up at 6 and 9 months after discharge. EEGs were performed on every patient. A comprehensive neurological examination and developmental evaluation were performed using Bayley Scales of Infant and Toddler Development, Third Edition (Bayley III). Three-fourths of neonates were born at term (76.1 %), and over half were male (56.5 %). The majority were appropriate for gestational age (79.7 %) and had an average birth weight of 2607 ± 696 g (±SD). Over half of the neonates (52.2 %) had adverse neurodevelopmental outcomes, with global developmental delay being the most common. Recurrent seizures, the number of anticonvulsants needed to control seizures, and abnormal Electroencephalograms were identified as independent predictors of adverse neurodevelopmental outcomes. The study highlights the need for early referral for follow-up and rehabilitation of neonates with seizures having abnormal electroencephalograms, recurrent seizures and requiring more anticonvulsants to control seizures.

Keywords: Adverse neurodevelopmental outcome; EEG; Neonates; Perinatal asphyxia; Seizures.

Double diabetes-when type 1 diabetes meets type 2 diabetes: definition, pathogenesis and recognition

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Currently, the differentiation between type 1 diabetes (T1D) and type 2 diabetes (T2D) is not straightforward, and the features of both types of diabetes coexist in one subject. This situation triggered the need to discriminate so-called double diabetes (DD), hybrid diabetes or type 1.5 diabetes, which is generally described as the presence of the insulin resistance characteristic of metabolic syndrome in individuals diagnosed with T1D. DD not only raises the question of proper classification of diabetes but is also associated with a significantly greater risk of developing micro- and macroangiopathic complications, which was independent of glycaemic control. When considering the global obesity pandemic and increasing incidence of T1D, the prevalence of DD may also presumably increase. Therefore, it is of the highest priority to discover the mechanisms underlying the development of DD and to identify appropriate methods to prevent or treat DD. In this article, we describe how the definition of double diabetes has changed over the years and how it is currently defined. We discuss the accuracy of including metabolic syndrome in the DD definition. We also present possible hypotheses connecting insulin resistance with T1D and propose possible methods to identify individuals with double diabetes based on indirect insulin resistance markers, which are easily assessed in everyday clinical practice. Moreover, we discuss adjuvant therapy which may be considered in double diabetic patients.

Keywords: Diabetes; Double diabetes; Indirect insulin resistance markers; Insulin resistance; Metabolic syndrome; Type 1 diabetes; Type 2 diabetes.

Urinary Tract Infections in Children

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Affiliations Expand

- PMID: 38689106
- DOI: 10.1542/pir.2023-006017

Despite the American Academy of Pediatrics guidelines for the evaluation, treatment, and management of urinary tract infections (UTIs), UTI diagnosis and management remains challenging for clinicians. Challenges with acute UTI management stem from vague presenting signs and symptoms, diagnostic uncertainty, limitations in laboratory testing, and selecting appropriate antibiotic therapy in an era with increasing rates of antibiotic-resistant uropathogens. Recurrent UTI management remains difficult due to an incomplete understanding of the factors contributing to UTI, when to assess a child with repeated infections for kidney and urinary tract anomalies, and limited prevention strategies. To help reduce these uncertainties, this review provides a comprehensive overview of UTI epidemiology, risk factors, diagnosis, treatment, and prevention strategies that may help pediatricians overcome the challenges associated with acute and recurrent UTI management.

Assessment and management of heart failure in patients with chronic kidney disease

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- DOI: 10.1007/s10741-023-10346-x

Heart failure (HF) and chronic kidney disease (CKD) are two pathological conditions with a high prevalence in the general population. When they coexist in the same patient, a strict interplay between them is observed, such that patients affected require a clinical multidisciplinary and personalized management. The diagnosis of HF and CKD relies on signs and symptoms of the patient but several additional tools, such as blood-based biomarkers and imaging techniques, are needed to clarify and discriminate the main characteristics of these diseases. Improved survival due to new recommended drugs in HF has increasingly challenged physicians to manage patients with multiple diseases, especially in case of CKD. However, the safe administration of these drugs in patients with HF and CKD is often challenging. Knowing up to which values of creatinine or renal clearance each drug can be administered is fundamental. With this review we sought to give an insight on this sizable and complex topic, in order to get clearer ideas and a more precise reference about the diagnostic assessment and therapeutic management of HF and CKD.

Keywords: Biomarkers; Cardio-renal syndrome; Chronic kidney disease; Guidelines-directed medical therapy; Heart failure.

Guidelines for Neuroprognostication in Critically Ill Adults with Moderate-Severe Traumatic Brain Injury

Susanne Muehlschlegel [1], Venkatakrishna Rajajee [2], Katja E Wartenberg [3], Sheila A Alexander [4], Katharina M Busl [5], Claire J Creutzfeldt [6], Gabriel V Fontaine [7], Sara E Hocker [8], David Y Hwang [9], Keri S Kim [10], Dominik Madzar [11], Dea Mahanes [12], Shraddha Mainali [13], Juergen Meixensberger [14], Oliver W Sakowitz [15], Panayiotis N Varelas [16], Christian Weimar [17 18], Thomas Westermaier [19 20]

- PMID: 38366277
- PMCID: PMC10959796
- DOI: 10.1007/s12028-023-01902-2

Background: Moderate-severe traumatic brain injury (msTBI) carries high morbidity and mortality worldwide. Accurate neuroprognostication is essential in guiding clinical decisions, including patient triage and transition to comfort measures. Here we provide recommendations regarding the

reliability of major clinical predictors and prediction models commonly used in msTBI neuroprognostication, guiding clinicians in counseling surrogate decision-makers.

Methods: Using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) methodology, we conducted a systematic narrative review of the most clinically relevant predictors and prediction models cited in the literature. The review involved framing specific population/intervention/comparator/outcome/timing/setting (PICOTS) questions and employing stringent full-text screening criteria to examine the literature, focusing on four GRADE criteria: quality of evidence, desirability of outcomes, values and preferences, and resource use. Moreover, good practice recommendations addressing the key principles of neuroprognostication were drafted.

Results: After screening 8125 articles, 41 met our eligibility criteria. Ten clinical variables and nine grading scales were selected. Many articles varied in defining "poor" functional outcomes. For consistency, we treated "poor" as "unfavorable". Although many clinical variables are associated with poor outcome in msTBI, only the presence of bilateral pupillary nonreactivity on admission, conditional on accurate assessment without confounding from medications or injuries, was deemed moderately reliable for counseling surrogates regarding 6-month functional outcomes or in-hospital mortality. In terms of prediction models, the Corticosteroid Randomization After Significant Head Injury (CRASH)-basic, CRASH-CT (CRASH-basic extended by computed tomography features), International Mission for Prognosis and Analysis of Clinical Trials in TBI (IMPACT)-core, IMPACT-extended, and IMPACT-lab models were recommended as moderately reliable in predicting 14-day to 6-month mortality and functional outcomes at 6 months and beyond. When using "moderately reliable" predictors or prediction models, the clinician must acknowledge "substantial" uncertainty in the prognosis.

Conclusions: These guidelines provide recommendations to clinicians on the formal reliability of individual predictors and prediction models of poor outcome when counseling surrogates of patients with msTBI and suggest broad principles of neuroprognostication.

Keywords: Neurocritical care; Outcome; Prognosis; Prognostication; Traumatic brain injury.

Notes & News

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CME Presentations
(January-June 2024)

No.	Date	Department	Presenter	Topic
1.	14.01.2024	Psychiatry	Dr. Md. Enayet Karim Professor & Head	Parkinson's disease
2.	29.01.2024	Cardiology	Dr. S.M. Mamun Iqbal Professor & Head Dr. Mafuza Tabassum Khan Medical Officer Dr. Nurullah Mujahid Majumdar Medical Officer	Advanced Treatment of Structural Heart Disease
3.	11.02.2024	Anaesthesiology	Dr. Sumaiya Nahar Registrar	Basics of Anaesthesia
4.	25.02.2024	Paediatrics	Dr. Farhana Akhter Liza Dr. Anika Rahman Dr. Setu Mondol Dr. Shahnaz Begum Dr. Humaira Anjum Mow Dr. Sadia Sultana Tanni Interns	Challenges in Treatment of Nephrotic Syndrome in Children
5.	02.03.2024	Gynaecology and Obstetrics	Dr. Ang Xiaohong Joella Consultant, Singapore General Hospital Prof. Dr. Nahla Bari Professor & Head	Cervical Cancer Screening in Singapore
6.	18.03.2024	Anatomy	Dr. Fahmida Zaman Associate Professor & Head	Anatomical Basis of Liver
7.	21.04.2024	Endocrinology & Lifestyle Medicine	Dr. Maisha Tasnim Nisha Dr. Md. Siam Hossain Dr. Rayhan Hossain Dr. Sajida Sara Turky Interns	Lifestyle Management in Systemic Disease
8.	05.05.2024	Physiology, Pathology, Medicine & Community Medicine	Dr. Nahiyan Rabby Lecturer, Physiology. Dr. Shaila Akter Lata Lecturer, Pathology. Dr. Maisha Tasmim Nisha Intern, Medicine. Dr. Shuvo Chandra Acharjee Lecturer, Community Medicine.	Heat related illnesses
9.	12.05.2024	Surgery	Dr. Zamal Uddin Dr. Tamanna Ahmed Assistant Professor	The Evolution of Current Concept of Wound Closure and Reconstruction Ladder in Surgery
10.	19.05.2024	Physical Medicine	Dr. Supriya Sarkar Assistant Professor	Osteoarthritis & its Disabilities: Updated Management including Rehabilitation
11	28.05.2024	Transfusion Medicine.	Dr. Shayma Hamid Assistant Professor	Application of Platelet -Rich-Plasma (PRP) in Regenerative Medicine
12	11.06.2024	Radiology and Imaging	Dr. Fatama Sharmin Associate Professor Dr. Kamrun Nahar Tuli Sonologist	Ultrasound findings of Cholecystitis & Cholelithiasis
13	30.06.2024	ENT & Head Neck Surgery	Dr. Fahima Hasan Joarder Dr. Tariqul Islam Chowdhury Interns	Chronic Suppurative Otitis Media (CSOM)