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INFORMATION FOR AUTHORS

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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.

I A. 9. Units of Measurement

- 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).
- Drug concentrations may be reported in either SI or mass units, but the alternative should be provided in parentheses where appropriate.

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.
- The spelled-out abbreviation should be used in parenthesis on first mention followed by the use of abbreviation in parenthesis unless the abbreviation is a standard and well established one like 'WHO'.

I B. Submission of the Manuscript to the Journal

- If a paper version of the manuscript is submitted, send the required number of copies of the manuscript and figures; they are all needed for peer review and editing, as the editorial office staff cannot be expected to make the required copies.
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- It also must be accompanied by certificate of approval from Ethical committee of respective Institution for original article.

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- All submitted manuscripts are subject to scrutiny by the Editor in-chief or any member of the Editorial Board.
- Manuscripts containing materials without sufficient scientific value and of a priority issue, or not fulfilling the requirement for publication may be rejected or it may be sent back to the author(s) for resubmission with necessary modifications to suit one of the submission categories.
- Manuscripts fulfilling the requirements and found suitable for consideration are sent for peer review.
- Submissions, found suitable for publication by the reviewer, may need revision/ modifications before being finally accepted.
- Finally, Editorial Board decides upon the publishability of the reviewed and revised/ modified submission.
- The reviewed and revised manuscript may be sent to the authors, and should be corrected and returned to the editorial office within one week. No addition to the manuscript at this stage will be accepted.
- All accepted manuscripts are edited according to the Journal's style.

I D. Checklist for Article Submission

As part of the submission process, authors are required to check off their submission's compliance with all of the following items, and submissions may be returned to authors that do not adhere to these guidelines.

Check Lists

Final checklists before you submit your revised article for the possible publication in the MH Samorita Med Coll J.

1. Forwarding/Cover letter and declaration form,
2. Authorship and conflicts of interest form,
3. Manuscript

If you have submitted mentioning document (1, 2, 3) above, when you first submit your article but if there is change in the authorship or related then you have to re-submit it.

- **General outline for article presentation and format**
- Double spacing
- Font size should be 12 in arial
- Margins 5 cm from above and 2.5 cm from rest sides.
- Title page contains all the desired information
- Running title provided (not more than 40 characters)
- Headings in title case (not ALL CAPITALS, not underlined)
- References cited in superscript in the text without brackets after with/without comma (,) or full stop (.)
- References according to the journal's instructions – abide by the rules of Vancouver Style.
- **Language and grammar**
- Uniformity in the language
- Abbreviations spelt out in full for the first time
- Numerals from 1 to 10 spelt out
- Numerals at the beginning of the sentence spelt out.
- **Tables and figures**
- No repetition of data in tables/graphs and in text
- Actual numbers from which graphs drawn, provided
- Figures necessary should be of good quality (colour)
- Table and figure numbers in Arabic letters (not Roman)
- Labels pasted on back of the photographs (no names written)
- Figure legends provided (not more than 40 words)
- Patients' privacy maintained (if not, written permission enclosed)
- Credit note for borrowed figures/tables provided.
- Each table/figure in separate pages.

I E. Manuscript Format for a Research Article

- **Title**
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- Mention conflict of interest if any
- **Abstract**
- Do not use subheadings in the abstract
- Give full title of the manuscript in the abstract page
- 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
- Use reference at the end of the sentence after the full stop with superscript
- **Legends**
- Tables
- Figures

Editorial

Posthumous Eye Donation (Donation of Eye after Death)

Quadir MS

Shakespeare said, the eyes are our windows to the world and windows to our soul. Of all the organs of sense, gift of sight is the most precious. The corneas of eye donated by a dead person (desired before death),can restore vision of a blind person (blindness due to corneal disease). In this way cornea of a dead person remain active even after his death.For this purpose healthy donor cornea from a dead person has to be transplanted to the eye of a blind person. This donation of cornea can be collected by voluntary donation process (by desire to do so before death). But collection of eye from a dead person is not acceptable to a section of people on social or religious ground. Now a days cornea is commercially available in some countries (eg. Srilanka). Makka based The Islamic Fiqh council (1988) has given the opinion that eye donation after death does not contradict against shariah law [1]. OIC has also given the same opinion.

According to a study by vision loss expert group, conducted in 98 countries from 1980 to mid 2014, summerised by the international agency for the prevention of blindness (IAPB) shows total member of blind population of the world is 36 million. Among these blind population number of corneal blindness is 13 million (this corneal blindness is in fifth position after cataract, refractive error, glaucoma, age related macula degeneration) [2].

Sandhani eye donation society of our country was established in 1984. It is a voluntary organization working to promote voluntary eye donation. It is working as per The Blind Relief (Donation of Eye) Act, 1975-Laws of Bangladesh[3].According to sandhani eye donation society, 14 lac people are blind in Bangladesh. Sandhani observes **eye donation day** on 2nd November every year. Now a days Sandhani made arrangement to collect cornea of dead person not the whole eye ball (previously whole eye ball happened to be removed).They got 4,028 corneas over last 35 years. But this number is inadequate in comparison to the number of blind people. Thousands of blind people (registerd with Sandhani) are waiting to get back their vision over many years.

If anybody is interested to donate his eyes, he has to collect an agreement paper provided by Sandhani, which is needed to be filled by the donor. Then Sandhani will provide a donor card to him. Relatives of the donor has to inform nearby office of Sandhani within 6 hours after death of the person.There is system to be registered as corneal blind person (certified by ophthalmologist) with Sandhani.

There are some contraindication for corneal donation like- living person, death due to unknown cause, children, persons above the age 65 years, AIDS, hepatitis B, hepatitis C, rabies, leukaemia, lymphoma, endocarditis, ocular malignant disease of eye ball.Contraindications for recipient includes- uncontrolled glaucoma, uveitis,retinitis and ocular surface disorder.

There is strong need for increasing social awareness, removal of religious bar through media and other means, to make this campaign successful. Teachers, religious leaders, political leaders, journalists and others can be involved in this process. Government help also needed to make this campaign successful.So, by promoting posthumous eye donation restoration of vision to many blind people is possible. They will be able to see the near and dear ones again. The beauty of the world will bring smile to their face.

(MH Samorita Med Coll J 2021; 4(2): 40)

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Original Articles

Effect of Ethanol Extract of *Swertia Chirata* on Serum Creatinine and Serum Alanine Aminotransferase (ALT) Level in Alloxan Induced Diabetic Rat Model

Jahan I [1], Iqbal MJU [2], Ara F [3], Sultana N [4], Kabir R[5], Nazmin S [6], Islam NS [7]

Abstract

Introduction: *Diabetes mellitus is the most common endocrine disorder that impairs glucose homeostasis. Uncontrolled diabetes can lead to diseases affecting the kidneys, heart, eyes and nerves. Medicinal plants have always been a potential source to cure different diseases.*

Objective: *The present study was undertaken to screen the effect of ethanol extract of Swertia chirata on serum creatinine and serum alanine aminotransferase (ALT) level.*

Materials and Methods: *This experimental study was carried out in the Department of Pharmacology and Therapeutics of Sir Salimullah Medical College in collaboration with Institute of Nutrition & Food Science (INFS), University of Dhaka, from January 2014 to December 2014. Thirty six healthy male Swiss Albino rats were taken and divided into six groups, each group contains six rats. Diabetes was induced in albino rat models with alloxan monohydrate. The ethanol extract was orally administered for 4 weeks at a dose of 250 mg/kg body weight (b.w),500 mg/kg b.w & 750 mg/kg b.w. Serum creatinine and serum alanine aminotransferase (ALT) levels were evaluated on 29th day.*

Result: *Serum creatinine and serum alanine aminotransferase (ALT) levels were significant ($p<0.001$) in comparison with alloxan treated diabetic rats.*

Conclusion: *The ethanolic extract of Swertia chirata does not produce nephrotoxicity and hepatotoxicity in normal and diabetic rat model. The molecular components of the active ingredients of Swertia chirata should be investigated in the future for the development of new drug.*

Keywords: *Diabetes mellitus; ethanol extract of Swertia chirata; alloxan monohydrate; serum creatinine; ALT level.*

(MH Samorita Med Coll J 2021; 4(2): 42-47)

Introduction

Diabetes mellitus is a debilitating and often life-threatening disorder with increasing incidence throughout the world [1]. The prevalence of diabetes is more pronounced in the third world countries like Bangladesh. It is estimated that in 2030 about 11.1 millions people of Bangladesh will be affected by diabetes which will rank the 7th position of global consideration. The number of people with diabetes is increasing due to population growth, aging, urbanization, and increasing prevalence of obesity and physical inactivity [2]. Diabetes mellitus is associated with long-term complications, including retinopathy, nephropathy, neuropathy, angiopathy and several others [3].

Diabetic nephropathy is one of the microvascular complications of diabetes. The pathophysiology

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involves an interaction between metabolic and hemodynamic factors. Metabolic factors include advanced glycation, increased formation of polyols and activation of protein kinase-C. Hemodynamic factors include systemic hypertension, intraglomerular hypertension and the role of vasoactive hormones, such as anglotensin II. Clinical course progresses from microalbuminuria to overt proteinuria and then to renal failure [4]. Kidney and liver have become the focus of investigation in studies of diabetic complications. Serum creatinine and serum alanine aminotransferase (ALT) level are one of the major parameter to perform kidney and liver function [5].

Traditional plant medicines are used throughout the world for a range of diabetic complications[6]. Plant drugs are frequently considered to be less toxic and more free from side effects than synthetic ones [7]. The suitable weather and fertile soil has enabled Bangladesh a great source of medicinal plants [8]. One of such plant that has been the subject of interest in research is *Swertia chirata*, has a long history as a multipurpose folk remedy in India, Nepal, Bhutan, Bangladesh and China. Useful chemical compounds (Swerchirin, Swertiamarin, Xanthones, Mangiferin) in the *Swertia chirata* plants are typically isolated [9].

In Ayurveda, *Swertia chirata* is used as antipyretic, anthelmintic, anti-inflammatory, anti-carcinogenic, anticholinergic, antioxidant, antimalarial, hypoglycemic, in mutagenicity laxative, in asthma and in leucorrhoea. In Indian medicinal system, chirata is used as remedy for bronchial asthma, liver disorders, kidney disease, chronic fever, anemia, stomachic and diarrhoea. In Yunani system the plant is used as astringent, tonics, stomachic, lessens inflammation, sedative to pregnant uterus and chronic fever [10].

The present study has therefore been undertaken to investigate the nephroprotective and hepatoprotective effect of ethanol extract of *Swertia chirata* on normal and experimentally induced diabetic rat model.

Materials and methods:

This experimental study was carried out in the Department of Pharmacology and Therapeutics of Sir Salimullah Medical College in collaboration with the Institute of Nutrition and Food Science (INFS), University of Dhaka, Bangladesh.

Collection of reagents and Preparation of extract

Alloxan monohydrate was purchased from local chemical market Hattkhola, Dhaka and *Swertia chirata* was purchased from Moulovi Bazar, Dhaka.

Alloxan is a toxic glucose analogue, which selectively destroys insulin-producing cells in the pancreas (that is beta cells) when administered to rodents and many other animal species. Eleven hundred eighty (1180) grams of grinded powder chirata was soaked in 5000 ml ethanol for 5days with occasional shaking, and then filtered. The filtrate was condensed by rotatory vacuum evaporator and stored in refrigerator.

Animal housing

Thirty six healthy male Swiss Albino rats, aged 10-12 weeks and weighing between 130-140 gm were purchased from the animal resource division of International Centre for Diarrhoeal Disease and Research, Bangladesh (ICDDR,B), Mohakhali. They were housed in clean metallic cages individually in the animal house of the Institute of Nutrition and Food Science, in a well ventilated room within room temperature of about 26-28^{o}C. The animal house was maintained under a constant light and dark cycle alternating every 12 hours. The rats were allowed to feed upon standard food pellets and drink water ad libitum, except for the overnight fast, the day before blood glucose estimation. During fasting, they were allowed free access to water only [11].

Animal Experimentation

The animal experiment comprised of two experiments- Experiment I and Experiment II. Diabetes was not induced in the rats of experiment I. Alloxan (150mg/kg body weight) was injected to induce diabetes in animals of experiment II.

Experiment – I

This part of experiment was carried out to observe the effect of *Swertia chirata*, on serum creatinine level and serum alanine aminotransferase (ALT) level in normal rats. Twelve rats were divided into 2 groups A and B, each comprising 6 rats.

Group-A (Non-diabetic non chirata control group)

Rats were given standard rat feed (pellets) and water (*ad libitum*) for 4 weeks. On 29th day of the experiment serum creatinine and serum alanine aminotransferase (ALT) levels were done.

Group-B (Non-diabetic chirata control group)

Rats were given ethanol extract *of Swertia chirata* 250 mg/kg b. w. orally along with rat pellets and water for 4weeks. On 29th day of the experiment serum creatinine and serum alanine aminotransferase (ALT) levels were done.

Experiment – II

This part of study was carried out to see the effect of ethanol extract *of Swertia chirata* on serum creatinine and serum alanine aminotransferase (ALT) level in alloxan induced diabetic rat model. A total of 24 rats were divided into four groups, each comprising 6 rats. All animals were made diabetic by intraperitoneal administration of alloxan at 150 mg/kg body weight.

Group-C (Diabetic control group)

Rats received standard food and water. Fasting blood glucose level was estimated before alloxan injection, 72 hrs after alloxan injection to confirm diabetes induction. On 29th day of the experiment serum creatinine and serum alanine aminotransferase (ALT) levels were done.

Group-D (Experimental group)

Diabetic rats were divided into three sub groups- D_1, D_2 & D_3, fed with ethanol extract *of Swertia chirata* (250 mg/kg body weight, 500 mg/kg body weight, 750mg/kg body weight) orally by means of micropipette along with standard food and water for 4 weeks. Fasting blood glucose level was estimated on before alloxan, 72 hrs after alloxan. On 29th day of the experiment serum creatinine and serum alanine aminotransferase (ALT) levels were done in all 3 sub groups.

Collection of blood

Blood sample were collected via the tail vein by aseptically cutting the tip of the tail with a sharp sterile blade after an overnight fast for the measurement of fasting blood glucose levels in day 1 and day 4 then collected in eppendrof. All the animals were then sacrificed under light chloroform anesthesia after completion of treatment on day 29 of the experiment. Blood was obtained in eppendorf tubes and centrifuged at 3000 rpm for 15 minutes for the separation of serum. This serum was then used for biochemical analysis.

Determination of serum creatinine and serum alanine aminotransferase (ALT) level

Estimation of serum creatinine level was done by alkaline picrate method and serum alanine aminotransferase (ALT) level was done by Colorimetric method via Semi-automatic biochemistry analyzer (Eolution-3000, Italy).

Statistical analysis

The results were given as mean and standard deviation (SD) for the independently performed experiments. Unpaired students't test was used to see the level of significance, p value <0.001 was considered as statistically significant.

Result:

In Table 1, the effect of ethanol extract of *Swertia chirata* on serum creatinine level in the non- diabetic rat was observed. It was found that there was no statistically significant ($p>0.05$) change of serum creatinine level in group B (0.80 ± 0.14) compared to those in control group A (0.83 ± 0.16).

Table 2 showed the effect of ethanol extract of 3 different doses of *Swertia chirata* on alloxan induced diabetic rats. Compared to serum creatinine level in diabetic control group C (1.75 ± 0.21), a significant ($p<0.001$) decrease in serum creatinine level was observed in the experimental D_1 (1.18 ± 0.15), D_2 (0.95 ± 0.10) and D_3 (0.85 ± 0.10) groups.

In Table 3, the effect of ethanol extract of *Swertia chirata* on serum alanine aminotransferase (ALT) level in the non- diabetic rat was observed. It was found that there was no statistically significant ($p>0.05$) change of serum alanine aminotransferase (ALT) level in group B (30.17 ± 2.14) compared to those in control group A (28.83 ± 1.47).

Table 4 showed the effect of ethanol extract of 3 different doses of *Swertia chirata* on alloxan induced diabetic rats. Compared to serum alanine aminotransferase (ALT) level in diabetic control group C (61.17 ± 3.49), a significant ($p<0.001$) decrease in serum alanine aminotransferase (ALT) level was observed in the experimental D_1 (49.67 ± 1.63), D_2 (40.50 ± 2.17) and D_3 (32.50 ± 3.56) groups.

Table-1: Effect of ethanol extract of *Swertia chirata* on serum creatinine level in normal rats:

Group (n=6)	Treatment	Serum creatinine (mg/dl) on 29 day (mean ± SD)	P value*
Group A (n=6)	Standard lab diet and water *ad libitum*	0.83 ± 0.16	p>0.001 *ns*
Group B (n=6)	Ethanol extract *of Swertia chirata* (250mg/kg b.w.)	0.80 ± 0.14	

*level of significance determined by independent sample t test
ns: non-significant; b.w: body weight

Table - 2: Effect of ethanol extract of *Swertia chirata* on serum creatinine level in alloxan induced diabetic rats:

Group (n=6)	Duration of treatment (Day 4-28)	Serum creatinine (mg/dl) on 29 day (Mean ± SD)	P value*
Group C (n=6)	Standard lab diet and water ad libitum	1.75 ± 0.21	
Group D_1 (n=6)	Ethanol extract *of Swertia chirata* (250mg/kg b.w.)	1.18 ± 0.15	p<0.001 *s* C vs D_1
Group D_2 (n=6)	Ethanol extract *of Swertia chirata* (500mg/kg b.w.)	0.95 ± 0.10	p<0.001 C vs D_2
Group D_3 (n=6)	Ethanol extract *of Swertia chirata* (750mg/kg b.w.)	0.85± 0.10	p<0.001 C vs D_3

*level of significance determined by independent sample t test
s: significant ; b.w: body weight

Table-3: Effect of ethanol extract of *Swertia chirata* serum alanine aminotransferase (ALT) level in normal rats:

Group (n=6)	Treatment	Serum ALT (U/L) level on 29 day (mean ± SD)	P value*
Group A (n=6)	Standard lab diet and water *ad libitum*	28.83 ± 1.47	p>0.001
Group B (n=6)	Ethanol extract *of Swertia chirata* (250mg/kg b.w.)	30.17 ± 2.14	

*level of significance determined by independent sample t test
ns: non-significant; b.w: body weight

Table -4: Effect of ethanol extract of *Swertia chirata* on alanine aminotransferase (ALT) level in alloxan induced diabetic rats:

Group (n=6)	Duration of treatment (Day 4-28)	Serum ALT (U/L) on 29 day (Mean ± SD)	P value*
Group C (n=6)	Standard lab diet and water *ad libitum*	61.17±3.49	
Group D_1 (n=6)	Ethanol extract *of Swertia chirata* (250mg/kg b.w.)	49.67± 1.63	p<0.001 C vsD_1
Group D_2 (n=6)	Ethanol extract *of Swertia chirata* (500mg/kg b.w.)	40.50 ±2.17	p<0.001 C vsD_2
Group D_3 (n=6)	Ethanol extract *of Swertia chirata* (750mg/kg b.w.)	32.50± 3.56	p<0.001 C vsD_3

*level of significance determined by independent sample t test
s: significant; b.w: body weight

Discussion:

This research work has been conducted to investigate the nephroprotective and hepatoprotective effect of *Swertia chirata*. Hence it was carried out to evaluate the effect of ethanolic extract of *Swertia chirata* on serum creatinine and serum alanine aminotransferase (ALT) level in rats. The above mentioned parameters were tested upon non-diabetic as well as experimentally induced diabetic rats after 28 days of treatment.

In the present study, diabetes was induced by alloxan monohydrate. The blood glucose level in animals were measured 72 hours after administration of alloxan. Administration of a single dose of alloxan at 150mg/kg b. w. intraperitoneally, increased the blood glucose level significantly (p<0.001). Similar observation was reported by number of researchers[12,13]. So it may be concluded that alloxan is a potent diabetic agent in rats.

The study was divided into two parts: Experiment-I and Experiment-II. Experiment -I included group A and group B. Experiment-II included group C, group D_1, D_2 and D_3. Blood was collected from group A,B, C, D_1, D_2, and D_3 on day 1 and day 29 of experiment. The dose (250mg/kg b. w. & 500mg/kg b. w.) and duration of the study (28 days or 4 weeks) was selected according to number of researchers [14].

Significant increase in renal parameter serum creatinine in alloxan induced group indicates impaired renal function due to decreased excretion of creatinine in the urine, which in turn may be due to the basement membrane injury [15]. Treatment with ethanol extract of *Swertia chirata* produced significant (p<0.001) improvement in the level of creatinine.

Intraperitoneal injection of CCl_4 (1 ml/kg body wt on every 72 hr. for 16 days) significantly increased serum aspartate aminotransferase (ASAT), alanine aminotransferase (ALAT), and alkaline phosphatase (ALP) activities and bilirubin level in rat, but liver glycogen and serum cholesterol levels were decreased. Histologically it produced hepatocytic necrosis especially in the centrilobular region. Simultaneous treatments with *Swertia chirata* (in different doses, viz, 20, 50 and 100 mg/kg body wt daily) and CCl_4 (similar dose to that mentioned earlier) caused improvement at both biochemical and histopathological parameters [16].

Serum alanine aminotransferase (ALT) level is more specific to the liver and a better parameter for detecting liver damage [17]. In the present study ALT level was normal by the administration of ethanol extract of *Swertia chirata*.

Several studies on different parts of *Swertia chirata* have demonstrated the presence of Swerchirin, Swertiamarin, Xanthones, Mangiferin, Flavonoids and Polyphenols, which are known to possess medicinal properties [18].

The results of the present study shows that ethanol extract of *Swertia chirata* has nephroprotective and

hepatoprotective effect. Similar type of observation was reported by number of researchers [19].

Conclusion:

Results of the present study indicate that administration of ethanol extract of *Swertia chirata* do not produce any harmful effect on kidney and liver. It has nephro and hepatoprotective effect. Moreover, the molecular components of the active ingredients of *Swertia chirata* need to be investigated with a detailed evaluation on the mechanisms involved in the observed activities. Long term treatment with large number of animals should be conducted before taking any attempt of clinical trial.

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Body Weight Changes in Women Using Implanon in Family Planning Model Clinic of a Tertiary Level Hospital in Bangladesh

Kohinoor GA[1], Jahan MS[2], Bari N[3], Parvin B[4], Alam TJ[5], Haque FB[6], Bishor MTZ[7], Jhora FT[8], Salma U[9]

Abstract:

Introduction: *Progestogen-only contraceptive implants are highly efficacious, reversible method of contraception with failure rates sometimes similar to those of sterilization. Etonogestrel (ENG) contraceptive implants are becoming increasingly popular birth control choice. This long acting and reversible contraceptive is safe, effective and suitable for most women of reproductive age. However, weight gain is one of the adverse events with the use of such contraceptives. Increase in weight also constitutes a significant reason clients adduce for the discontinuation of these contraceptives. Adequate counseling prior to insertion of Implanon increases its acceptance.*

Objective: *To see the body weight changes of the Implanon users in Family Planning Model Clinic, Dhaka Medical College and Hospital (DMCH).*

Materials and Methods: *This Cross-sectional study was carried out in the Department of Obstetrics & Gynaecology of Family Planning Model Clinic, DMCH during the period of February 2012 to August 2012. A total of 62 clients of Implanon users were included in this study. Data were collected by face to face interview using a semi-structured questionnaire and checklist. The body weight was measured at each visit using the same scale and measurement protocol. A weight of 70 kg and below was considered as normal in this study. All the relevant data were recorded at the time of insertion and all the clients were reviewed after six months.*

Results: *During the study period, 62 women accepted Implanon, and followup was done after 6 months. Their body weights were taken at baseline and at followup visit. In this study, the mean age of the respondents was 27.26±5.498 years. Most of the respondents were in the age group of 26 to 30 years. Majority of the respondents were home makers (80.6%), more or less literate up to primary level (56.5%). Majority (90.3%) were from lower middle class family. Most of the respondents (35.48%) were married for 6-10 years. Majority of the respondents (46.8%) had two children. The mean parity was 2.13±0.80 live births. Majority of the respondents (64.51%) had their last child age below 5 months. About 29% of the patients previously used injectable contraceptive method. The body weight of the respondents at followup visit was compared with the baseline weight. Majority of the clients had regular menstrual cycle (67.7%) at pre-insertion period and majority of them were amenorrhoeic (67.7%) at post-insertion period. The commonest weight category at baseline was 51-60 kg which was same during the followup period. Most of the clients (46.8%) had static body weight before and after insertion which is not statistically significant (t=0.451). Majority of the respondents (77.4%) were*

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satisfied with Implanon and 98.4% of the respondents continued Implanon after 6 months and only one discontinued for severe lower abdominal pain which was not Implanon related.

Conclusion: *Implanon is an effective, safe and acceptable method of contraception among its acceptors. Though body weight change is one of the important side effects, but in this study, most of the subjects found it tolerable with adequate counseling. This study showed that implant contraception had a high degree of effectiveness with relatively high user satisfaction and continuation rate.*

Key words: *Implanon, Body weight*

(MH Samorita Med Coll J 2021; 4(2): 48-53)

Introduction:

Contraception is the act of preventing pregnancy. Birth control methods are designed to prevent conception or interrupt or nullify implantation and growth. Conception can be prevented by hormonally disrupting the menstrual cycle (OCP, implant), by physically blocking the passageway (barrier method or sterilization) or less successfully by abstinence during fertile periods or withdrawal method[1]. Contraceptive implants are one of the most effective family planning methods which were introduced more than 25 years ago[2]. Etonogestrel (ENG) contraceptive implants are becoming increasingly popular birth control choice. Approximately 6 million women are using this method worldwide[2]. This safe, highly effective long acting and reversible contraceptive is suitable for most women of reproductive age. Recent guidelines are also supporting its use in women with a history of venous thromboembolism or congenital and acquired cardiac disease[3, 4]. Recent data has shown that the ENG implant is one of the most effective reversible contraceptive methods with a failure rate of 0.01 per 100 implant fitted[5]. Despite of their safety and efficacy, these methods remain underutilized. Implanon is a single-rod implant made of an ethylene vinyl acetate copolymer (EVA) with a core containing 68 mg of ENG (3-keto desogestrel, active form desogestrel) [6-7]. The implant has a length of 40mm and a diameter of 2 mm and is inserted for subdermal application. The Implanon is placed subdermally in the medial aspect of the non-dominant arm, 6-8 cm above the elbow at 1-5 days of menstrual cycle[8]. Contraceptive action is mainly by inhibition of ovulation and last for 3 years. A release rate of 25-30 µg/day of ENG is required to suppress ovulation[9]. The ENG in Implanon is released out an initial rate of approximately 60-70 µg/day which slowly decreases to about 30 µg/day by years 2 and 3[10]. Implanon also causes thickening of cervical mucus so that it becomes impenetrable to sperm and causes the endometrial lining to become thin and atrophic[11]. After removal, the women's normal fertility capacity restored very rapidly. The major side effects associated with the use of contraceptive implants are changes in bleeding pattern (frequency, duration & amount). Other potential side effects include weight gain, headache, abdominal pain, acne, dizziness, nausea, breast tenderness and mood changes[12-13]. Frequent cause of discontinuation of Implanon is bleeding irregularities, weight changes, acne and seeking child. Adequate counseling prior to insertion of Implanon about possible side effects increases rates of continuation[14]. Many studies have been done about its safety and efficacy in different countries. But in Bangladesh, there are few studies about Implanon. This study was intended to see the body weight changes of the Implanon users in DMCH.

Materials and Methods:

This Cross-sectional Observational study was carried out in the Family Planning Model Clinic, DMCH during the period of February 2012 to August 2012. Purposive sampling was done. The sample size was 62. Source of material were patient record book, semi-structured questionnaire and check list. Implanon clients who gave consent were included in the study and who refused to be included in the study were excluded. Before insertion of Implanon, thorough history was taken. Counseling about risk and benefits of Implanon was carried out before insertion. Age was recorded in nearest full year as stated by the patient. The body weight was measured at each visit using the same scale and measurement protocol. Body weight of 70 kg and below was considered as normal in this study. Follow up was done with detail after six months. Our patients were classified into different social classes depending on the income of the family as follows:[15]

Lower income group (Monthly Income = < 4800 Taka)

Lower middle income group (Monthly Income = < 4800-20,000 Taka)

Middle income group (Monthly Income > 20,000 Taka)

The collected data were compiled and findings were presented through tables then appropriate statistical analysis of data was done by using statistical package for social science (SPSS 17).

Results:

During the study period, 62 women accepted Implanon, but 61 (98.4%) has one followup visit after 6 months. Their body weights were taken at baseline and at followup visit. Results were represented on table and figures by using computer. Most of the respondents were in the age group 26-30 years. Mean age of the respondents was 27.26 with SD 5.498 (Fig. 1). Majority of the respondents were home makers (80.6%) and rest were service holders (8.1%), garments worker (6.5%), day laborer (3.2%), businesswoman (1.6%) (Table-1).

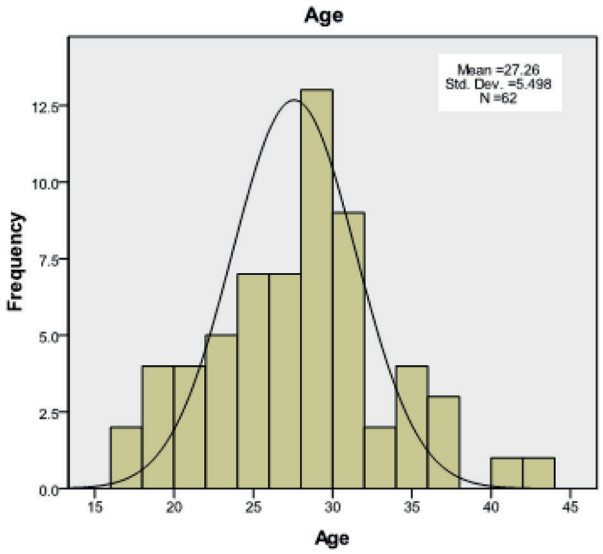

Fig. 1: *Distribution of age of the respondents*

Table 1: Distribution of Occupation of respondents (n=62)

Occupation of respondents	Frequency	Percentage
Home makers	50	80.6
Day Labourer	2	3.2
Garments Worker	4	6.5
Service	5	8.1
Business	1	1.6
Total	62	100.0

Table 2: Distribution of Education of respondents (n=62)

Level of Education of respondents	Frequency	Percentage
Illiterate	8	12.9
Primary	35	56.5
Secondary	16	25.8
Graduate	2	3.2
Post Graduate	1	1.6
Total	62	100.0

Majority of the respondents were more or less literate and 56.5% were educated up to primary level and only 1.6% were post graduate (Table-2). Most of them were from lower middle class family. Mean income of the respondents was 13467.74 with SD 9189.655 taka. (Fig. 2). Majority of the respondents (46.8%) had two children. Only 4.8% had 4 children (Table-3). Majority of the respondents (64.51%) had their last child age below 5 months (Table-4).

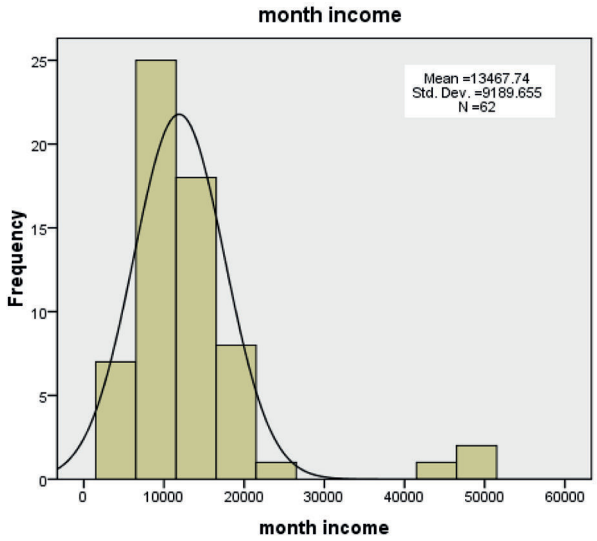

Fig. 2: *Distribution of the respondents by monthly income*

Most of the patients previously used injectable contraceptive methods (29%). From the rest of them, 12.9% used barrier method and 12.9% used implant (Table-5). Maximum clients had regular menstrual cycle (67.7%) at pre-insertion period and majority of them were amenorrhoeic (67.7%) at post-insertion period (Table-6). The commonest weight category at baseline was 51-60 kg which was same during the followup period (Table-7). Most of the clients (46.8%) had static body weight before and after insertion which was not statistically significant (t=0.451) (Table-8).

Table 3: Distribution of Parity of the respondents (n=62)

Para	Frequency(%)	Mean ± SD
1	14 (22.6)	
2	29 (46.8)	
3	16 (25.8)	2.13 ± 0.820
4	3 (4.8)	
Total	62 (100)	

Table 4: Age of the last child of the respondents.

Age (In months)	Frequency	Percentage
0 – 5	40	64.51
5 – 10	13	20.96
10 – 15	7	11.29
15 – 20	2	3.3
Total	62	100

Table 5: Contraceptive history of the respondents

Contraceptive History	Frequency	Percentage
None	12	19.4
Barrier	8	12.9
OCP	16	25.8
Injectable	18	29.0
Implant	8	12.9
Total	62	100.0

Table 6: Menstrual Cycle of the respondents (n=62)

Variables Pre-insertion	Frequency (%)	Post-insertion Frequency (%)	χ^2
Regular	42 (67.7%)	8 (12.9%)	
Irregular	7 (11.3%)	12 (19.4%)	0.248
Absent	13 (21%)	42 (67.7%)	
Total	62 (100%)	62 (100%)	

Table 7: The different weight categories at baseline and after six months of Implanon insertion

	Baseline Weight (W_0)		Weight after six months (W_1)	
Weight Group(in kg)	Frequency	Percentage	Frequency	Percentage
31 – 40	3	4.84	1	1.61
41 – 50	16	25.81	15	24.20
51 – 60	24	38.71	24	38.71
61 – 70	19	30.69	22	35.48
Total	62	100	62	100

Table 8: Body weight changes after six months of Implanon insertion

Changes of body weight	Static (%)	Increased (%)	Decreased (%)	t value	df	Sig (2 tailed)
Body weight	46.8	18	15	0.451	61	0.654

Table 9: Compliance of the respondents

Compliance of the respondents	Frequency	Percentage
Satisfied	48	77.4
Non Satisfied	14	22.6
Total	62	100.0

Table 10: Continuation of Implanon

Continuation of Implanon	Frequency	Percentage
Continued	61	98.4
Discontinued	1	1.6
Total	62	100.0

Majority of the respondents (77.4%) were satisfied with Implanon and only 22.6% were not satisfied (Table-9). Majority of the respondents (98.4%) continued Implanon (Table-10).

Discussion:

This cross sectional study was carried out with an aim to see the body weight changes of the Implanon users in Family Planning Model Clinic, DMCH.

In this study the mean age of the respondents, was 27.26 ± 5.498 years. Most of the respondents were in the age group of 26 to 30 years. This study is consistent with study of Kang W et al in which the mean age of the subjects was 29.4 ± 5.1 years[13].

This study showed that majority of the respondents were home makers (80.6%) and rest were service holders (8.1%), garments worker (6.5%), day laborer (3.2%), businesswoman (1.6%).

This study showed that majority of the respondents were more or less literate and 56.5% were educated up to primary level and only 1.6% were post graduate.

In our study, most of the clients (90.3%) were from lower middle class and 4.8% were from lower and 4.8% were from middle class family.

This study showed most of the respondents (35.48%) were married for 6-10 years.

This study also showed that majority of the respondents (46.8%) had two children. The mean parity was 2.13 ± 0.820 live births, and this study is consistent with study of Kang W et al in which showed that the mean parity was 2.1 ± 1 live births[13]. Aisien hyperlinkao, Enosolease ME showed that the mean parity was 3.1 ± 1.7 live births[11].

In this study, majority of the respondents (64.51%) had their last child age below 5 months.

This study also showed that most of the patients previously used injectable contraceptive methods (29%). From the rest of them, 12.9% used barrier method and 12.9% used implant. This study is consistent with study of Kang W et al where they found that more than one-half (55.2 percent) of the subjects had used other methods of contraception before. The main reason for them to switch to implant contraception was convenience (63.6 percent).[13]

Most of the clients had a regular menstrual cycle (67.7%) before insertion. After insertion most of the clients (67.7%) developed amenorrhoea which was not statistically significant (χ^2=0.082). Croxatto et al in their open multicentre study found that bleeding irregularities was the main reason for discontinuation during the first 2 years of use (17.2%) and adverse experiences in the third year (3.4%)[3]. Affandi showed statistically significant for amenorrhoea (17.9% - 24.8%) with Implanon compared with 2.0% - 7.0% for Norplant[7].

Aisien and Enosolease showed that the side effects were menstrual abnormalities. 56.3% reported reduced, 3.1% increased and 40.6% combinations of bleeding patterns. No participant had a normal cycle[11]. Another study showed that menstrual disturbance in 83% of the women were mainly bleeding irregularity (40%) and amenorrhea (26%). Bleeding irregularity was one of the main motives for discontinuing the implant in 41% of cases[12]. Kang et al found that of the 516 users on follow-up, the common side-effects were menstrual irregularity (51 percent), secondary amenorrhoea (9.6 percent) and weight gain (15.7 percent)[13]. Power et al showed amenorrhoea rate was significantly higher after 2 years of Implanon use[14].Candan et al showed that amenorrhoea, prolonged bleeding, frequent bleeding and infrequent bleeding were reported in 20 (32%), 13 (21%), 4 (6.5%) and 2 (3.2%) patients, respectively[16].

In our study, the commonest body weight category at baseline was 51-60 kg which was same during the followup period. We found no statistically significant difference in weight gain among the different body weight categories. A study of Norplant users found that generally there was no difference in body weight change in different categories of baseline body weight[17]. In a review of pooled data from 11 international studies, all conducted outside Africa, involving 24,679 cycles, 31% of the women experienced no net weight change or some weight loss between the baseline and the last measurement[18].

This study shows most of the clients (46.8%) had static body weight before and after insertion which is not statistically significant (t=0.451) which is consistent with previous study. Urbancsek J et al showed that most often cause of discontinuation of Implanon was weight gain and acne[3]. Sergent F et al showed that though weight gain was present in 37% of patients, but it was one of the important causes of discontinuation[12]. Kang W et al showed that of the 516 users on followup, the common side effects were menstrual irregularity (51%), secondary amenorrhoea (9.6%) and weight gain (15.7%). 20.3% of users did not experience any side effect[13]. Candan Iltemir Duvan et al showed that non-menstrual side effects experienced by participants included: weight gain reported by 10 patients (16%), anxiety by 6 (9.8%), breast tenderness by 4 (6.5%), headache by 4 (6.5%), pain at the insertion site by 2 (3.2%), hirsutism by 2 (3.2%), acne by 1 (1.6%), loss of libido by 1 (1.6%), weight gain and headache by 2 (3.2%), weight gain and anxiety by 2 (3.2%)[16].

In our study, majority of the respondents (77.4%) were satisfied with Implanon. Aisien AO, Enosolease ME showed that all the clients received adequate information about the method and most of them were

satisfied with it at follow up[11]. Sergent F et al showed that possibility of a long-term and easy to use contraception was the most common reason for choosing Implanon (74% of the women). Eighty-one percent of the women were globally satisfied with Implanon but one out of two women had side-effects[12].

In our study, majority of the respondents (98.4%) continued Implanon after 6 months and only one discontinued for severe lower abdominal pain which was not Implanon related. This study is consistent with study of Aisien AO, Enosolease ME, which showed that two subjects discontinued method on account of menorrhagia and headache. The efficacy and continuation rate were 100% and 93.8% respectively[11]. Kang W et al found that the continuation rate was 92.4 percent after one year, 80.8 percent after two years, 68.9 percent after three years and 58.5 percent after four years. The main reasons for early implant removal were side-effects and desire for future pregnancy. Re-insertion was carried out in 53.7 percent of users who had completed five years of Norplant contraception[13]. Sergent F et al showed that only 62% of the women were ready to use it again. Except weight gain present for 37% of patients, the other side-effects, even though they were frequent, were less often the reason for removal[12]. Affandi B showed that there were no statistically significant differences in the acceptability of the two products as indicated by the discontinuation rates, which were 30.2% and 0.9% in Europe and Southeast Asia, respectively, for Implanon, and 22.5% and 1.4%, respectively, in the two regions[7].

Conclusion:

Implanon was an effective, safe and acceptable method of contraception among its acceptors. Though weight gain was one of the important side effects but most of the respondents were found tolerable with adequate counseling. This study showed that Implanon had a high degree of effectiveness with relatively high user satisfaction and continuation rate.

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Nutritional Rickets: Assessment of Nutritional Status and Risk Factors in Under Five Children Attending a Tertiary Care Centre in Bangladesh

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Abstract

Introduction: *Nutritional rickets (NR) or vitamin D deficiency rickets remain prevalent in developing regions of the world and rank among the 5 most common diseases in children. In Bangladesh, it is the second most common micronutrient deficiency.*

Objective: *This study was conducted to assess nutritional status of urban and rural Bangladeshi children associated with Nutrional rickets and the risk factors are also evaluated.*

Materials and Methods: *This cross- sectional study was conducted at BSMMU, Bangladesh, in which 50 children aged <5 years with nutritional rickets were included.*

Results: *Mean age of children were 15.16±11.18 months. All children were having one or more clinical signs and symptoms of nutritional rickets including rachitic rosary (14%), widely open anterior fontanel (22%), widening of wrist (14%), bowing of legs (14%), chest infection (22%), diarrhea (10%), delayed eruption of teeth (24%), failure to thrive (10%), seizure (4%), sweating (26%) and irritability (20%). The mean values of weight-for-age z-score (WAZ), height-for-age z-score (HAZ), weight-for height z-score (WHZ) and head circumference-for-age z-score (HCAZ) were -1.78 ± 0.95, -3.28 ± 0.56, -2.55 ± 0.92 and 0.79 ± 0.95, respectively. Majority of cases came from urban area (60%). 60% had no or little exposure to sunshine. Significant associations were detected with exclusive breast feeding for more than 4 months, exposure of children to sunlight for less than 30 minutes daily, dark skin color, urban slum residence, deficit monthly income, and father and mother's educational status.*

Conclusion: *Nutritional rickets is prevalent among children < 5 years of age in Bangladesh and urban children being more vulnerable. Adoption of a screening programme for children of all age group and implementation of preventive strategies through public health policies are strongly recommended.*

Keywords: *Radiographic findings; Nutritional rickets; vitamin D deficiency rickets; Delayed eruption, seizure.*

(MH Samorita Med Coll J 2021; 4(2): 54-59)

Introduction:

Rickets is a failure in mineralization of growing bone or bone tissue. There are many causes of rickets; among them nutritional vitamin D deficiency remains the most common cause globally.[1] A severe vitamin D deficiency impairs mineralization of bone tissue (causing osteomalacia in adult) and of growth plates (manifesting as rickets in children).[1]

Nutritional rickets is a major pediatric concern in the both developed and developing countries, having different aetiologies[2]. Worldwide it is considered the most common non-communicable disease in pediatric age group.[1,2] Although it was thought a disease of the west, but recent trends suggest that it is an emergent problem in developing part also.[2] In Bangladesh rickets is the second most common micronutrient

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deficiency.[3]Deficiency of vitamin D may occur due to insufficient intake or less exposure to sun or a combination of the two. The insufficiency of vitamin D is the main cause of the nutritional rickets but current reports suggest that an inadequate calcium or phosphorus intake is also an important cause of rickets[4]. The worldwide prevalence of vitamin D deficiency (VDD) is 30-50% among children and in tropical countries like India prevalence ranges from 70- 100.0% among all age group.[5-6]

Rickets which is the final stage of VDD represents only the tip of iceberg of huge vitamin D deficiency in children.[7]It may present with growth failure, irritability, lethargy, muscle weakness, limb pain, hypocalcaemic seizure and repeated respiratory tract infection during infancy.[8-9] In Bangladesh, prevalence of vitamin D deficiency is frequently overlooked as it was assumed to be low risk due to cutaneous synthesis of vitamin D in exposure to abundant sunlight. Recently, it was found in one study that like elsewhere, vitamin D deficiency exist in high prevalent rate (80.0%) in Bangladesh.[10] Indoor based lifestyle and poor exposure to sunlight, air pollution and skin color, covering clothes of mother and child, educational status of mother are reported as important attributable factors for vitamin D deficiency, which lead to rickets. Exclusive breast feeding of infant also contributes to poor vitamin D status.[11-14]

Environmental pollution is one of the major health hazards in Bangladesh, which is also considered as a contributing factor for the development of rickets.[3] A study done in Bangladesh revealed that rickets is more common than suspected in some regions of Bangladesh; it was not generally associated with vitamin D deficiency but was related to insufficiency of dietary calcium.[7] In North America, rickets is most commonly seen in children with relatively more pigmented skin, who are exclusively breastfed.[8] It was reported that rickets is mostly identified in immigrant populations from the Middle East and the Indian subcontinent.[8,9,10] In the Middle East,[11] rickets is often seen in sun-protected children of vitamin D-deficient mothers, but it can present as bone-problems in later years of childhood.[8] In sun-exposed regions of Asia and Africa, rickets typically presents during the second or the third year of life.[8] Nonetheless, there had been reports of calcium deficiency associated with rickets in South Africa and Nigeria.[12]

In a nutshell, it indicates that the aetiology of rickets is diverse, multifactorial and dependent upon the environmental condition, socio-cultural aspects, dietary habits and geographical location, which are changing day by day. Therefore, it is quite rational to re-evaluate the aetiology or risk factors of rickets in Bangladesh despite having some studies regarding this aspect in past.

Materials and Methods

It was an observational type of cross-sectional study conducted in Bangabandhu Sheikh Mujib Medical University (BSMMU), Bangladesh for the duration of 2 years extending from April 2018 to March 2020. Total 50 children, aged 0-5 years were selected in according to the prior selection criteria. In this study child attending into the BSMMU outpatient department with clinical, radiological and biochemically consistent with nutritional rickets were selected. Participants who were acutely ill, suffering from chronic disease, already on vitamin D supplementation and whose parents did not complete the questionnaire were excluded. Purposive sampling technique was followed during selection of the study participants and data were collected under the guidance of a preformed questionnaire. In depth interview was taken from parents or caregiver of the child by preparing a semi-structured questionnaire which included age, gender, place of residence (urban or rural), exposure to sunlight, skin color, duration of exclusive breast feeding, maternal education. Sunlight exposure was defined sufficient if the children's skin were exposed to direct sunlight for more than 30 min/d for several days in a week exposing head, face and forearms (40% of body surface area). Weight and height were measured according to standard procedure and converted into Z score after standardizing with NCHS reference data. Data analysis was done by SPSS 23 version with 95% CI with acceptable 5% error. And in all cases p value <0.05 was considered as statistical significance.

Results

Total fifty children of nutritional rickets were included in this study. Mean age of subjects were 15.16±11.18 months. Majority were male 33(66%). Table 1 shows the area and gender distribution of subjects. Table 2 shows the important clinical features of the rickets patients. The most common clinical features included rachitic rosary (14%), widely open anterior fontanel (22%), widening of wrist (14%), bowing of legs (14%), chest infection (22%), diarrhoea (10%), delayed eruption of teeth (24%), failure to thrive (10%), seizure (4%), sweating (26%) and irritability (20%). The clinical results revealed that all children were having one or more clinical signs and symptoms of nutritional rickets.

Table 1: Resident Area and Gender Distribution of subjects (N=50)

Area	Male	Female	Total (%)
Urban	22	8	30(60)
Rural	11	9	20(40)
Total (%)	33(66)	17(34)	50(100)

Table 2: Clinical features of the subjects (N=50)

Signs and Symptoms	N (%)
Rachitic rosary	7(14)
Widely open anterior fontanel	11(22)
Widening of wrist	7(14)
Bowing of legs	7(14)
Chest infection	11(22)
Diarrhoea	5(10)
Delayed eruption of teeth	12(24)
Failure to thrive	5(10)
Seizure	2(4)
Sweating	13(26)
Irritability	10(20)

Table 3 shows the distribution of subjects according to socio-economic variables. Majority of patients came from urban slum area (50%). p value was significant (p<0.05).

Table 3. Distribution of subjects according to socio-economic condition (N=50)

Variable	N (%)	p
Residence		
Rural	15(30)	0.02
Urban	10(20)	
Urban Slum	25(50)	
Father's Education		
None	23(46)	0.003
1 – 5 years	22(44)	
6 – 10 years	4(8)	
> 10 years	1(2)	
Mother's Education		
None	27(54)	<0.001
1 – 5 years	20(40)	
6 – 10 years	2(4)	
> 10 years	1(2)	
Occupation of family head		
Service	10(20)	0.03
Farmer	15(30)	
Business	4(8)	
Day Laborer	10(20)	
Rickshaw-puller	10(20)	
Other	1(2)	
Monthly Income		
Insufficient (<20000 BDT)	40 (80)	0.02
Sufficient (> 20000 BDT)	10(20)	

Skin color, exclusive breastfeeding and sunlight exposure were the important factors of rickets related to children themselves, which were assessed in this study (Table 4).

Table 4. Distribution of subjects according to factors related to children (N=50)

Variable	N (%)	p
Skin color		
Fair	6(12)	0.02
Medium	15(30)	
Dark	29(58)	
Exclusive breastfeeding		
4 – 6 months	36(72)	0.001
< 4 months	14(28)	
Sunlight Exposure		
more than 30 min	20(40)	0.03
less than 30 min	30(60)	

Significantly more subjects (58%) had darker skin (p<0.05). Majority of the patients (72%) were exclusively breastfed for 4 to 6 months. p value was significant. 60% patients had exposure to sunlight less than 30 minutes (p<0.05).

Table 5 shows the assessment of different risk factors for rickets. Factors which were analyzed are: exclusive breast feeding for more than 4 months, exposure of children to sunlight for less than 30 minutes daily, dark skin color, urban slum residence, deficit monthly income, and father and mother's education in years. All the factors assessed showed significant odds of developing rickets (p<0.05).

Table 6 shows the radiographic features of the subjects which indicates 84% had cupping, 28% splaying, 14% fraying and 40% widening of wrist.

Though serum vitamin D level is an appropriate indicator for diagnosing nutritional rickets, but due to financial constraints and lack of laboratory facilities, its determination was not performed in the present study. Therefore, biochemical assessment was done indirectly by serum calcium and alkaline phosphatase (ALP) levels. Table 7 presents the biochemical data of the selected patients including serum calcium and ALP levels. The observed mean values of serum calcium and ALP were 8.11 ± 0.56 mg/dl and 1219 ± 566 IU/L. This result shows that the mean value of serum calcium lies at the bottom of normal range whereas the value of ALP was very much raised above the normal range. The elevated serum ALP value could be an indication of the nutritional rickets among the subjects.

Table 5. Odds ratio of risk factors for rickets (N=50)

Variable	Odd Ratio	95% CI	p
Exclusive breastfeeding (4 to 6 months)	3.59	1.67 – 7.74	0.001
Sunlight exposure<30 minutes	2.25	1.08 – 4.67	0.03
Skin color (dark)	2.76	1.24 – 6.14	0.01
Residence Urban Slum (in relation to rural)	2.57	1.03 – 6.41	0.04
Monthly Income (Deficit)	2.30	1.09 – 4.85	0.03
Father's education (<6 years)	3.92	1.81 – 8.52	0.001
Mother's education (<6 years)	5.72	2.44 – 13.33	<0.001

Table 6: Radiographic features of the subjects (N=50)

Radiographic Features	N (%)
Cupping	42(84)
Splaying	14(28)
Fraying	7(14)
Widening of wrist	20(40)

Table 7: Biochemical profile of the subjects (N=50)

Variables	Reference ranges	Mean ± SD
Serum calcium (mg/dl)	8.1 – 10.4	8.11 ± 0.56
Serum ALP (IU/L)	145 – 450	1219 ± 566

The anthropometric characteristics of the subjects are presented in the table 8.

The results showed that the average age of subjects was 15.16 ± 11.18 months, mean weight was 7.87 ± 3.02 kg, mean height was 69.29 ± 10.62 cm and the mean head circumference was 46.41 ± 3.31 cm. Median values of the Z-score of weight-for-age (WAZ), of the Z-score of height-for-age (HAZ), of the Z-score of weight-for-height (WHZ) and of the principal Z-score of head circumference-for-age (HCAZ) were -1.78 ± 0.95, -3.28 ± 0.56, -2.55 ± 0.92 and 0.79 ± 0.95, respectively. The results clearly indicate the presence of stunting and wasting in subjects.

Table 8: Anthropometric characteristics of the subjects (N=50)

Measurements	Mean ± SD
Age (months)	15.16 ± 11.18
Weight (kg)	7.87 ± 3.02
Height (cm)	69.29 ± 10.62
Head Circumference (cm)	46.41 ± 3.31
Weight-for-age z score	-1.78 ± 0.95
Height-for-age z score	-3.28 ± 0.56
Weight-for-height z score	-2.55 ± 0.92
Head circumference-for-age z score	0.79 ± 0.95

Discussion

Nutritional rickets is now considered a public health problem in Bangladesh. As many as 8% children aged less than 10 years are affected by nutritional rickets.[3] In a national survey conducted in 2008 the prevalence of rickets was found 0.99%.[13] Although calcium deficiency has been found to be the primary cause of nutritional rickets here.[3,7] The role of vitamin D deficiency is also under investigation.[14,15] Many factors have been found to be associated with increased risk of nutritional rickets. Prevalence of sunshine exposure, diet, number of siblings in the family, economic condition and residence has been evaluated in a recent study in the country.[16]

In this study 50 subjects were included for assessment of nutritional status and risk factors for rickets. Rachitic children were selected. Mean age of subjects were 15.16±11.18 months. Similar to the findings of other studies[16,17]a male prevalence was noted among rachitic children.

People in urban slum area live in a congested, unhealthy environment. They are more likely to be less educated and to have low income. In this study 50% of the rachitic children had come from urban slum area which was significantly high in relation to rural (30%, p <0.05). A similar finding was noted in one study.[18] Another study found 38% of rachitic children coming from urban slum.[16] But, as their study was not designed to assess the risk factors they did not comment on the risk.

Education of both father and mother of subjects was found to be significantly lower in years (p<0.05). Similar finding was found in other study concerned on risk factors of rickets. [19] Education is important for health consciousness as well as for improvement of economic condition.

This study found that family heads of majority of cases had insufficient income (p<0.05). This confirms the

findings with other similar studies[16,17] and relates it as a risk factor for rickets. They found majority rachitic children coming from family with low income and chronic deficit respectively. An updated review on nutritional rickets around the world by one study also enlists poverty as a risk factor of rickets. [14]

Dark color skin, exclusive breast feeding for 4 to 6 months and sunlight exposure less than 30 minutes was found to be significantly associated with rickets in this study. Association of increased skin pigmentation, exclusive breast feeding with delayed weaning and decreased exposure to sunlight to nutritional rickets has been well studied. [1,14,20,21,22] It was found in one study that the vitamin D status of breast-fed infants is associated with sunlight exposure rather than the vitamin D content of maternal breast milk. [23] But, other study noted that vitamin D content of breast milk was sufficient for infants up to two months.[1] Hence nutritional deficiency rickets may occur in cases of extended and exclusive breast feeding.

Finally, exclusive breast feeding for more than 4 months, exposure of children to sunlight for less than 30 minutes daily, dark skin color, mother's dressing behavior, number of siblings, urban slum residence, deficit monthly income, and father and mother's education in years all were found to have significantly higher odds of developing rickets ($p<0.05$). Two study mentioned that children with family history of rickets had higher odds of developing rickets which was not evaluated in this study.[21,24] Effect of gestational vitamin D and calcium supplementation on rickets and found those to be significant, too as reported by similar study.[18]

The anthropometric characteristics of the subjects revealed mean weight 7.87 ± 3.02 kg, mean height 69.29 ± 10.62 cm and the mean head circumference 46.41 ± 3.31 cm. Median values of the Z-score of weight-for-age (WAZ), of the Z-score of size-for-age (HAZ), of the Z-score of weight-for-size (WHZ) and of the principal Z-score of circumference-for-age (HCAZ) were -1.78 ± 0.95, -3.28 ± 0.56, -2.55 ± 0.92 and 0.79 ± 0.95, respectively. The results clearly indicate the presence of stunting and wasting in subjects. Prevalence of malnutrition in rickety children has also been reported by Pakistani researchers. Study showed that 24 (40 %) of children with rickets are underweight according to Gómez classification of malnutrition [25]. A recent study reported 70% malnutrition in rickety children.[26]

Conclusion:

Nutritional rickets is a multifactorial disease and several factors have been associated with it. In this study, several factors were identified and among those exclusive breast-feeding, poor sunlight exposure, and darker skin complexion are responsible for rickets in this age group. Moreover, residence in urban slum, deficit monthly income, and parent's education are also significantly associated with this disabling disease. Further large scale study recquired to conclude the findings.

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Relationship between the Central Retinal Vein Occlusion and Axial Length

Kawsar U[1], Hossain MS[2], Jahan I[3], Khatun S[4], Ahsan T[5]

Abstract:

Introduction: *Retinal vein occlusion is a common vascular disorder of retina. It is the 2nd most common cause of blindness after diabetic retinopathy. It is classified as Central retinal vein occlusion, Branch retinal vein occlusion & Hemi retinal vein occlusion. RVO is related with many etiological factors like increasing age, smoking, diabetes, hypertension, hypercholesterolemia & hypercoagubility. The location of the occlusion influences pathogenesis & clinical presentation.*

Objective: *The purpose of the present study was to see the relationship of the axial length of the eye in retinal vein occlusion.*

Materials & Methods: *This case-control study was conducted in Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM) hospital, Dhaka, Islamia Eye Hospital, Dhaka and Harun Eye Hospital, Dhaka, Bangladesh from 15th January 2011 to 14th September 2011 for a period of about eight months. Patients were selected as selection criteria. Sixty patients were evaluated. Thirty patients were retinal vein occlusion and 30 patients were age matched control.*

Results: *Among the 30 patients of retinal vein occlusion, 12 cases (40%) were Central Retinal Vein Occlusion (CRVO). Mean age were 69.012 years in the cases of CRVO. The mean axial length of CRVO eyes were 22.84 mm with fellow eyes were 22.95 mm. The mean axial length of control eyes was 23.87 mm ($p<0.05$).*

Conclusion: *The axial lengths in central retinal vein occlusion is significantly shorter than in the case matched control eyes.*

Keywords: *Central Retinal Vein Occlusion, CRVO, Axial length*

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Introduction

Retinal vein occlusion is the second most common retinal vasculopathy, after diabetic retinopathy, which may result in permanent visual loss[1]. After so many years of investigation, its exact aetiopathogenesis has still not been clarified. It has been postulated that eyes with shorter axial length have smaller lamina cribrosa and a narrower scleral canal through which the central retinal vein and artery could pass, causing physical blockage in the vein which predisposes to thrombus formation[2].

Retinal vein occlusion is classified according to where the obstruction is located[3]. Obstruction of the retinal vein at the optic nerve is referred to as central retinal vein occlusion (CRVO), and obstruction at a branch of the retinal vein is referred to branch retinal vein occlusion (BRVO). BRVO is further classified into major branch vein occlusion, main macular branch occlusion, peripheral BRVO[4]. CRVO is also classified into Non-ischemic and ischemic. The two forms have both differences and similarities in pathogenesis and clinical presentation[5]. RVO is essentially a blockage

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of a portion of the venous circulation that drains the retina. With blockage, a pressure builds up occurs in the capillaries, leading to hemorrhages and leakage of fluid and blood. This can lead to macular edema with leakage near the macula. Macular ischemia occurs when these capillaries, which supply oxygen to the retina, manifest leakage and nonperfusion[6].

Neovascularization is the most devastating pathologic complication with the development of abnormal blood vessel growth. Most patients with CRVO are male and older than 65 years[7]. Most cases are unilateral, and approximately 6 to 14% of cases are found to be bilateral in United States[8]. Branch retinal vein occlusion is 3 times more common than central retinal vein occlusion and men and women are affected equally, with the bulk of presentations between age 60 and 70 years[9]. In Australia, prevalence of vein occlusion ranges from 0.7% in patients aged 49-60 years to 4.6% in patients older than 80 years[10]. The purpose of the present study was to see the relationship of the axial length of the eye in retinal vein occlusion.

Materials & Methods:

Type of study: Case-control study

Place of study: BIRDEM Hospital, Shahbagh, Dhaka, Islamia Eye Hospital & MA Ispahani Institute of Ophthalmology, Farmgate, Dhaka and Harun Eye Hospital, Dhanmondi, Dhaka.

Duration of study: Eight months from 15th January 2011 to 14th September 2011.

Sampling technique: Cases were selected randomly in outpatient department where they were reported for treatment purpose.

Sample size determination: Sixty patients were taken for study, among them 30 had RVO and 30 as Control.

Inclusion criteria: Control group was selected of whom age was matched with retinal vein occlusion patients.

Exclusion criteria: Patients with aphakia, pseudophakia, corneal leucoma, retinal detachment, and other intraocular mass lesions, which could interfere with accurate axial length measurement were excluded.

Study procedure: The details of axial length of the affected eyes, axial length of the unaffected eyes, axial length of the control eyes, rate of types of retinal vein occlusion were recorded. Ocular axial lengths were measured by A-scan ultra-sonogram (OcuScan®RRP, Alcon Laboratories, USA, Probe frequency: 10MHz, Axial Length range: 15~39 mem, ten consecutive measurements) and were done by emersion technique. All axial lengths were measured using the same technique and same medical personnel who was unaware of this study (single blind). A structured data sheet and a check list were developed based on the objectives of the study. All patients were undergoing general and systemic, especially cardiovascular system and ocular examination. Laboratory investigation includes fasting and post-prandial blood sugar level, serum lipid level. Ophthalmic examination includes visual acuity, slit lamp examination, intraocular pressure measurement, direct and indirect ophthalmoscopy, gonioscopy and fundus fluorescein angiography.

Statistical analyses: Statistical analyses were performed by Chi-square test, paired t and Student's t tests. Statistical significance was considered as $p<0.05$. The means were given with their standard error (SEM). Difference between two means was compared within the 95% confidence interval.

Ethical consideration: Ethical clearance was taken from the local ethics review committee

Results:

A Case control study was carried out in BIRDEM Hospital, Islamia eye hospital, and Harun eye hospital, Dhaka for a period of eight months from 15th January 2011 to 14th September 2011. The main objective of this study was to evaluate relation between the ocular axial length of the eye and retinal vein occlusion. In this study, 60 patients were evaluated. 30 patients were retinal vein occlusion and 30 patients were age matched control. Among the 30 patients of retinal vein occlusion, 12 cases (40%) were Central Retinal Vein Occlusion (CRVO), 15 cases (50%) were Branch Retinal Vein Occlusion (BRVO) and 03 cases (10%) were Hemi Retinal Vein Occlusion (HRVO) (Figure 1).

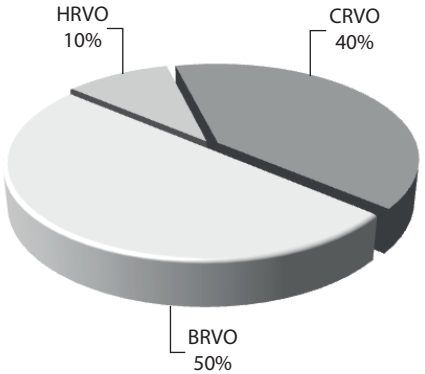

Fig. 1: *Showing the different types of retinal occlusion of vein*

In the cases of CRVO, age range were 54 to 81 years and the mean age was 69.012 years. In Control eyes, age range were 50 to 80 years and the mean age was 62.511 years (P value =0.10) (Table 1).

Table 1: Distribution of Age of the study subjects

Parameter	CRVO	Control eyes
Age range (in years)	54-81	50-80
Mean Age	69.012	62.511
SE	2.125	1.217
95%C I	64.742-73.975	52.331-62.107

Comparison of axial length of CRVO with both unaffected and control eyes were done.The mean axial length of BRVO patients were 22.84 mm. The difference of mean axial length of affected eyes with both unaffected and control eyes were 0.11 mm and 1.03 mm respectively. (Table-2)

Table 2: Comparison of Axial length of CRVO with Both Unaffected and Control Eyes

Parameters	Mean Axial Length		Difference
	Affected Eye	Unaffected Eye	
CRVO	22.84mm	22.95mm	0.11mm
Control eye	23.87mm	23.87mm	
Difference	1.03mm	0.92mm	

Unpaired t-test was performed to see the level of significance between the affected vs unaffected eyes (P value was >0.10); The affected vs control eyes (P value= <0.01)

Discussion:

In this study we evaluated 30 cases with retinal vein occlusion and 30 cases with age matched control cases. Among the 30 cases of retinal vein occlusion, Central retinal vein occlusion (CRVO) were 12 cases (40%), Branch retinal vein occlusion (BRVO) were 15 cases (50%) and Hemi-retinal vein occlusion (HRVO) were 3 cases (10%). A study done by Kir et al[7] evaluated a prospective study in order to reveal the predisposing role of axial length and hyperopia in retinal vein occlusions. They comprised 39 (38.23%) patients with unilateral central retinal vein occlusion (CRVO), 50(49.01%) patients with unilateral branch retinal vein occlusion (BRVO), 13(12.74%) patients with unilateral hemiretinal vein occlusion (HRVO) and 45 control eyes. Our study has similarity with this study. On the other hand, Aritirk et al[2] evaluated the ocular axial length which were measured by A-scan ultrasonography in 17(29.0%) patients with CRVO and 41(70%) patients with BRVO and compared with those of contralateral unaffected eyes and 66 age matched controls. Though CRVO and BRVO ratio is a bit different from the study of Aritirk et al[2] in all studies including this present study number of BRVO cases are more than CRVO cases.

The age distribution of the study subjects was recorded. The age range was 47 to 81 years. Among them, the mean age of the patients with CRVO was 69.012 years. The mean age with control cases were 62.511 years. Aritirk et al[2] found mean age of central retinal vein occlusion were 63.87 years and the mean age of the control cases was 62.77 years. The mean age of CRVO was higher in this study than Aritirk et al[2] study. This finding is similar to this study.

This study observed the mean axial length in CRVO eyes was 22.84 mm, in fellow eyes was 22.95 mm and in control eyes was 23.87 mm. The difference of mean axial length between affected and unaffected (fellow) eyes was 0.11mm and in between affected eye and control eyes was 1.03 mm in CRVO group. The differences of mean axial length of affected CRVO with control eyes were statistically significant.

The difference between affected and unaffected fellow eye may be due to macular edema. Kir et al[7] evaluated the axial length of affected eyes was compared to fellow eyes and control eyes in each subgroup of patients with retinal vein occlusion. In CRVO cases, they found, the mean axial length of affected and fellow eyes were 23.20 mm and 23.13 mm respectively. In control group, mean axial length was 23.10. No statistical difference was noted for any of the subgroups ($p > 0.05$). Aritirk et al[2] evaluated in 17 patients with CRVO the mean axial length of affected eyes was 22.25 (SD 0.19) mm and of unaffected eyes was 22.61 (SD 0.13) mm. Difference was 0.36 mm which was statistically significant ($p<0.05$). Mean axial length of control eyes of their study was 23.22 (SD 0.09mm) (range: 22.31-25.19mm). The difference between affected RVO eyes and control eyes was 0.97 mm which was statistically significant ($p<0.001$). This is similar to our study.

Gupta and Mengi[8] found the mean difference in axial length of affected and unaffected eye was 0.83 mm and the mean difference in axial length of affected

and control eye was 1.76 mm which has similarities to this present study. Similar study was done by Jyothi et al[11]. They found a difference of 1.52 mm between the axial length of affected and the control eye. It has been also found a statistically significant difference between mean axial length of affected eye and the contra-lateral unaffected eye. This difference could be due to the effect of macular edema in the involved eye. However, the significant difference between the unaffected eye and control eye was not the consequence of the effect of macular edema[12]. So there is a definite relationship between the short axial length of the eye ball and central retinal vein occlusion.

Though all the patients were very much co-operative but some of the patients could not reach at time. Instrumental problems were embarrassing sometimes. There is no special arrangement for research work like separate instrumental set in the teaching hospitals which delays the process of research works. For this reason, the study period has been extended for one year more. But still the work was done satisfactorily.

Conclusion:

In conclusion the axial length of affected eyes was compared to fellow eyes and control eyes in each subgroup of patients with retinal vein occlusion. Statistical difference was noted in the affected eyes and age matched control eyes. These findings confirm that the axial lengths in retinal vein occlusion were significantly shorter than in the controls. This significant difference may be a risk factor in the development of central retinal vein occlusion. To get a reliable result it needs more extensive study.

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Review Article

Toxicity by Organo Phosphorus Compound on Human Health: A Review

Biaswas M

Abstract:

Organophosphates are one of the major constituents of herbicides, pesticides, insecticides and nerve gas. Organophosphorus pesticides (OPPs) are generally utilized for the protection of crops from pests. Because the use of OPPs in various agricultural operations has expanded dramatically, precise monitoring of their concentration levels has become the critical issue, which will help in the protection of ecological systems and food supply. However, the World Health Organization (WHO) has classified them as extremely dangerous chemical compounds. Organophosphate (OP) pesticides in acute or chronic exposure can produce varying levels of toxicity in humans especially firm workers, animals, plants, and insects. Excessive use of OPC, directly/indirectly affecting human/environmental health, raise a thoughtful global concern.

Key Words: *Toxicity, Organophosphorus Compound, Human health*

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Introduction:

Poisoning is a common medical emergency in Bangladesh. It is the seventh commonest cause of in hospital mortality in Bangladesh[1]. Acute poisoning is a serious threat to society and one of the commonest causes of mortality and morbidity anywhere in communities. Bangladesh is a developing country where rural population is mostly dependent on agriculture. Pesticides act as a common agent for suicidal purpose after trivial family problems and in developing countries kill around 3,00,000 people each year [2-4]. The term pesticide is a common term used to characterize several classes of fungicides, rodenticides, wood preservatives, garden chemicals, and household disinfectants used to either destroy the pest or gain resistance. Plenty of pesticides with different functional groups are used worldwide to cultivate crops. Unfortunately, the wide spread use of OP pesticides in the developing world's agricultural communities will make reduction of death by primary prevention a difficult task. Several ecosystems in the world have been contaminated with OPs due to their excessive and continuous usage. Removal of these chemo-pollutants is essential, considering their toxic effects caused due to their interactions with the biological system.

Common types of poisoning in this country are organophosphate (OP) poisoning, poisoning with unknown substances especially in commuter (travel-related) poisoning; poisoning with sedatives, corrosive agents, rodenticides, kerosene/petrol and alcohol, and snakebite [5,6]. Of them, poisoning in commuters (commuter poisoning) has become a major toxicological issue in Bangladesh in the recent years[7]. The pattern of poisoning varies from one country to another and may vary among different regions of a country. Pesticides have led to increased worldwide agricultural production. However, when not applied safely, they can cause environmental pollution and adverse health effects, which are sometimes irreversible[8,9]**.** Many studies on agricultural workers including adults and adolescents who apply OP pesticides have been shown that acute and moderate poisoning causes irreversible damage to physical and mental health[10.] Conversely, the evidence is not entirely conclusive regarding chronic exposure to OP pesticides and neuropsychological performance. Recent studies identified an association between

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agricultural work and lower performance on memory and coordination tests.

Uses of Organo phoshorus: There are numerous organophosphate chemicals which are widely used as insecticides and pesticides in various parts of the world. Organophosphate pesticides such as terbufos, chlorpyrifos, diazinon, parathion among others is generally used as an agricultural and a household insecticide. Some organophosphate chemicals such as glyphosate and tribufos are used as herbicides, while trichlorfon is used as an anthelmintic agent[11].

Poisoning by OPC: Poisoning by OPC is mainly suicidal after trivial family problems & developing countries kill around 3,00,000 people each year [2-4]. Also, accidental poisoning can occur but homicidal is rare. Accidental poisoning occurs in manufacturers, users, children of user's packers, sprayers & due to contamination of food grains mixed with insecticides preserved for seedling purposes. Poisoning also occurs from fruits & vegetables [12]. Homicidal poisoning by insecticides is usually rare, because of the smell of the aromax used as diluents in the poison & also due to alarming sign symptoms which appear rather early.

Toxicity by OPC: It has been widely reported and documented in various publications in the last 35 years that pesticides especially Organophosphates group are responsible for admission of millions of people. Meanwhile, it was estimated that about 25 million agricultural workers suffer from poisoning every year in the third world countries [13]. Thus, this work aimed to make a small reminder about the risks of organophosphate pesticides.

Acute manifestations: The traditional approach of clinical features in acute OP poisoning has centered on receptor specific effects on muscarinic, nicotinic and central nervous system (CNS) receptors that result in diverse symptoms and signs[14,15]. Body organs like brain, liver, kidneys, ovaries etc were affected by organophosphates poisons causing structural and chemical changes, as well as growth retardation. The acute symptoms and signs are due to muscarinic, nicotinic and central receptor effects. Muscarinic symptoms of salivation and bronchorrhea that dominate initially may cause drowsy patients to drown in their secretions. Acute muscarinic effects on the heart (bradycardia, hypotension) can be life-threatening.

Nicotinic effects occur due to accumulation of acetylcholine at the ending of motor nerves to skeletal muscles & autonomic ganglia. Nicotinic effects of muscle weakness contribute to respiratory distress whilst the acute central effects of restlessness, agitation, confusion and sometimes convulsions further compromise airway and breathing and increase aspiration risk and hypoxia. Since many of these effects are reversed by atropine, early and appropriate medical attention is vital. In developing countries, where OP poisoning is common, quick access to medical care is more problematic than early recognition. **Neurological effect:** Three types of paralysis are described. Type I paralysis, characterized by weakness, fasciculations, cramps and twitching, occurs acutely with the cholinergic symptoms. Type II paralysis, seen in 49-80%[16], occurs more insidiously 24-96 h following poisoning[17] and has a predilection to proximal, neck and respiratory muscles and cranial nerves with recovery in 1-2 weeks. Type III paralysis characterized by distal weakness occurs 2-3 weeks after poisoning with recovery in weeks to months[18]. Weakness of specific muscle groups at sites of dermal exposure[19], cranial nerve palsies, supra nuclear gaze palsy, isolated laryngeal paralysis and diaphragmatic paralysis are all reported[20,21].

Restlessness, delirium, agitation, convulsions or coma may occur with acute exposure. Extrapyramidal manifestations, ocular signs, ototoxicity, presentation as a Guillain-Barre syndrome and sphincter involvement also occur[22,23].

Neurodevelopmental effects of OP exposure in pregnancy: Systematic reviews and multiple epidemiologic studies have linked OP exposures during fetal development with poorer cognitive, behavioral, and social development in children[24-26]. Outcomes associated with OP pesticide exposure to the fetus include abnormal primitive reflexes in newborns; mental and motor delays among preschoolers; and decreases in working and visual memory, processing speed, verbal comprehension, perceptual reasoning, and IQ among elementary school–age children. Prenatal exposures also elevated risks for symptoms or diagnoses of attention-deficit/ hyperactivity disorder (ADHD) and autism spectrum disorder (ASD).

Health hazards associated with chronic exposures: Humans are exposed to pesticides through

occupational or environmental exposure. In the first case, rural workers, greenhouse workers, workers in pesticide manufacture, mixing or application, bystanders, are considered the group that receive the greatest exposure, by mixing, loading, transporting and applying pesticides. Furthermore, many workers, particularly in developing countries, are not adequately informed about the risks associated with the use of pesticides, and the lack of training and equipment to safely handle pesticides increases the health risk[27].

Neurodegeneration may occur from chronic exposure to organophosphates at small doses and may be referred to as organophosphate-induced chronic neurotoxicity or OPICN[28]. Another chronic toxicity develops from exposure to large doses of organophosphates and usually proceeds acute toxicity, this is named chronic organophosphate-induced neuropsychiatric disorder or copind[29].

Anxiety, apathy, confusion, disorientation, impaired memory and concentration, irritability, speech difficulties, delayed reaction times, dizziness, and insomnia are some of the signs and symptoms. Others include decreased verbal attention, decreased academic skills, short-term memory deficits, increased social isolation, fatigue, impaired vigilance as well as slow reaction time. Improvement is usually slow due to the fact that central and peripheral nervous systems have a greater damage.

Effects on the Immune System: The most Organophosphorus pesticides elicit autoimmune reactions and suppress the production of antibodies against vaccines[30]. Studies showed that pesticide exposure significantly reduces resistance to bacterial, viral, and parasitic infections and promotes tumor growth in many animal species. People exposed to pesticides are at increased risk of contracting certain cancers known to be associated with immune suppression. In summary, pesticides could cause a variety of cancers through an immunological mechanism[31]. There are scientific evidences suggesting that many pesticides damage the immune system. Animal studies have shown that pesticides alter the immune system's normal structure, disturb immune responses, and reduce animal's resistance to antigens and infectious agents.

Effect on Renal System: Damage to the kidneys and their function after exposure to OPs compounds, accompanied by the development of clinical manifestations of poisoning, was considered a rare phenomenon in the early 1990s. In the 21st century, the nephrotoxicity of organophosphorus pesticides has been the subject of greater attention. In in vivo experiments on laboratory animals, nephrotoxicity of OPs has been detected for fenthion, diazinon, malathion, chlorpyrifos, dichlorophos, metamidophos, quinalphos , and methyl parathion . At the same time, there has been an increasing number of publications on clinical cases of human poisoning with OPs accompanied by nephrotoxic effects, including acute kidney injury (AKI) and acute renal failure (ARF). ARF is one of the problems that manifests itself in the clinical follow-up of patients and is responsible for the increased mortality in AKI poisoning [32,33]. Individuals exposed to OPs were found to have 6.17-times higher risk of developing ARF, after adjusting for age, gender, and comorbidities.

Conclusion:

In this reviewed article like other regional and national studies, pesticides came across as the most commonly used agents of poisoning. OPC poisoning leads to life-threatening intoxication. Most cases are due to suicidal intent due to easy availability. This article reflects the emerging toxic hazards arising on human body after exposure to OPC. Availability of antidotes needs to be ensured in every secondary and tertiary care hospitals of the country. Prospectively designed country wide multicenter studies and community-based surveillance need to be conducted immediately to understand the disease burden and epidemiological properties of poisonings which would be very valuable for the determination of preventive measures.

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Gastrointestinal Stromal Tumor of the Sigmoid Colon Mimicking an Ovarian Tumor- A Case Report

Ghosh J[1], Bari N[2], Islam M[3], Ghosh J[4], Kohinoor GA[5], Pervin B[6], Parvin R[7], Alfazzaman M[8], Iqbal KS[9]

Abstract

Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal tumors of the gastrointestinal tract, but it accounts for less than 1% of gastrointestinal tumors. They result in overexpression and activation of kit and platelet-derived growth factor receptor (PDGFR) oncogenes. Approximately 95% GISTs express the tyrosine kinase c-kit also known as CD117. The clinical presentations and prognosis of GISTs are variable and depend on size and location. Surgical resection is the definitive treatment but Imatinib, a tyrosine kinase inhibitor is recommended for unresectable, metastatic and recurrent GISTs. Here we have discussed a 70-year-old lady who presented with a huge pelvic mass (20 x 15 cm) clinically mimicking an ovarian tumor and was histologically diagnosed as a malignant epithelioid gastrointestinal stromal tumor of the sigmoid colon. Immunohistochemistry stain showed negative CD117/c-kit, CK20, and CK7 markers but other markers like CD34, smooth muscle actin, h-caldesmon, and S-100 were not examined. Though 95% of GIST express c-kit, this patient's immunohistochemistry stain showed c-kit negative. When a female-aged patient will present with a large pelvic mass, the possibility of GIST should be kept in mind as an uncommon differential diagnosis.

Keywords: *Gastrointestinal stromal tumors, ovarian tumors, Imatinib.*

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Introduction

GISTs are uncommon digestive tract tumors but the most common subset of mesenchymal tumors. It accounts for less than 1% of all gastrointestinal tumors[1] and can occur at any age with a median occurrence at 60-65 years. It is usually more common in male than female.[2] Small tumors are asymptomatic and large tumors may cause abdominal pain, discomfort, lump, and overt or occult per rectal bleeding. GISTs typically express tyrosine kinase c-

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kit, also known as CD117.[3] Prognosis of the GISTs depends on the origin of the organ, size of the tumors, and mitotic rate. Here we report a case of malignant GIST of the sigmoid colon that presented as a huge pelvic mass and mimicked an ovarian tumor.

Case presentation

A 70-year-old lady noticed a left lower abdominal lump for 15 days and consulted with a Gynaecologist at MH Samorita Hospital and Medical College, Dhaka. The lump was progressively increasing in size and it was associated with mild abdominal pain. She had no H/O vaginal bleeding, nodular swelling in other parts of the body, fresh per rectal bleeding, altered bowel habits and sense of incomplete evacuation. She complained of vomiting, anorexia, and weight loss during this period of illness. There was no history of malignancy in her family members. On examination of the abdomen, a tender huge lump was present in the left lumbar and iliac region. On vaginal examination, the uterus was small, and a cystic tensed tender lump felt which was 20 x 15 cm in size with restricted mobility and the fornix was free. The per rectal examination was normal. Pre-operative USG of the whole abdomen and CT scan of the abdomen and pelvis showed a large complex predominantly cystic mass of 15.3 x 12.6 x 15 cm within the abdominopelvic cavity which was suggestive of ovarian origin. Her CXR PA view, ECG, Echocardiogram, liver function test, renal function test, random blood sugar, and tumor marker CA125, CEA, CA19.9 and β-HCG all were within normal limits. Her CBC report revealed that Hb%- 9.8 gm/dl, ESR- 110 in 1st hour, TC- 13900/cmm, N- 77%, L- 15 %, platelet 348000/cmm, urine microscopic examination showed plenty of pus cells and there was no growth in culture. Before surgery, she got one unit of blood transfusion and was treated with broad-spectrum antibiotics. Exploratory laparotomy was performed under general anesthesia. During the operation, after opening the peritoneal cavity hemorrhagic ascitic fluid came out. A partially solid and partially gelatinous, soft, friable, necrosed, huge lump measuring about 20 x 15 cm was found adherent to the gut and bladder. The rest of the surgery was done combinedly with the general surgeon and gynecologist. Mass was arising from the sigmoid colon and resection was done. The gut and urinary bladder were intact after the resection of the tumor. The uterus and both ovaries were atrophied. A histopathology examination was performed with H & E stain and showed that a malignant tumor was made of spindle cells arranged in an interlacing

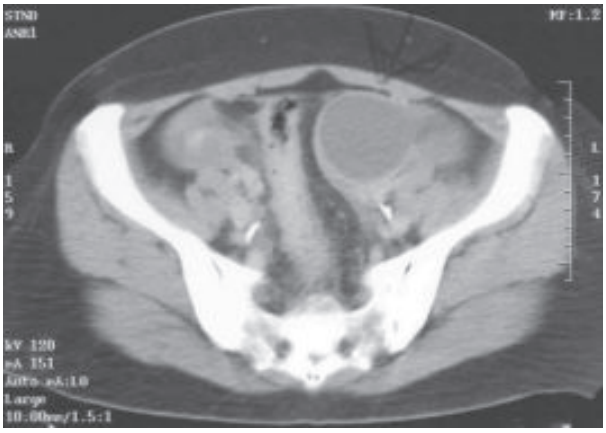

Fig. 1: *CT scan showed a cystic ovarian lesion in the pelvis.*[8]

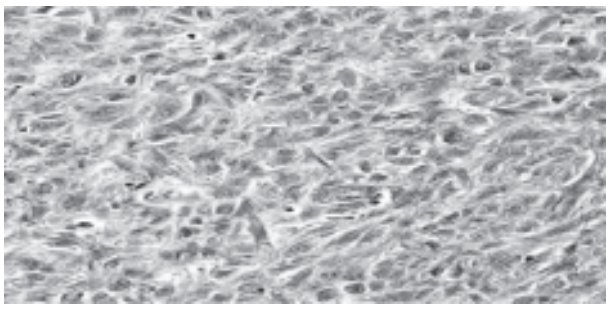

Fig. 2: *GIST with epithelioid features (H & E stain).*[11]

Table 1. American joint committee on cancer staging for gastrointestinal stromal tumor.

Primary tumor (T)	
Tx	Primary tumor cannot be assessed
T0	No evidence of primary tumor
T1	Tumor 2 cm or less
T2	Tumor ≥2 cm, <5 cm
T3	Tumor ≥5 cm, < 10 cm
T4	Tumor ≥10 cm
Regional lymph nodes (N)	
N0	No regional lymph node metastasis
N1	Regional lymph node metastasis
Distant metastasis (M)	
M0	No distant metastasis
M1	Distant metastasis
Histologic grade (G)	
Gx	Grade cannot be assessed
G1	Low grade;mitotic rate ≤5 per 5mm^2
G2	High grade; mitotic rate >5 per 5 mm^2

pattern. In some areas, cells showed an epithelioid pattern.There was a high-grade mitotic rate > 5/50 HPF and tumor necrosis was found. The final histopathological diagnosis was an epithelioid gastrointestinal stromal tumor, a high-risk category. Immunohistochemistry stain showed negative CD117/c-kit, CK20, and CK7. Other markers expressed by this tumor - CD34, smooth muscle actin, h-caldesmon, and S-100 were not examined. The patient was referred to an oncologist for further treatment.

Table 2. American joint committee on cancer staging for gastrointestinal stromal tumor.

Stage	T	N	M	MI
G-GISTs				
IA	T1 or T2	N0	M0	Low
IB	T3	N0	M0	Low
II	T1	N0	M0	High
	T2	N0	M0	High
	T4	N0	M0	Low
IIIA	T3	N0	M0	High
IIIB	T4	N0	M0	High
IV	Any T	N1	M0	Any
	Any T	Any N	M1	Any
NG-GISTs				
I	T1or T2	N0	M0	Low
II	T3	N0	M0	Low
IIIA	T1	N0	M0	High
	T4	N0	M0	Low
IIIB	T2	N0	M0	High
	T3	N0	M0	High
	T4	—	—	High
IV	Any T	N1	M0	Any
	Any T	Any N	M0	Any

G-GIST indicates gastrointestinal stromal tumors originating from the stomach and omentum.
NG-GIST indicates nongastric gastrointestinal stromal tumors in the small bowel, esophagus, colorectal, mesentery, or peritoneum.

Discussion:

GIST is the most common primary mesenchymal tumor of the gastrointestinal tract. It is identified in the 5th and 6th decades of life. They arise from the interstitial cells of Cajal which act as pacemakers of gastrointestinal motility, providing an interface between autonomic nerve stimulation and the muscle layer of the gastrointestinal wall[3]. They are different from gastrointestinal smooth muscle tumors (leiomyoma / leiomyosarcoma) and neural tumors (schwannoma). GISTs arise from the stomach 50-60%, small intestine 30-40%, colorectum 5-10%, and 5% from the esophagus. The clinical features of GISTs are variable and depend on the size and location of the tumor. Small tumors < 2 cm in size are usually asymptomatic and detected incidentally. Larger tumors present with abdominal discomfort or pain, GI bleeding, altered bowel habits, or intestinal obstruction. Very large tumors present as intra-abdominal mass[4]. GIST of the small intestine and recto-sigmoid region in females presents as a heterogeneous complex pelvic tumor and mimics an ovarian tumor[2]. They are associated with mutations of two genes: kit and PDGFR oncogenes. These oncogenes belong to the subclass III family of receptor kinase (RTKs). RTKs are transmembrane proteins involved in signal transduction, regulation of cellular growth, differentiation, and angiogenesis[5,6]. Approximately 95% of GIST express the marker c-kit (CD117). Other markers expressed by this tumor are CD34, smooth muscle actin, h-caldesmon, and S-100[2]. Contrast-enhanced CT scan or magnetic resonance imaging (MRI) of the abdomen is the recommended diagnostic imaging technique to detect tumor stage and determine treatment planning (Figure 1).[5,6,7,8] Endoscopic ultrasound (EUS) is another valuable diagnostic tool that can assess the depth of invasion. The size of more than 4 cm, irregular surface, and heterogenous echogenicity may point to malignant tumors[5,6]. The definitive treatment of GIST is complete surgical resection. Imatinib, a tyrosine kinase inhibitor is the choice of drug for metastatic, unresectable, and recurrent disease[9]. Other drugs that target the Kit or PDGFRA proteins are also being studied like Sorafenib, Nilotinib, Dasatinib, etc. Drugs that target different proteins involved in GIST cell growth are now being tested as well.[10] The prognosis depends on the size of the tumor and the rate of mitoses. Gross histopathologic findings typically include a fish-flesh appearance of soft consistency. The tumor may be necrotic or present with cystic degeneration. In 70-80% of cases, tumors are spindle cells with a fascicular or storiform growth pattern. About 20-30% of tumors are composed of epithelioid cells (Figure 2).[11] Mixed spindle and epithelioid tumors are also common.[12,13] TNM classification and

staging of GIST defined by the American joint committee on cancer is shown in Table 1 and Table 2.[12]

This present case report discusses a patient who presented with a huge abdominopelvic mass mimicking an ovarian tumor. During exploratory laparotomy, it was found that tumors arise from the sigmoid colon, and it was advanced. So, resection was done but gut and urinary bladder integrity were maintained. The histopathological diagnosis was an epithelioid gastrointestinal stromal tumor, a high-risk category. Though 95% of GIST express c-kit, this patient's immunohistochemistry stain showed c-kit negative.

Conclusion:

GISTs are the most common mesenchymal tumors of the digestive tract, and their presentations are variable according to size and tumor location. When a female-aged patient will present with a large pelvic mass, the possibility of GIST should be kept in mind as an uncommon differential diagnosis. Surgical resection is the curative treatment for resectable tumors, but Imatinib is recommended for unresectable, metastatic, and recurrent tumors.

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We are very grateful to our respected patient for giving consent to publish her documents as a case report.

Conflict of interest

The authors have declared no conflict of interest.

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Stroke as a Complication of COVID-19: A Case Report

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Abstract:

A greater incidence of stroke is seen among patients with coronavirus disease 2019 (COVID-19). It suggests that SARS-CoV-2 infection represents a risk factor for thromboembolism and acute ischaemic stroke. In particular, the state of hypercoaguability in patients affected by COVID-19 favours the formation of small and/or large blood clots in multiple organs, including the brain, potentially leading to cerebrovascular disease (ischaemic stroke but also intracranial haemorrhage). Here we report a case of ischaemic stroke which occurred in a patient with COVID-19.

Key words: *COVID-19; SARS CoV-2; ischaemic stroke*

(MH Samorita Med Coll J 2021; 4(2): 72-75)

Introduction:

Contradictory data have been reported on the incidence of stroke in patients with COVID-19 and the infection among patients with history of stroke. The COVID-19 pandemic has been unpredictable as more is learned about the varied side effects of the virus. A typical respiratory infection, such as the flu, usually has a specific set of symptoms and potential complications. With COVID-19, the long-term effects range from neurological complications to loss of taste and smell, trouble focusing ("brain fog"), and chronic fatigue. Another surprising finding from several studies is the heightened risk of stroke and heart attack and not just for older adults[1]. People under the age of 50 appear to be at much higher risk of these complications too. One study published in *JAMA* in April 2021 found that the risk of stroke was more than twice as high for COVID-19 patients when compared to people of the same age, sex, and ethnicity in the general population, 82.6 cases per 100,000 people compared to 38.2 cases for those without a COVID-19 diagnosis[2]. Sometimes these strokes don't occur for several weeks after a COVID-19 diagnosis, and it's impossible to predict who might be at risk. For patients recovering from COVID-19 and a stroke, there is the added challenge of an impaired cardio-respiratory system. Not only are we dealing with strength, motor, and balance deficits that go along with stroke, we also have to work around respiratory issues, tracheostomies, and other complications. Stroke recovery is physically and mentally challenging anyway, and these complications can increase recovery time. The connections between COVID-19 and stroke may boil down to a combination of factors, including complications that come with an infection or pre-existing conditions. COVID-19 may increase the risk of stroke. Studies show that up to 4.9% of COVID-19 patients suffer an acute ischemic stroke during their first hospitalization. This increased risk of stroke is due to a number of factors brought about by COVID-19, such as increased blood clotting, as well as diabetes and high blood pressure. The occurrence of strokes in COVID-19 patients may be the result of unusual clotting problems indirectly brought about by the virus. A study done in November 2020 found parallels between COVID-19 and antiphospholipid syndrome (APS), an autoimmune condition that causes similar blood-

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clotting abnormalities. In both cases, a patient's immune system releases autoantibodies that promote the rapid formation of multiple blood clots in large arteries, veins, and even the most microscopic of capillaries. Neurologic dysfunction is reported in up to one-third of the cases of COVID-19 patients [3]. The frequency of stroke has been reported to range from 2.8% to 5.7% among confirmed and hospitalized COVID-19 patients [3–5]. While the pathogenesis of COVID-19-related hemorrhagic strokes is still not fully known, hypercoagulable state, vasculitis and cardiomyopathy had been suspected as potential pathogenic mechanisms for ischemic stroke in COVID-19 patients [6, 7]. Some researchers further stated that the viral affinity to the ACE-2 receptor presents in endothelium might be responsible for the rupture of intracranial vessel wall [8]. COVID-19-related stroke patients were more likely to be older, hypertensive, and had a higher D-dimer level [9,10]. COVID-19 was first reported in Bangladesh on March 8, 2020 by the Institute of Epidemiology, Disease Control and Research (IEDCR). Soon after the virus was detected in the country, a rise in the infection rate was observed since early April. As of 15 June, the attack rate (AR) in Bangladesh is 532.1 per million[11]. After several weeks the case detection rate had been more than 20% and the total number of cases exceeded two hundred and seventy-five thousand on 16 August 2020 [12]. But in recent months, neurologists from different parts of the world have reported a reasonable drop in the volume of acute stroke patients showing up at emergency care[10].

Case Report:

A 60 years old female patient, Priyo Bala Rani Dev, came to MH Samorita Hospital & Medical College with the complaint of cough for two years. The cough was worse over the last 10 days. It was productive with whitish sputum. She also complains of increasing difficulty in breathing for the last 10 days. She has been suffering from shortness of breath for the last 2 years. It was episodic in nature and occurred mainly in the winter seasons. There was no fever and chest pain. She also complains of anorexia and generalized weakness for 10 days. She was normotensive and non-diabetic and her bowel and bladder habits were normal. She gives history of asthma for 2 years for which she is on salbutamol inhaler and oral montelukast, fexofenadine and doxyphylline. She also gave statement that her family members were in good health. She belongs to lower middle class family. She is menopausal for 12 years. On examination she was ill-looking with low body mass index (BMI). She was mildly anaemic & mildly dehydrated. Her vital signs were normal. Her oxygen saturation was 93% on room air. She was tachypnoeic. Breath sounds were vesicular with prolonged expiration. She had few wheezes. She also had crackles over both lower lung fields. On the 4th day of admission, she had fever. Her respiratory rate was increased to 33 breaths/min. Her oxygen demand was increased to 13 litres/min. She became semi-conscious. Her GCS was 8/15 with no signs of meningeal irritation. Muscle power was 4/5 in left upper and lower limbs. Her planter response was flexor on the right side and extensor on the left side. Other systems revealed no abnormality. Two days after semiconsciousness, she had one episode of convulsion.

Laboratory reports are as follows:

Haemoglobin- 11 g/dL (10/2/2021) and 11.2 g/dL (14/2/2021).

Erythrocyte sedimentation rate (ESR) - 20 mm in 1st hour (10/2/2021) and 25mm in 1st hour (14/2/2021)

WBC count - 9.7*10>9/1 (10/2/2021) and 8.7*10>9/1 (14/2/2021).

Neutrophil count - 76% (10/2/2021) and 86% (14/2/2021).

Lymphocyte count - 20% (10/2/2021) and 09% (14/2/2021).

Serum Creatinine level - 1.3 mg/dL.

CRP - 28.3 (10/2/2021) and 61 (14/2/21).

Urine culture - positive for klebsiella species.

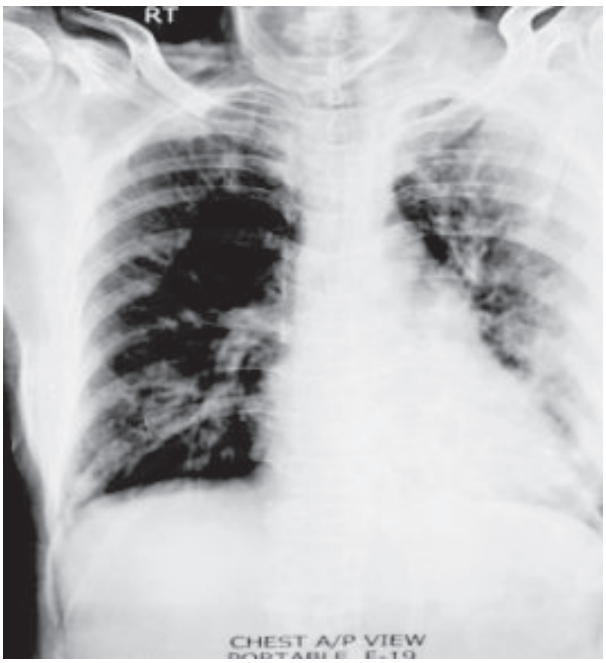

Fig.1: *Chest X-ray P/A view (14/02/2021)*

Her chest x-ray P/A view showed in homogenous opacities in both lower zones.

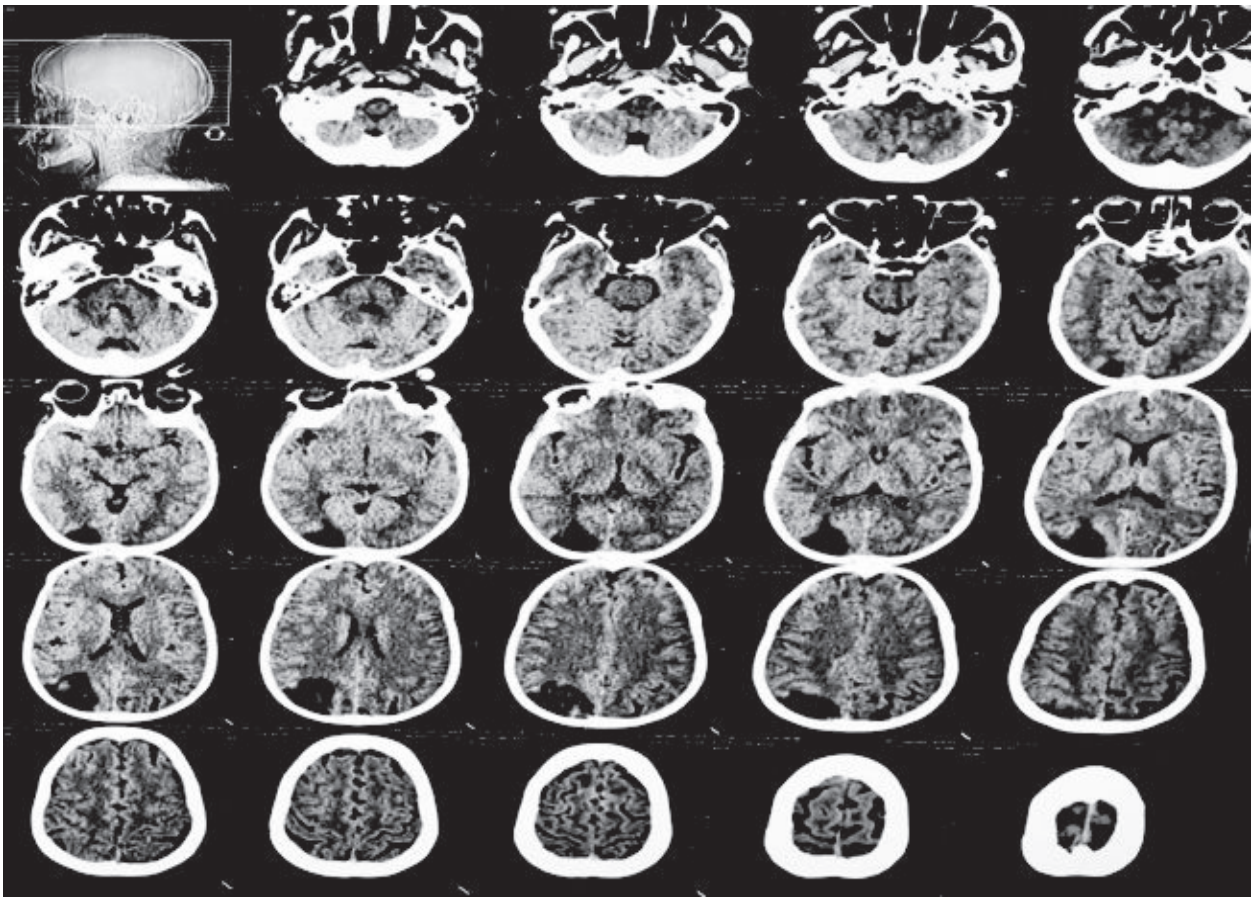

Fig. 2: *CT scan of brain (14/02/2021)*

Her CT scan of brain showed a large acute cerebral infarct in the right parieto-occipital region. Her RT-PCR for COVID-19 was negative on 15/2/2021. Echocardiogram showed ejection fraction of 67%.

She was given oral moxifloxacin 400 mg daily, oral doxyphylline 200 mg daily, oral Montelukast 10 mg daily, inhalers salbutamol and combination of salmeterol and fluticasone, oral aspirin and phenytoin along with other medications. She was diagnosed as a case of RT-PCR negative COVID-19 pneumonia complicated by stroke. She also had urinary tract infection.

Her HRCT of chest showed multifocal ground glass opacities.

After about a month, she was stable. So, she was discharged with above medications, to come back for follow-up in 2 weeks.

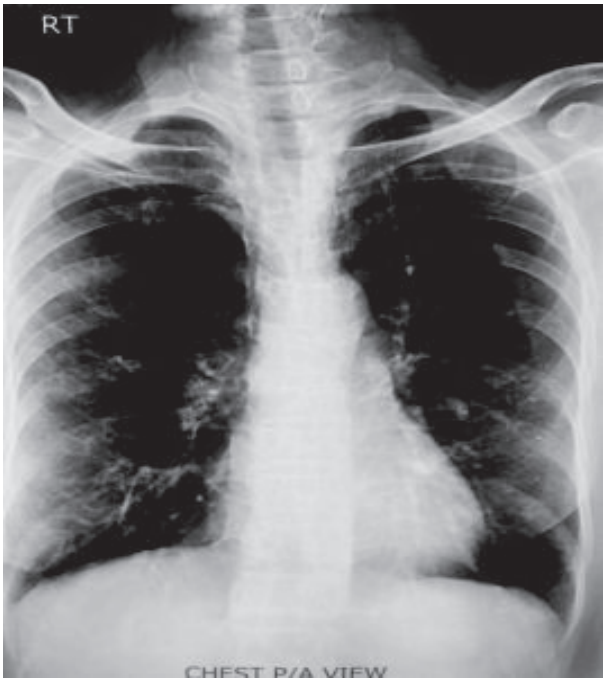

Fig. 3: *Chest X-ray P/A view (05/03/2021)*

Discussion:

The World Health Organization declared COVID-19 to be a global pandemic in March 2020, just 3 months after it was first identified in China. There are differences in transmissibility, symptomatology and case fatality among the variants[1].

COVID-19 patients can have typical symptoms which include high fever, persistent cough, and shortness of breath and loss of taste or smell. Myalgia, dizziness and fatigue are also frequent, as are chest pain, vomiting and diarrhoea [1].

Neurological complications are diverse and include cerebrovascular disease, cerebral venous thrombosis, meningitis, encephalitis, neuropathies and so on [1]. Laboratory abnormalities can include an increased neutrophil to lymphocyte ratio; elevated ALT, D-dimer and inflammatory markers, including CRP and ferritin; hypoalbuminaemia and lymphopenia[1]. However, these findings are nonspecific and of very little help in distinguishing COVID-19 from other infections. Chest x-ray shows bilateral predominantly basal and peripheral infiltrates, or in a minority, unilateral infiltrates[1]. CT scan of the chest shows ground glass abnormalities and so on [1].

Microbiological diagnosis is by nasopharyngeal or oropharyngeal swab and reverse transcription PCR (RT-PCR) to detect viral RNA[1]. Sensitivity is about 60 percent to 70 percent and specificity is about 98 percent [1].

Most infections are mild and require no treatment or only supportive therapy [2]. Because of the biphasic nature of the advanced cases, the early course should be managed with antiviral agents, as they become available [2]. Current recommendations are followed for treatment. Different vaccines are now available for prevention of COVID-19.

Conclusion:

COVID-19 patients can develop stroke which can be devastating. SARS-CoV-2 infection induces coagulopathy, disrupts endothelial function and promotes hypercoagulable state. Severe COVID-19 infection renders patients bedridden. Collectively, it predisposes patients to cerebrovascular events.

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Abstract From Current Literatures

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INCIDENCE OF DIABETES IN CHILDREN AND ADOLESCENTS IN DHAKA, BANGLADESH

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Abstract

Objectives: Bangladesh has limited information regarding incidence of type 1 diabetes (T1D) and type 2 diabetes (T2D) in young people. The objective of this study was to measure minimum incidence of T1D and T2D, and record other types of new-onset diabetes in children and adolescents <20 years (y), in Dhaka district, Bangladesh, from 2011-2018.

Methods: Retrospective study using clinical records from Diabetic Association of Bangladesh clinics. Cases were classified by clinical evaluation.

Results: 725 cases were diagnosed. 482 (66.5%) had T1D, 205 (28.3%) T2D, 14 (1.9%) fibrocalculous pancreatic diabetes, and 24 (3.3%) other types. Male:female ratios for T1D/T2D were 1:1.6 (p<0.0001) (T1D) and 1:14 (p<0.01) respectively. T1D cases by age-group were 7.3% (0-4 y), 19.9% (5-9 y), 43.6% (10-14 y) and 29.3% (15-19 y). Mean ± SD ages of onset were 12.3 ± 4.2 y (T1D) and 13.1 ± 2.4 y (T2D). Annual T1D mean incidences/100,000 were 1.22 [95%CI: 0.85–1.58] (<15 y) and 1.25 [0.94-1.57] (<20 y), and for T2D 0.52 [0.33-0.73] (<20 y). T1D incidence <15 y was 1.04 [0.69–1.39] in 2011 and 1.42 [1.04–1.80] in 2018 (p=0.08). T2D incidence rose from 0.22 [0.80–0.36] (2011) to 0.57 [0.36–0.77] (2018), an annualized increase of 12% [8–22%] (p=0.001). Ascertainment was estimated as 95%.

Conclusion: T1D was most common, but T2D, FCPD and other forms also occur. T2D incidence increased during the study period.

Keywords: adolescents; Bangladesh; children; diabetes; incidence.

IMPACT OF COVID-19 PANDEMIC ON MENTAL HEALTH AMONG GENERAL BANGLADESHI POPULATION: A CROSS-SECTIONAL STUDY

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Objectives: Mental health problems significantly increased worldwide during the coronavirus (COVID-

19) pandemic. At the early stage of the outbreak, the government of Bangladesh imposed lockdown and quarantine approaches to prevent the spread of the virus, which impacted people's daily life and health. The COVID-19 pandemic has also affected people's economic status, healthcare facilities and other lifestyle factors in Bangladesh. We aimed to assess the impact of the COVID-19 pandemic on mental health among the Bangladeshi population.

Methods: We conducted an online cross-sectional survey among 672 Bangladeshi people aged between 15 and 65 years all over the country from 15 April to 10 May 2020. After obtaining electronic consent, we conducted a survey assessing people's sociodemographic profiles and psychometric measures. We used The University of California, Los Angeles (UCLA) Loneliness Scale-8, Patient Health Questionnaire-9, Generalized Anxiety Disorder 7-Item Scale and Pittsburgh Sleep Quality Index to assess loneliness, depression, anxiety and sleep disturbance, respectively.

Results: The prevalence of loneliness, depression, anxiety and sleep disturbance was estimated at 71% (mild: 32%, moderate: 29%, severe: 10%), 38% (mild: 24%, moderate: 11%, severe: 3%), 64% (mild: 30%, moderate: 17%, severe: 17%) and 73% (mild: 50%, moderate: 18%, severe: 5%), respectively. In Bangladesh, the key factors associated with poor mental health during COVID-19 were female sex, unemployment, being a student, obesity and living without a family. The present study also identified statistically significant interrelationships among the measured mental health issues.

Conclusions: A large portion of respondents reported mental health problems during the COVID-19 pandemic in Bangladesh. The present study suggests longitudinal assessments of mental health among Bangladeshi people to determine the gravity of this issue during and after the pandemic. Appropriate supportive programmes and interventional approaches would address mental health problems in Bangladesh during the COVID-19 pandemic.

ACCESS TO FEMALE CONTRACEPTIVES BY ROHINGYA REFUGEES, BANGLADESH

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Objective: To determine the prevalence of the use of contraceptives among female Rohingya refugees in Bangladesh and its associated factors.

Methods: We conducted our cross-sectional survey at the Kutupalong refugee facility located in Cox's Bazar in November 2019. We used univariable and multivariable logistic regression models to determine the association between the use of contraceptives and our various predictor variables, including women's age, age at first marriage, education level and employment status. We also considered factors such as whether previous pregnancies were planned or unplanned, and the occurrence of non-consensual sex with husbands.

Findings: We found that 50.91% (251/493) of the survey participants used contraceptives, and that injection (169/251; 67.33%) and oral contraceptives (75/251; 29.88%) were the predominant modes. Of the women who did not use contraceptives, the main reasons were reported as disapproval by husbands (118/242; 48.76%), actively seeking a pregnancy (42/242; 17.36%) and religious beliefs (37/242; 15.29%). An increased likelihood of using contraceptives was found to be positively associated with women's employment outside their households (odds ratio, OR: 3.11; 95% confidence interval, CI: 1.69–6.11) and the presence of a health-care centre in the camp (OR: 3.92; 95% CI: 2.01–7.67). Women who reported an unplanned pregnancy during the previous 2 years were less likely to use contraceptives (OR: 0.02; 95% CI: 0.01–0.05).

Conclusion: To increase the acceptance and use of contraceptives, we recommend programmes targeted at women of reproductive age and their husbands, religious and community leaders, and providers of

family planning and child and maternal health-care services.

A Global Assessment of Eye Health and Quality of Life A Systematic Review of Systematic Reviews

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Importance: More than 1 billion people worldwide have vision impairment or blindness from potentially preventable or correctable causes. Quality of life, an important measure of physical, emotional, and social well-being, appears to be negatively associated with vision impairment, and increasingly, ophthalmic interventions are being assessed for their association with quality of life.

Objective: To examine the association between vision impairment or eye disease and quality of life, and the outcome of ophthalmic interventions on quality of life globally and across the life span, through an umbrella review or systematic review of systematic reviews.

Evidence Review: The electronic databases MEDLINE, Ovid, Embase, Cochrane Database of Systematic Reviews, Proquest Dissertations, and Theses Global were searched from inception through June 29, 2020, using a comprehensive search strategy. Systematic reviews addressing vision impairment, eye disease, or ophthalmic interventions and quantitatively or qualitatively assessing health-related, vision-related, or disease-specific quality of life were included. Article screening, quality appraisal, and data extraction were performed by 4 reviewers working independently and in duplicate. The Joanna Briggs Institute critical appraisal and data extraction forms for umbrella reviews were used.

Findings: Nine systematic reviews evaluated the association between quality of life and vision impairment, age-related macular degeneration, glaucoma, diabetic retinopathy, or mendelian eye conditions (including retinitis pigmentosa). Of these, 5 were reviews of quantitative observational studies, 3 were reviews of qualitative studies, and 1 was a review of qualitative and quantitative studies. All found an association between vision impairment and lower quality of life. Sixty systematic reviews addressed at least 1 ophthalmic intervention in association with quality of life. Overall, 33 unique interventions were investigated, of which 25 were found to improve quality of life compared with baseline measurements or a group receiving no intervention. These interventions included timely cataract surgery, anti–vascular endothelial growth factor therapy for age-related macular degeneration, and macular edema.

Conclusions and Relevance: There is a consistent association between vision impairment, eye diseases, and reduced quality of life. These findings support pursuing ophthalmic interventions, such as timely cataract surgery and anti–vascular endothelial growth factor therapy, for common retinal diseases, where indicated, to improve quality of life for millions of people globally each year.

THE INFLUENCE OF ANTHROPOMETRIC INDICES AND INTERMEDIARY DETERMINANTS OF HYPERTENSION IN BANGLADESH

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Abstract: Hypertension is a major public health burden in Bangladesh. However, studies considering the underlying multifaceted risk factors of this health condition are sparse. The present study concurrently examines anthropometric parameters and intermediary factors influencing hypertension risk in Bangladesh. Using the 2018 World Health Organisation (WHO) STEPwise approach to noncommunicable disease risk factor surveillance (STEPS) study conducted in Bangladesh and involving 8019 nationally representative adult respondents, bivariate and multivariate logistic regression analyses were performed to determine the association between anthropometrics, other intermediary factors and hypertension. The regression results were presented using the odds ratio (OR) and adjusted odds ratio (AOR) at 95% confidence intervals (CIs). The risk of hypertension was higher among females and males who were 40 years and older. However, among females, those who were age 60 years and older were more than twice and thrice more likely to be hypertensive compared to those in the younger age groups (18–39, 40–59). Females who were obese (body mass index [BMI], waist to hip ratio [WHR], waist to height ratio [WHtR]) or had high waist circumference [WC] were twice as likely to be hypertensive. Males and females who were physically active, consuming more fruits and vegetables daily and educated had lower odds of developing hypertension. Key findings suggest that the association between anthropometric indices (body mass index [BMI], waist to hip ratio [WHR], waist to height ratio [WHtR]), waist circumference [WC]), other intermediary determinants (e.g., education, physical activity) and hypertension exist across gender and with increasing age among adults in Bangladesh. Developing appropriate public health interventions (e.g., regular assessment of anthropometric parameters) for early identification of the risk and pattern of hypertension through appropriate screening and diagnosis is required to meet the specific health needs of the adult Bangladesh population.

Keywords: anthropometric indices; Bangladesh; body mass index; hypertension; waist circumference; waist-to-height ratio; waist-to-hip ratio

CLINICO-EPIDEMIOLOGIC CHARACTERISTICS OF THE 2019 DENGUE OUTBREAK IN BANGLADESH

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Background: Dengue fever shows a broad range of clinical presentations worldwide. Here we report on our clinical findings during the 2019 dengue outbreak in one of the largest tertiary care hospitals in Dhaka, the capital of Bangladesh.

Methods: A total of 747 suspected dengue cases (553 confirmed and 194 probable) were interviewed with a pro forma case record form. Statistical analyses were conducted using SPSS 20.0. Ethical clearance was obtained from the Dhaka Medical College.

Results: The mean age of the dengue cases was 27 y and approximately two-thirds were male. Positive tests for NS1 and anti-dengue immunoglobulin M antibody were present in 91.9% and 59.4% of the cases, respectively. Thrombocytopenia was present in 69% of cases and fever was present in 99.1% of cases. Gastrointestinal (GI) features, including anorexia and/or vomiting (69.4%), abdominal pain (39.8%) and diarrhoea (25.6%), were more prevalent than typical rash and pain symptoms. Hypotension was present in approximately one-quarter of patients (25.4%). Probable and confirmed dengue cases have shown similar clinical characteristics and laboratory findings.

Conclusions: The 2019 outbreak of dengue fever in Bangladesh was characterized by increased presentation with GI features. Recognition of this trend would permit early diagnosis and proper management of patients.

Keywords: Bangladesh, clinical characteristics, dengue fever, epidemiology, outbreak

Notes and News

(MH Samorita Med Coll J 2021; 4(2): 80)

CME Presentations
(March– June 2021)

No.	Date	Department	Presenter	Topic
1.	14.03.2021	Psychiatry	Prof. Dr. Enayet Karim Professor	Psychiatric consequences of "Covid-19"
2.	28.03.2021	Anaesthesiology	Dr. Mahmud Hussain Assistant Professor	Basic Life Support (BLS)
3.	25.04.2021	Pathology	Dr. Mahtab Uddin Ahmed Associate Professor	Diagnosis of a tumor in a laboratory
4.	09.05.2021	Anatomy	Dr. Mowmita Roy Chowdhury Lecturer, Department of Anatomy Dr. Faria Tahsin Lecturer, Department of Anatomy	Pancreas: Anatomical Basis
5.	30.05.2021	Orthopaedics	Dr. Shah Md. Samsul Hoque Associate Professor	Management of Osteoporosis
6.	06.06.2021	Paediatrics	Dr. Gazi Mohammad Imranul Haque Assistant Professor	New born screening and inborn error of metabolism
7.	13.06.2021	Medicine Microbiology Otolaryngology	Prof. Dr. Shameem Anwarul Haque Professor & Head of dept. of Otolaryngology Dr. Sanonda Roy Lecturer, Microbiology Dr. Robayet Mahmud Dr. Hafiz Mahmud Intern, Medicine	Mucomycosis (Black Fungus)
8.	20.06.2021	Surgery	Dr. Riddita Mustica Registrar of Surgery Dr. Sourav Hossain Assistant registrar of Surgery	Updated management of Gall stone Disease

Following students obtained honours in respective subject against his/her name:

Name	Course	Type of Exam	Year of Exam	Exam. Roll No.	Subject
Basira Aijaz	MBBS	First professional	May, 2021	4386	Anatomy
Gurupada Manna	MBBS	First professional	May, 2021	4392	Anatomy Physiology