DHAKA CENTRAL INTERNATIONAL MEDICAL COLLEGE JOURNAL (APPROVED BY BMDC)

July2019, Vol.6 No.2

Contents

From the Desk of Editor-in-Chief 4
Instructions for Authors 5

Editorial

Guidelines for Constructing Multiple True/False Questions and Single Best Answer (SBA) 14
Nomany BMS

Original Articles

Antimicrobial Resistance Pattern of Escherichia Coli Isolated from Urine in Patients Attending in a Diagnostic Centre, Dhaka, Bangladesh 20
QuayumSL, Azad MAK

Steroid Injection Versus Surgery in the Treatment of Neurophysiologically Confirmed Moderately Severe CarpalTunnel Syndrome- A Randomized Control Trial 25
Mamun KAA, Alam MM, Nomany BMS

Role of Common Addictive Habits on HypovitaminosisD Among Bangladeshi People 30
Rahman AHMH, Begum R, Karim MS, Ahamed M, Khanom S

Sensorineural Hearing Loss in Mucosal Type of Chronic Suppurative Otitis Media in Adult 36
Barua R, Ahsan AI, Jamil ANM, Zaman H

Study of Hospital Outcome of Stroke Patients Admitted in aTertiary Level Hospital 43
HossainMI, IslamMMS,Ahammed F

Comparison between Scalpel and Electrocautery in Seroma Formation Following Modified Radical Mastectomy (MRM) 47
Zaman H, Hossain SMA, Alam ABMK, Uddin SS

Effect of Perioperative Blood Transfusion on Early Outcome Following off Pump Coronary Artery Bypass Surgery 51
SaklayenSMG, Zahan LA,Wadud MA,Hoque R ,Rahman MA

Original Articles

Anthropometric Study of the Facial Morphology in Bangladeshi Manipuri Adult Females 57
Habiba NS, Banu LA

Case Reports

A Case of Henoch-Schonlein Purpura Treated with Mycophenolate Mofetil 65
Nomany BMS, Gani MO, Mukta M, Rabiul M, Tasmiya T

A Case of G6PD Deficiency Anemia with Severe Hemolysis68
Ali M, Nomany BMS, Gani MO, Islam MR, MustafizSM

Medical Quiz

Medical Quiz: Images. 71
Mamun KAA, Parvin A

Dhaka Central International Medical College Journal

Vol.6No.2 July 2019

An Official Organ of Dhaka Central International Medical College

CHIEF PATRON

Dr. M A HyeChowdhury
Chairman, Governing Body
Dhaka Central International
Medical College

EDITORIAL BOARD

Editor in Chief

Prof. Bidhu Bhushan DasPrincipal,
Dhaka Central International
Medical College

Executive Editor

Dr. Bakhtiare Md. ShoebNomany

Editors

Prof. Zakia Akhter
Dr. Md. AnwarulAlam Chowdhury
Dr. Nurjahan Begum

Members

Prof. Begum Hosne Ara
Prof. MafruhaNazneen
Prof. MatiraKhanam
Prof. Helena Begum
Dr. Saika Shaheed
Dr. Md. Mahfuzul Islam

ADVISORS

Prof. Md. Anwarul Islam
Prof. Md. ShahidUllah
Prof. Rashida Begum
Prof. ChowdhuryGolamMahbub-E-Mostafa
Prof. Md. Rafiqul Bari
Prof. Md. MahbubarRahaman
Prof. Merina Khanom
Prof. Most. NazninNahar

REVIEWERS

Prof. AKM Nazrul Islam
Prof. Mohammad Kamal
Prof. M Fakrul Islam
Prof. RatuRumanaBinteRahman
Prof. Selina Ahmed
Prof. Shahanaz Begum
Prof. ShohrabHossainSourav
Prof. S M AmjadHossain
Prof. Rashidul Hassan
Prof. S M Idris Ali

PUBLISHED BY

Dhaka Central International
Medical College
2/1 Ring Road, Shyamoli,
Mohammadpur, Dhaka-1207
Bangladesh

ANNUAL SUBSCRIPTION

Tk. 200/- for local subscribers
US$ 20 for overseas subscribers

The Dhaka Central International Medical College Journal is a peer reviewed journal. It is published biannually – January and July. It accepts original articles, review articles and case reports.

While every effort is always made by the Editorial Board to avoid any inaccurate or misleading information from appearing in the Dhaka Central International Medical College Journal, information within the individual article is the responsibility of its author(s). The Dhaka Central International Medical College Journal and/or its editorial board accept no liability whatsoever for the consequences of any such inaccurate and misleading information, opinion or statement.

ADDRESS OF CORRESPONDENCE

Dr. Bakhtiare Md. ShoebNomany
Executive Editor, Dhaka Central International Medical College Journal,
Associate Professor, Department of Medicine, Dhaka Central International Medical College
Tel: +88029124396, Cell No. +8801770008844, Fax: +88029118598
Web: www.dcimch.com, email: jdcimc@yahoo.com
2/1, Ring Road, Shyamoli, Mohammadpur, Dhaka-1207, Bangladesh.

From the Desk of Editor-in-Chief

We are delighted to inform that the Volume 6, Number 2 of the Dhaka Central International Medical College Journal (DCIMCJ) is going to be published very soon. In this issue we have added a new section, Medical Quiz: Images. We are grateful to Almighty Allah. We are sending the complimentary copies of the journal to the libraries of most of the medical college and other medical institutions in Bangladesh. Already our journal has been approved by Bangladesh Medical & Dental Council (BMDC). We invite the doctors of medical colleges and institutes to submit their research articles to the journal committee for publication. We accept both hard & soft copies of the articles. We go through the papers and if necessary, communicate the authors. We also thank all the authors for giving us opportunity to publish their research papers in this journal. We have tried our best to avoid erroneous information. We like to add here that DCIMC Journal and its editorial board accept no liability for any inaccurate and misleading information, opinion and statements. It is the responsibility of the individual author (s). We have mentioned the instruction for the authors in this issue. We request the contributing authors to follow the instructions for their manuscripts. We appreciate our chairman, editors, members and advisors for their encouragement and also appreciate the contributors and reviewers for their participation. Last of all we welcome valuable suggestion, opinion, advice and constructive criticisms for improvement of the quality of the journal.



Prof. Bidhu Bhushan Das
Editor-in- Chief

INFORMATION FOR AUTHORS

Manuscript preparation and submission:

Guidelines for the Authors:

The Dhaka Central International Medical College Journal provides publication (six monthly) of articles in all areas of the subject. The Journal welcomes the submission of manuscript that meets the general criteria of significance and scientific excellence.

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 published by **INTERNATIONAL RESEARCH JOURNALS** or any other publisher.

The submitting (corresponding) author is responsible for ensuring that article's publication has been signed and approved by all the other co-authors. It is also the author's 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 office officially establishes the date of receipt. Further correspondence and proofs will be 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 accepted papers should be addressed to –

Editor-in-Chief,
DCIMCJ
2/1, Ring Road, Shyamoli,
Dhaka, Bangladesh.

Electronic submission of manuscripts is strongly encouraged, provided that the text, tables, and figures are included in a single Microsoft Word file (preferably in Arial font).

Submit Manuscripts as e-mail attachment to the editorial office at: jdcimc@yahoo.com

A manuscript number will be mailed to the corresponding author within two working days. The cover letter should include the corresponding author`s full address and telephone / fax numbers and should be in an e-mail message sent to the editor, with the file, whose name should begin with the first author`s surname attachments or triplicate Hard copy with a soft copy.

Article types:

Five types of manuscripts may be submitted:

Editorials:

It will be preferably written invited only and usually covers a single topic of contemporary 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. The length of a full paper should be the minimum required to describe and interpret the work clearly.

Short communications:

A Short Communication is suitable for recording the results of complete small investigations or giving details of new models or hypotheses, innovative methods, techniques, images in clinical practice, letter to editors, short reports or apparatus. The style of main sections need not conform to that of original article. Short communication are 2 to 4 printed pages (about 6 to 12 manuscript pages) in length.

Reviews:

Submissions of reviews and perspectives covering topics of current interest are welcome and encouraged. Reviews should be up to date. Reviews are also peer-reviewed.

Case reports:
This should cover uncommon and /or interesting cases with appropriate confirmation process.

Review process:
All manuscripts are initially screened by editor and sent to selective reviewer. Decisions will be made as rapidly as possible, and the journal strives to return reviewers comments to authors within 3 week. The editorial board will re-review manuscripts that are accepted pending revision. The DCIMCJ editorial board will try to publish the manuscript as early as possible fulfilling all the rigorous journal needs.

I. A. Preparing manuscript for submission to DCIMCJ Editors and reviewers spend many hours reading manuscripts that are easy to read and edit. Much of the information in this journal`s Instructions to Authors is designed to accomplish that goal in ways that meet each journal`s particular editorial needs. The following information provides guidance in preparing manuscripts for this journal.

Condition for submission of manuscripts:

- All manuscripts are subject to peer-review.
- Manuscripts are received with the explicit understanding that they are not under simultaneous consideration that are not under simultaneous by any other publication.
- Submission of a manuscript for publication implies the transfer of the copyright from the author to the publisher of the Dhaka Central International Medical College journal and may not be reproduced by any means in whole or in part without the written consent of the publisher.
- It is author`s responsibility to obtain permission to reproduce illustrations, tables etc. from other publications.

Ethical aspects:

- Ethical aspect of the study will be very carefully considered at the time of assessment of the manuscript.
- Any manuscript that includes table illustration or photograph that has 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 will be blackened out.

Preparation of manuscriptCriteria:
Information provided in the manuscript is 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 (29 x 21cm) 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 separate page :
    - Title page
    - Summary/abstract
    - Text
    - Acknowledgement
    - References
    - Tables and legends

Page should be numbered consecutively at the upper right hand corner of each page beginning from the title page

I. A. 1.a. General Principles:

- The text of observational and experimental articles is usually (but not necessarily) divided into the following section: Introduction, Methods, Results, and Discussion. This 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.
- Electronic formats have created opportunities for adding details or whole sections, layering information, cross linking of extracting portions of the articles.
- Authors need to work closely with editors in developing or using such new publication formats and should submit supplementary electronic material for peer review.
- Double-spacing all portions of the manuscript- including the title page, abstract, text, acknowledgments, references, individual tables, and legends- and generous margins make it possible for editors and reviewers to edit the textline by line and add coments and queries directly on the paper copy.
- If manuscripts are submitted electronically, the files should be double-spaced to facilitate reviewing and editing.
- Authors should number on right upper corner of all of the pages of the manuscript consecutively, beginning with the title page, to facilitate the editorial process.

I. A.1.b. Reporting guidelines for specific study designs:

Research reports frequently omit important information. Reporting guidelines have been developed for a number of study designs that DCIMC journals ask authors to follow. Authors should consult the information for Authors of this journal. The general requirements listed in the next section relate to reporting essential elements for all study designs. Authors are encouraged also to consult reporting guidelines relevant to their specific research design. A good source of reporting guidelines in the EQUATOR network (http: //www.equator-network.org/home/) or CONSORT network (http://www.consort-statement. org).

I. A. 2. Title page:

1. Article title. Concise title is easier to read than long, convoluted ones. Titles that are too short may, however, lack important information, such as study design (which is particularly important in identifying type of trials). Authors should include all information in the title that will make electronic retrieval of the article both sensitive and specific.
2. Authors' names and institutions.
3. The name of the department(s) and institution(s) to which the work should be attributed.
4. Disclaimers, if any.
5. Contact information for corresponding authors. The name, mailing address, telephone and fax numbers, and e-mail address of the authors responsible for correspondence about the manuscript.
6. The name and address of the authors to whom requests for reprints should be address or a Statement that reprints are not available from the authors.
7. Source(s) of support in the form of grants, equipment, drugs, or all of these.
8. A short running head or foot line, of no more than 40 characters (including litters and spaces). Running heads are published and also used within the editorial office for filing and locating manuscript.
9. The number of figures and tables. It is difficult for editorials staff and reviewers to determine whether the figures and tables that should have accompanied a manuscript were actually included unless the numbers of figures and tables are noted on the title page.

I. A. 3. Conflict-of interest notification page:

To prevent potential conflicts from being overlooked or misplaced, this information needs to be part of the manuscript. The ICMJE has developed a uniform disclosure form for use by ICMJE member journal (http://www. icmje/crg/coi_disclosure.pdf) and DCIMCJ has accepted that.

I. A. 4. Abstract:

- Structured abstracts are essential for original research and systematic reviews. Structured abstract means introduction, methods, results and conclusion in abstract
- Should be limited to 250 words
- The abstract should provide the introduction of the study and blinded state and should state the study's purpose, basic procedures (selection of study subjects or laboratory animals, observational and analytical methods), main findings (giving specific effect sizes and their statistical significance, if possible), and principal conclusions. It should emphasize new and important aspects of the study or observations. Articles on clinical trials should contain abstracts that include the items that the CONSORT group has identified as essential (http: //www. consort-statement. org).
- Because abstracts are the only substantive portion of the article indexed in many electronic databases, and the only portion many readers read, authors need to be careful that they accurately reflect the content of the article

I. A. 5. Introduction:

- Provide a context or background for the study (that is, the nature of the problems and its significance) It should be very specific, identify the specific knowledge in the aspect, reasoning and what the study aims to answer.
- State the specific purpose or research objective of, or hypothesis tested by, the study or observation; the research objective is often more sharply focused when stated as a question.
- Both the main and secondary objectives should be clear.
- Provide only directly pertinent primary references, and do not include data or conclusions from the work being reported.

I. A. 6. Methods:

The Methods section should be written in such way that another researcher can replicate the study.

I. A. 6. a. Selection and description of participants:

- Describe your selection of the observation or experimental participants (patients or laboratory animals, including control) clearly, including eligibility and exclusion criteria and a description of the source population. Because the relevance of such variables as age and sex to the object or 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. The guiding principle should be clear 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.

I. A. 6. b.Technical information:

- Identify the methods, apparatus (give the manufacturer's name and address in parentheses), and procedures insufficient detail to allow others to reproduce the results. Give references to established methods, including statistical methods (see below); provide references and brief description 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.
- Authors submitting review article should include a section describing the methods used forlocatin, selection, extracting, and synthesizing data. These methods should also be summarized in the abstract.

I. A. 6. c. Statistics:

- Describe statistical methods with enough detail to enable a knowledgeable 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).

- Avoid relying solely on statistical hypothesis testing, such as P values, which fail to convey important information about effect size. References for the design of the study and statistical methods should be to standard works when possible (with pages stated).

- Define statistical terms, abbreviations, and most symbols.

- Specify the computer software used.

I. A. 7. Result:

- Present results in logical sequence in the text, tables, and illustrations, giving the main or most important findings first. Please keep the sequence of specific objective selected earlier.

- Do not repeat all the data in the tables or illustrations in the text; emphasize or summarize only the most important observations. Extra or supplementary materials and technical detail can be placed in an appendix where they will be accessible but will not interrupt the flow of the text, or they can be published solely in the electronic version of the journal.

- When data are summarized in the Results 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 of the paper and to assess supporting data. Use graphs as an alternative to tables with many entries; do not duplicate data in graphs and tables.

- Avoid nontechnical uses of technical terms in statistics, such as “random” (which implies a randomizing device), “normal,” “significant,” “correlations,” and “sample.” Where scientifically appropriate, analyses of the data by such variables as age and sex should be included.

I.A.8. Discussion:

- Emphasize the new and important aspects of the study and the conclusions that follow then 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 result section.

- For experimental studies, it is useful to begin the discussion by briefly summarizing the main findings, then explore possible mechanisms or explanations for these findings, compare and contrast the results with other relevant studies, 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 and conclusions 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. Avoid claiming priority or alluding to work that has not been complete. State new hypotheses when warranted, but label them clearly as such.

I. A 9. References:

I. A. 9. 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.

- On the other hand, extensive lists of references to original work of a topic can use excessive space on the printed page. Small number of references to key original papers list, is preferable particularly since references can now be added to the electronic version of published papers, and since electronic literature searching allows readers to retrieve published literature efficiently.

- Avoid using abstracts 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.

- Avoid citing a “personal communication” 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 references 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 Pub Med 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 Pub Med the authoritative source for information about retractions.

I. A. 9. b. Reference style and format:

- References should be numbered consecutively in the order in which they are first mentioned in the text.

- 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.

I. A. 10. Tables:

- Tables capture information concisely and display it efficiently.

- Use tables/figures that are relevant to study

- Try to limit the number of tables/figure

- 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 abbreviation 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. 11. 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)

- Authors should review the images of such files on a computer screen before submitting them to be sure 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 X 173 mm (5 X 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 color, DCIMCJ accept colored illustration only when it seems essential. This Journal publishes illustrations in color only if the author pays the additional cost. Authors should consult the journal about requirements for figures submitted in electronic formats.

I. A. 12. Legends for illustration (Figures):

- Type or print out 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. 13. Units of measurement:

- Measurement 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. 14. 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 followed by the abbreviation in parenthesis should be used on first mention unless the abbreviation is a standard unit of measurement.

I. B. Sending the manuscript to the journal:

- If a paper version of the manuscript is submitted, it should contain print copies of tables and figures; they are all needed for peer review and editing, and the editorial office stall cannot be expected to make the required copies.

- Manuscripts must be accompanied by a cover letter, conflicts of interest form, authorship and declaration, proforma of which is a available in DCIMCJ web site.

Editing and peer review:

All submitted manuscripts are subject to scrutiny by the Editor in-chief or any members 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 suitone 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. Editorial Board finally decides upon the publish ability of the reviewed and revised/modified submission. Proof of accepted 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.

Submission preparation checklist:

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 Journal of Dhaka Central International Medical Collage:

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

- Sample of the above document is available in the following links: http://www.dcimc.com
- If you have submitted mentioned document (1, 2, 3) above, when you first submitted your article then you don't need to re-submit 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 (vide supra)
- Running title provided (not more than 40 characters)
- Headings in title case (not ALL CAPITALS, not underline)
- 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 system.

Language and grammar:

- Uniformity in the language
- Abbreviations spelt out in full for the first time
- Numbers 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 are provided
- Figures necessary and of good quality (colour)
- Table and figure numbers in Arabic letters (not Roman)
- Labels pasted on back of the photographs (no names written)
- Figure' privacy maintained (if not, written permission enclosed)
- Credit note for borrowed figures/tables provided
- Each table/figure in separate page

If you have any specific queries please visit our website at www.dcimc .com

Manuscript format for research article:

- **Title**
  - Complete title of your article
  - Complete author information
  - Mention conflict or 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 discussion, conclusion) for case reports.
  - Key words provided – arrange them in alphabetical order (three – five)
- **Introduction:**
  - Word limit 150-200 words
  - Pertinent information only

- **Material and Methods:**
  - Study Design
  - Duration and place of study
  - Ethical consent
  - Patient consent
  - Statistical analysis and software used.
- **Result:**
  - Clearly present the data
  - Avoid data redundancy
  - Use table information at the end of the sentence before full stop between the small bracket
- **Discussion:**
  - Avoid unnecessary explanation of someone else work unless it is very relevant to the study
  - Provide and discuss with literatures to support the study
  - Mention about limitation of your study
- **Conclusion:**
  - Give your conclusion
  - Any recommendation
- **Acknowledgement:**
  - Acknowledge any person or institute 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:**
  - Table
  - Figures

The editor reserves the right to style and if necessary, shorten the material accepted for publication and to determine the priority and time of publication

---

Editorial

DCIMCJ

DCIMCJ 2019 July;6(2):14-19

Guidelines for Constructing Multiple True/False Questions and Single Best Answer (SBA)

Nomany BMS

What is true and false questions?

A true or false question consists of a statement that requires a true or false (T/F) response. There are other variations of the True or False format as well, such as: "yes" or "no", "correct" or "incorrect", and "agree" or "disagree" which is often used in surveys.

What is multiple choice questions?

A multiple-choice question (MCQ) is composed of two parts: a stem that identifies the question or problem, and a set of alternatives or possible answers that contain correct answers to the question, and a number of distracters that are incorrect answers to the question.

What is the purpose of multiple choice questions?

The purpose of a multiple choice questions is to measure the candidate ability with regard to a specific area of knowledge. A multiple choice item has a stem which asks a question, describes data or presents a situation. The responses include one or more correct responses and three or four distracters or foils.

What are the advantages of multiple choice questions?

Advantages of multiple choice questions:

More questions can be asked about a focal topics. It takes less time to complete a multiple choice question compared to an open question. Respondents don't have to formulate an answer but can focus on the content.

Dr. Bakhtiare Md. ShoebNomany, Associate Professor, Department of Medicine, Dhaka Central International Medical College.

What are the characteristics of a good multiple choice question?

Here are some of the most essential characteristics of a good MCQ.

1. Relevant: A good question is relevant.
2. Clear: A good question is framed in a clear, easily understandable language, without any vagueness.
3. Concise.
4. Purposeful.
5. Guiding but not leading.
6. Stimulates thinking.
7. Single-Dimensional.

Few guidelines for constructing multiple True/False:

- Items may be written as either direct questions or incomplete statements. When possible, a direct question is preferable as it is generally easier to read.
- Using direct text book quotations, stereotyped language, or excessive scientific terminology should be avoided.
- Each stem should represent a complete thought and should present a definite problem. It can include many unifocal problem and should be free of irrelevant material.
- Bulk of the information should be included in the stem rather than the response options.

- Better to state the question positively.
- Negatively stated question stem is better to avoid and only may be used when significant learning outcome requires it.
- Answer options should be about the same length and parallel in grammatical structure. Too much detail or different grammatical structure can disclose the answer.
- Distracters (incorrect response options) must be incorrect, but possible.
- The sentence/phrase of the alternative answers should not provide a clue to the correct answer.
- There should not be any alternatives like "none of the above" or "all of the above".
- The questions should avoid single best response pattern. There should be no hint in the stem that only one of the alternatives is correct and other options are clearly incorrect.
- MCQ are expected to be constructed in differing hierarchies (topics or systems or grading) of educational objectives like recall, comprehension, analysis, etc.
- All response options should not be true or false.
- Arranging answers pattern should be avoided (i.e., TTFFTTFF, TFTFTF)
- Use relatively short statements with no extraneous materials.
- An equal number of true and false questions should be included.
- Only one idea in each question should be tested.
- Avoid verbal clues, specific determiners (e.g., the, a, an) and complex sentence.
- Avoid absolute terms such as, never or always.

Examples of MCQ:

Swallowing is a reflex which

F a) is initiated by a voluntary act

T b) includes inhibition of respiration

T c) has its reflex center in the cervical segments of the spinal cord

T d) is dependent on intrinsic nerve networks in the esophagus

T e) is more effective with the trunk in the upright posture

Regarding surgical anatomy of thyroid:

T a) external laryngeal branch of superior laryngeal nerve supply muscles of the vocal cord

F b) superior thyroid artery comes from thyrocervical trunk

F c) middle thyroid vein drains into external jugular vein

F d) arteria-thyroid-ima comes from brachiocephalic trunk

T e) recurrent laryngeal nerve has intimate relation with inferior thyroid artery

In foetus:

T a) type II pneumocyte produces surfactant

T b) Meckel's diverticulum is the remaining viteline duct

T c) in 3-4% of cases viteline duct persists

F d) foregut gives rise to heart, trachea, bronchi, lungs & spleen

T e) embryonic heart develops at the middle of 3rd week

A 30-year-old man has loss of pain and temperature sensation from the neck down on the right side of the body and on the left side of the face; partial paralysis of the soft palate, larynx, and pharynx on the left; and ataxia on the left. This syndrome is most likely to result from thrombosis of which of the following arteries?

F a. Basilar

F b. Right posterior inferior cerebellar

T c. Left posterior inferior cerebellar

F d. Right superior cerebellar

F e. Left superior cerebellar

Guidelines for construction of Single Best Answer (SBA):

A single question is posed with typically five alternate answers, from which the candidate must choose the best answer. This method avoids the problems of past examinations of a similar form described as multiple-choice question (MCQ) and Single Correct Answer. The older form can produce confusion where more than one of the possible answers has some validity. The newer form makes it explicit that more than one answer may have elements that are correct, but that one answer will be superior.

Prior to the widespread introduction of SBAs into medical education, the typical form of examination was true-false multiple choice questions. But during the 2000s, educators found that SBAs would be superior[1].

Few guidelines for construction of SBA:

- Create questions that take 60-90 seconds to complete.
- Use clear and precise language. Avoid question ambiguity.
- Max 150 words.
- Present tense.
- Avoid including information that is not relevant to the question.
- Avoid abbreviations without first explaining their meaning.
- Identify the topic area and the level of thinking you want to test, and write a question around this which mimics tasks that successful candidates must be able to undertake at the next stage of training. Ideally, questions should be pitched at the level of understanding the reason behind disease process or its application by means of background science, not simple recall.

Example of recall questions:

- What are the organisms responsible of X?
- Which of the following is the nerve supply of X?
- Enumerate the main causes of Y?
- Which of the following is correct?

- **Construct the stem**:
  - Structure the contents of the question stem as follows (including only information relevant to the question):
  - Patient details (gender/age)
  - Presenting complaint (PC)
  - History of presenting complaint (HPC)
  - Relevant past medical history, family history and social history
  - Observations/Vitals/GCS/MMSE
  - Physical examination findings
  - Results (e.g. laboratory/radiology)
- Construct the lead-in in such a way that it builds on the information in the stem and poses a clear question. Candidates should be able to answer without looking at the options, and should not be able to answer if the information in the stem is masked.

- **Write the options:**
  - Keep them short.
  - These should be of near similar length.
  - You should ideally provide 5 possible answers.

- They should flow grammatically from the question stem.
- They should be homogeneous (e.g. they should all be a diagnosis/treatment/anatomical location etc.).
- All should be plausible and familiar, but one should be BETTER than the others .
- If appropriate, order the options in a logical order (e.g. numeric, alphabetical, or anatomical).
- The BEST answer is evidence-based and widely agreed upon by experts (e.g. NICE guidelines)

- **Ask for the BEST answer, not the one that is TRUE/FALSE, for example…**

- 'What is the most likely diagnosis?'
- 'What is the most appropriate initial management step?'
- Avoid negative questions (e.g. 'What is the least likely diagnosis')

Example of a good question
Question:
Mrs, Rina, 67years, presents to A&E with chest pain. She describes 12 hours of a sharp chest discomfort on inspiration, which started suddenly just after she arrived back from her flight to Florida. Her oxygen saturation is 94% on 2 litres of oxygen and her respiratory rate is 28.

What is the **most likely** ECG finding for this patient?

Answers:
A. Right axis deviation
B. SI QIII TIII pattern
C. Sinus tachycardia
D. ST elevation in three contiguous leads
E. Widespread saddle-shaped ST elevation

Explanation:
The most likely ECG finding in this patient is sinus tachycardia. This patient has presented with the classic signs of a pulmonary embolism (PE)- recent travel, sudden onset chest pain which is worse on inspiration, and increased respiratory rate with low oxygen saturations. ECG findings in PE can include right axis deviation, sinus tachycardia, and the oft-mentioned but rarely seen SI QIII TIII pattern. Of these, the most likely is a sinus tachycardia. ST elevation in three contiguous leads would be seen in an ST-elevation myocardial infarction rather than a PE, and widespread saddle-shaped ST elevation is indicative of pericarditis.

What makes this a good question?
The information in the stem is relevant and is written in a clear manner. This is a two-step question which is slightly more challenging- the reader must first choose a likely diagnosis for the patient, and then consider subsequent ECG findings. None of the answers are 'wrong'- all could be seen in a patient with chest pain. However, the best candidate would rule out findings not seen in PE and then choose (as the question asks) the most likely ECG finding. The explanation is informative and explains which of the answers are more or least likely, and why. The answer is also referenced for further information.

Examples of some low-quality questions

Question:
A male patient presents to his GP with a cough. The patient describes feeling unwell. They have a past medical history of an appendectomy.

What is the **most likely** diagnosis?

Answers:
A. COPD
B. Hypersensitivity pneumonitis
C. Lung cancer
D. Pneumonia
E. Tuberculosis

Explanation:
The correct answer is pneumonia, as it is statistically the most likely diagnosis in a patient presenting to their GP with a cough.

Why is this a poor quality question?
The stem is vague – in order to correctly answer the question, the reader would need more details such as the patient's age, related symptoms, smoking history, occupational history, travel history, etc. The past medical history of an appendectomy is entirely irrelevant to the stem. The patient could have any of the above conditions – all may present with a cough and "feeling unwell". Of course, statistically speaking, pneumonia is likely the most common diagnosis made in someone presenting to their GP with a cough. However, this question isn't testing any diagnostic skills in the reader. Questions should be asking what the most likely diagnosis is in a patient given the information and background provided.

Example
Question:
A male patient, aged 73, presents to his GP with a six-week history of a cough. The patient also describes feeling 'run down' lately and has lost weight. He has on occasion coughed up some blood. The patient has a smoking history of 80 pack-years.

What is the most likely diagnosis?

Answers:
A. COPD
B. Hypersensitivity pneumonitis
C. Lung cancer
D. Pneumonia
E. Tuberculosis

Explanation:
The most likely diagnosis in this patient is lung cancer. All of the above conditions could present with a cough, however only tuberculosis and lung cancer are likely to present with haemoptysis and weight loss as well. The patient's smoking history, combined with no known history of fevers or other risk factors, makes lung cancer the most likely diagnosis in this patient.

Example
Question:
Which joint disease is associated with morning stiffness that improves with activity?

Answers:
A. Ankylosing spondylitis
B. Gout
C. Osteoarthritis
D. Rheumatoid arthritis
E.

Why is this a poor quality question?
It is in a multiple choice rather than single best answer format. There is no clinical vignette or background information, and there are only four options for answers rather than five. Additionally, morning stiffness is seen in both rheumatoid arthritis and ankylosing spondylitis.

Example
Question:
Mrs. Aleya, 51years, has presented to rheumatology outpatients with pain in her hands. She describes five weeks of pain and stiffness in her joints in the morning, lasting around 30 minutes. Her pain often improves with some light activity.

What is the most likely diagnosis in this patient?

Answers:
A. Ankylosing spondylitis
B. Gout
C. Osteoarthritis
D. Psoriatic arthritis
E. Rheumatoid arthritis

Explanation:
The correct answer is rheumatoid arthritis. All of the above conditionscause joint pain, however

only ankylosing spondylitis, psoriatic arthritis, and rheumatoid arthritis are associated with morning stiffness. Ankylosing spondylitis is known to affect the spine, not the hands. Given that there is no known history of psoriasis in this patient, rheumatoid arthritis is the most likely answer.Gout and osteoarthritis are less likely to be symmetrical in presentation, and would not present with morning stiffness.

Conclusion:

In conclusion, the single best answer (SBA) format of multiple choice questions (MCQ) is recognised to be better suited to the assessment of the higher levels of knowledge essential for clinical practice, such as data interpretation, problem solving and decision making, than traditional true/false MCQ. Now-a-days, SBA considered as superior to MCQ for assessment of the students.

References:

1. Tan LT, McAleer JJ. The introduction of single best answer questions as a test of knowledge in the final examination for the fellowship of the Royal College of Radiologists in Clinical Oncology. ClinOncol (R CollRadiol). 2008 20:571–6.

Original Article

DCIMCJ

DCIMCJ 2019 July;6(2):20-24

Antimicrobial Resistance Pattern of Escherichia Coli Isolated from Urine in Patients Attending in a Diagnostic Centre, Dhaka, Bangladesh

QuayumSL[1], Azad MAK[2]

Abstract:

Background: Urinary tract infection (UTI) is one of the most prevalent infectious diseases and Escherichia coli is its common cause.Area-specific monitoring studies aimed to find out the type of pathogens responsible for UTI and their resistance patterns may help the clinician to choose the correct empirical treatment. The aim of this study wasto assess the recent prevalence, to compare the diversity ofE. coli sensitivity to antibiotics and to evaluate the antibiotic resistance pattern which develops gradually in Bangladeshfrom patients attending in a diagnostic centre from June 2008 to June 2010. Methods: A cross sectional study was conducted. Urine samples were collected using the mid-stream "clean catch" method from 2244 clinically-suspected cases of UTI and tested bacteriologically using standard procedures. Antimicrobial susceptibility test was performed for isolated pathogens using Kirby-Bauer disk diffusion method according to clinical and laboratory standards institute guidelines. Results: Of the total 2244 mid-stream urine samples collected from suspected cases of UTI, only 161 (7.2%) were positive for pathogen. The most common pathogens isolated were Escherichia coli (67.7%). E. coli showed the highest percentage of resistance to Ampicillin (97.7%), Ciprofloxacin (63.1%) and Co-trimoxazole (58.1%) and susceptible to Imipenem (100%), Nitrofurantoin (90.6%) and Pivmecillinam (86.9%). Conclusion: This study finding showed that E. coli isolates were the predominant pathogens and E. coli is highly resistance to the commonly prescribed drugs that in turn leaves the clinicians with very few alternative options of drugs for the treatment of UTIs. Drug resistance among bacterial pathogens is an evolving process, routine surveillance and monitoring is essential to provide updated physicians' knowledge about the most effective empirical treatment of UTIs.

Keywords:UTI, antimicrobian resistance, empirical treatment

Introduction:

Development of resistance to antimicrobial agents is an increasing problem world-wide.Urinary tract infection (UTI) is one of the most common infectious diseases, and nearly 10% of people will experience a UTI during their lifetime[1]. It is also one of the most frequently occurring nosocomial infections[2].The annual global incidence of UTI is of almost 250 million. Approximately 35% of all hospital-acquired infections are contributed by UTI[2,3]. It may cause asymptomatic to severe sepsis. Neonates, girls, young women, and older men are most susceptible to UTIs, 25–35% of women between the ages of 20–40 years have UTI[4]. In women, bacterial cystitis is the most common bacterial infection. The infections may be symptomatic or asymptomatic. The prevalence is increased by several factors. Poor socioeconomic status, increased age, high parity, poor perineal hygiene, diabetes mellitus, neurogenic bladder retention, anatomic or functional urinary tract abnormality, and increased frequency of sexual activity may cause UTI[5].

Bacteria are the major causative organism and responsible for more than 95% of UTI cases. Organisms that cause UTI are those from the normal vaginal, perineal, and fecal flora. The vast majority of uncomplicated UTIs are caused by the Gram negative bacillus Escherichia coli, with other pathogens including Enterococci,Staphylococcus

1. Dr. ShaheenLipikaQuayum, Professor (CC), Department of Pharmacology Popular Medical College.

2. Dr. Md. Abul Kalam Azad,Professor, Department of Medicine, Bangabandhu Sheikh Mujib Medical University

Correspondence: DrShaheenLipikaQuayum
E-mail:lunaquayum@gmail.com

saprophyticus, Klebsiella spp. and Proteus mirabilis[6]. Escherichia coli are the most prevalent causative organism of UTI and are solely responsible for more than 80% of these infections[7]. An accurate and prompt diagnosis of UTI is important in shortening the disease course and for preventing the ascent of the infection to the upper urinary tract and renal failure.

Development of resistant strain is a common problem inantimicrobial chemotherapy. The rate of resistance is highamong uropathogens. E. coli have been reported cases of resistance to antibiotics, has become a major problem worldwide[7]. Often treatment of UTI is started empirically on the basis sensitivity pattern of the urinary pathogens of a givencommunity[8]. Due to aberrant use of antibiotics in practice theprevalence of antimicrobial resistance among urinarypathogens has been increasing worldwide[6,9]. Distribution ofurinary pathogens and their susceptibility to antibiotics variesregionally. To ensure appropriate treatment, knowledge of the organisms that cause UTI and their antibiotic susceptibility is mandatory.

Materials & methods:

The study was performed on 2244 suspected patients of UTI, who was investigated for Urine C/S attending in a renowned diagnostic centre, Dhaka from June 2008 to June 2010. A total of 2244 clean catch midstream urine samples were collected in a wide mouth sterile container from the study subjects who have not received antimicrobials within the previous 15 days. Then the bacterial uropathogens were isolated and tested for antimicrobial drug resistance pattern. Isolation of uropathogens was performed by a surface streak procedure on both blood and Mac Conkey agar (Oxoid Ltd. BashingstoreHampaire, UK) using calibrated loops for semi quantitative method and incubated aerobically at 37^0C for 24 hours, and those cultures which becomes negative at the end of 24 hrs incubations were further incubated for 48 hours. A specimen was considered positive for UTI if a single organism was cultured at a concentration of 10^5cfu/ml.

Antimicrobial susceptibility of isolates was tested for all 21 bacterial uropathogensby the disk diffusion according to Clinical Laboratory Standards Institute (CLSI) guide lines. Data were entered and analyzed using SPSS version 12.0.1 windows.

Results:

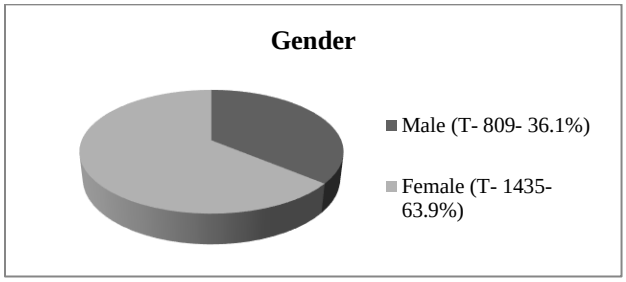


Figure 1: Gender distribution of all respondents

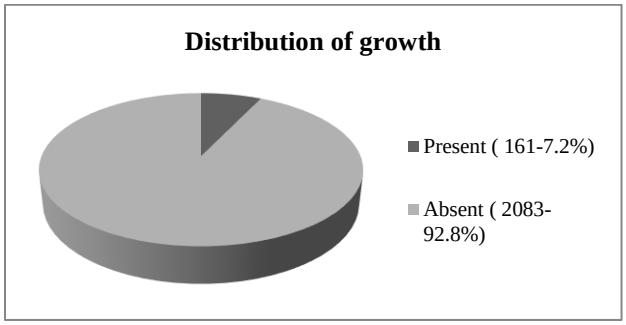


Figure 2: Distribution of growth

Table 1: Gender distribution of all culture sensitive patients

	Frequency	Percent
Male	44	27.3
Female	117	72.7
Total	161	100.0

Table 2: Age distribution of all culture sensitive patients.

Statistics	Male	Female
Mean ±SD (95% CI)	42.34±24.57 (34.87-49.81)	39.67±18.67 (36.26-43.09)
Range of age	0.2-96	1.50-80
Median	45.5	40

Table 3: Distribution of yielded growth

	Frequency	Percent
E. coli	109	67.7
Enterobacter	34	21.1
Klebsiella	8	5.0
Pseudomonas	6	3.7
CNS	3	1.9
S. typhi	1	0.6
Total	161	100.0

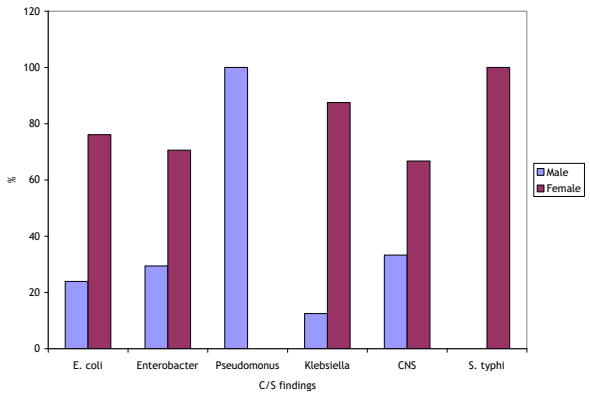


Figure 3:Distribution of yielded growth in different gender

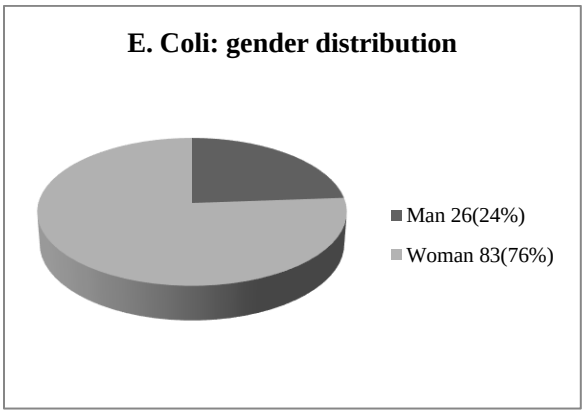


Figure 4: Gender distribution of E. coli growth

Table 4: Different antibiotic sensitive and resistant pattern of E. coli

E. coli	Sensitive (%)	Moderate sensitive (%)	Resistant (%)
Ampicillin	2.9	.0	97.1
Cephalexin	42.7	.0	57.3
Co-trimoxazole	38.7	3.2	58.1
Nitrofurantoin	90.6	1.9	7.5
Nalidixic acid	21.6	.0	78.4
Gentamicin	76.9	.0	23.1
Ceftriaxone	65.0	.0	35.0
Ciprofloxacin	36.9	.0	63.1
Ofloxacin	36.9	.0	63.1
Pefloxacin	35.0	1.9	63.1
Pivmecillinam	86.9	4.7	8.4
Ceftazidime	50.0	8.3	41.7
Aztreonam	22.2	.0	77.8
Piperacillin	.0	.0	100.0
Netilmicin	50.0	16.7	33.3
Imipenem	100.0	.0	.0

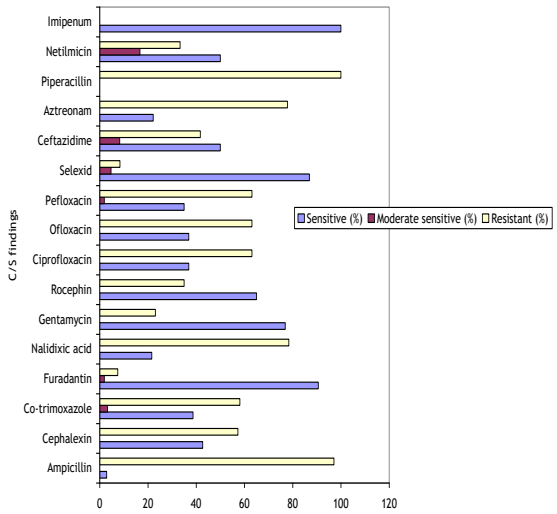


Figure 5: Cultural sensitivity results of E. coli

Discussion:

This study was conducted with the aim to determine the status of multiple drug resistance E. coli isolated from urine samples. Altogether 2244 samples were collected of which the overall growth was 7.2%. The low growth might be due to inclusion of every patients requesting for culture regardless of their symptoms and illness or prior use of antibiotics or might be due to presence of fastidious organisms that we are not be able to grow on routine culture media[10]. Our study showed a high prevalence of UTI in females (72.7%) than in males (27.3%) which correlates with other studies. The reason behind this high prevalence of UTI in females is due to close proximity of the urethral meatus to the anus, shorter urethra, sexual intercourse, incontinence, and bad toilet[11].

E. coli accounted for more than 67.7% of the total isolates. Out of them 76% are female. Such higher rates might be due to endogenous source of infection as they are the most frequent isolates at hospital acquired and community acquired infections[10,12,13]. The reason of the highest rate of E.coliis that they are normal fecal flora and uropathogenic strains of E.coli have an adherence factor called P fimbriae,or pili,which mediate the attachment of E.coli to uroepithelial cells[14]. The highest percentages of resistance of Escherichia coli causing urinary tract infections were found for Ampicillin (97.1%), Nalidixic acid (78.4%), Ciprofloxacin (63.1%), Co-trimoxazole(58.1%), whereas the highest percentages of sensitivity were seen for Imipenem(100%), Nitrofurantoin (90.6%) and Gentamicin (76.9%). Such higher susceptibility was seen in different works[14-16]. Uncontrolled consumption of these common antibiotics during the past decade influenced the spreading of resistance property among the causative agents[17].

Conclusion:

UTI among female is more prevalent and the most predominant uropathogen was E coli.Higher resistance was seen to Ampicillin, Nalidixic acid, Ciprofloxacin and Imipenem, pivmecillinamNitrofurantoin, Gentamicin are considered appropriate for empirical treatment of E. coli in the study time.Therefore the choice of antibiotic therapy should be integrate the local sensitivity pattern of the infecting organisms. The periodic evaluations of predominant organisms and their antibiotic susceptibility pattern are necessary as it is changing with time. The resistant pattern to antibiotics is very important to help the clinician to choose right empirical treatment before the final bacterial result of urine culture of a patient is available or where the lab facility is not available.

References:

1. Levi ME, Redington J, Barth L. The Patient with Urinary Tract Infection. Manual of Nephrology 6th Edition. Lippincott Williams & Wilkins. 2005; 7: 91.
2. Ronald AR, Nicolle LE, StammE, Krieger J, Warren J, Schaeffer A, et al. Urinary tractinfection in adults: research priorities and strategies. Int JAntimicrob Agents 2001; 17: 343-8.
3. Barisic´ Z, Babic´-Erceg A, Borzic´ E, Zoranić V, Kaliterna V, Carev M, et al. Urinary tractinfections in South Croatia: Aetiology and Antimicrobial.Intl J Antimicrob Agents 2003; 22: S61-S4.
4. Hooton TM, Stamm WE. Diagnosis and treatment of uncomplicated urinary tract infection. Infect Dis Clin North Am. 1997; 11:551–8.
5. Patterson TF, Andriole VT. Bacteriuria in pregnancy. Infect Dis Clin North Am. 1987;1(4):807-22.
6. Bonadio M, Meini M, Spetaleri P, Gilgi C. Current microbiological and clinical aspects of urinary tract infections. Eur J Urol 2001; 40:439-45.
7. Blondeau JM. Current issues in the management of urinary tract infections: extended-release ciprofloxacin as a novel treatment option. Drugs. 2004; 64(6): 611-28.

DCIMCJ

8. Wilson ML, Gaido L. Laboratory Diagnosis of Urinary Tract Infections in Adult Patients. Clin Infect Dis 2004;38: 1150-8.

9. Grude N, Tveten Y, Kristiansen BE. Urinary tract infections in Norway: bacterial etiology and susceptibility,a retrospective study of clinical isolates.Clin Microbiol Infect. 2001; 7: 543-7.

10. Chhetri PK, Rai SK, Pathak UN, Thapa JB, Devkota KC, Shrestha BO et al. Retrospective study on urinary tract infection at Nepal Medical College Teaching Hospital, Kathmandu. Nepal Med Coll J. 2001;3:83-5.

11. Aiyegoro OA, Igbinosa OO, Ogunmwonyi IN, Odjadjaro E, Igbinosa OE, Okoh A. Incidence of urinary tract infections (UTI) among children and adolescents in Ile-Ife, Nigeria. African J Microbiological Research. 2007; 1: 13-19.

12. Kahlmeter G. An international survey of the antimicrobial susceptibility of pathogens from uncomplicated UTIs: the ECO.SENS Project. J AntimicrobChemother. 2003; 51(1):69-76.

13. Fowler JE and Mariano M. Immunologic response of the prostate to bacteriuria and bacterial prostates: Antigen specific immunoglobulin in men with bacterial prostatitis. J Urol. 1990; 131:363.

14. Arslan H, Azap OK, Ergonul O and Timuskaynat F. Risk factors for ciprofloxacin resistance among E. coli strains isolated from community-acquired UTIs in Turkey. J AntimicrobChemother. 2005; 56(5):914-18.

15. Uwaezuoke JC, Ogbulie N. Antibiotic sensitivity pattern of urinary tract pathogens in Port-Harcourt, Nigeria. Journal of Applied Sciences and Environmental Management. 2006; 10(3): 103-7.

16. Majumder MI, Ahmed T, Hossain D, Begum SA. Bacteriology and antibiotic sensitivity patterns of urinary tract infections in a tertiary hospital in Bangladesh. Mymensingh Med J. 2014; 23(1):99-104.

17. SL Hillier, JT Magee, AJ Howard and SR Palmer, How strong is the evidence that antibiotic use is risk factor for antibiotic-resistant, community acquired urinary tract infection? J. Antimicrob. Chemother 2002;50: 241-7.

Original Article

DCIMCJ

DCIMCJ 2019 July;6(2):25-29

Steroid Injection Versus Surgery in the Treatment ofNeurophysiologicallyConfirmed Moderately Severe Carpal Tunnel Syndrome- A Randomized Control Trial

Mamun KAA[1], Alam MM[2], Nomany BMS[3]

Abstract:

Objectives: The present study was performed to compare the efficacy of surgery versus steroid injection in the treatment of neurophysiologicallyconfirmed moderately severe CTS.Methods: This was an prospective, randomized clinical trial.We studied the effects of surgeryversus steroid injection in 60 patients with neurophysiologicallyconfirmed moderately severe CTS.Of them 32 patients were treated with steroid injection and 28 patients were treated with surgery. Variables such as pain (based on Visual Analogue Scale), symptom severity and functional status (based onBostone/Levine symptom severity and functional status scale) were evaluated before and 3 months after the treatments. Results: 3 months after treatment, pain severity decreased while patients' functional status increased meaningfully in both groups. However, there were no meaningful differences between two groups regarding mentioned variables. Conclusions: Both treatments were effective in the management of moderate CTS. There were no significant differences in therapeutic effects between two groups.

Keywords: Carpal tunnel syndrome, surgery, steroid injection

Introduction:

Carpal Tunnel Syndromeis the most common entrapment neuropathy[1]. Clinically, it is characterized by signs and symptomsof compression of the median nerve where it passes under the transverse carpal ligament at the wrist. Affected patients complain of numbness and pain in the hand and their symptoms typically worsen at night[2].

Generally treatment is given in two categories – conservative treatment and surgical release of the median nerve. Surgical treatment is recommended in severe forms of the disease and conservative treatments are used inmild forms[3-4].

1. Dr. Kazi Abdullah Al Mamun, Associate Professor, Department of Neuromedicine, Dhaka Central International Medical College.

2. Dr. Md. MonoarulAlam, Assistant Professor, Department of Medicine, Dhaka Central International Medical College.

3. Dr. Bakhtiare Md ShoebNomany, Associate Professor Department of Medicine, Dhaka Central International Medical College.

Correspondence: Dr. Kazi Abdullah Al Mamun
E-mail: abdalmamun39@gmail.com

Conservative options include splinting, non-steroidal anti-inflammatory drugs, local steroid injection and systemic steroids[5-9].

Although both surgery and steroid injection have been widely used in the treatment for moderate CTS, there is no clear consensus regarding their effectiveness in the treatment of moderate CTS.

Methods:

All patients with the diagnosis of moderate CTS in the DhakaCentral International Medical College Hospital Outdoor from October 2018 to September 2019 were randomly assigned into the study groups. A CTS diagnosis was made through the evaluation of patients' symptoms and signs such as Tinel and Phalensign[9]. CTS severity was determined by the electrophysiological study performedin this centre. In this respect, nerve conduction velocity (NCV) were graded according to the previously introduced neurophysiological grading with a spectrum of grades from mild, moderate and severerespectively[10]. Those patients in whom electrophysiological findings

were not in accordance with clinical findings were excluded from our study.

Sixty (60) patientswith moderate CTS were assessed during the randomized clinical trial. Inclusion criteria were as follows: patients aged between 18 to 60 years who came to Dhaka Central International Medical College Hospital Outdoor with moderate CTS diagnosed by electrodiagnostic studies.

Exclusion criteria were pregnancy, history of local corticosteroid injection, severe thenaratrophy, evidence of concomitant neuropathy or radiculopathy and patient's desire to leave the study.

The methods of treatmentas well as benefits and probable adverse effects were explained to all patients. All participants who signed the consent form were included in this study.We used simple random sampling. The patientswere randomly distributed in 2 groups A) corticosteroid group and B) surgery group.

For all participants, variables of pain (based on VAS), symptom severity and functional status (based on Bostone/Levine symptom severity scale and Bostone/Levine functional status scale, respectively) and sensory and motor distal latencies (using nerve conduction study) were evaluated. Bostone/Levine symptom severity scale (SSS) was used to evaluate the severity of symptoms includingpain, paresthesia and weakness during the past 2 weeks. It contains 11 questions with five choices for each one starting from no symptom to very high in severityso that more severe symptoms gained more scores[11]. Bostone/Levine functional status scale (FSS) is used to evaluate the patient's functional status. It containseight questions about the patient's activity for the past 2 weeks and each activity is scored in a scale of five, such that higher scores indicate more inappropriatefunctional status[12]. To evaluate pain severity based on visual analogue scale (VAS), patients mark the location on the 10-centimeter line corresponding to the amount of pain they experienced. The point of "no pain" equals to zero and the point of "maximum pain" equals to 10.

Hands in group A received a single local injection of 0.5 ml triamcinolone acetonide(40 mg/ml) and 0.5 ml lidocaine hydrochloride(2 %) with a 2-ml syringe using 23-gauge needle.Hands in group B undergone sugery. 3 months after the treatment, patientsvisited again and mentioned questionnaires were fulfilled.

Statistical Analysis:

For comparing two groups' means and frequencies, t test and chi square were used, respectively. Finally, the results were analyzed using SPSS version 25.A P-value of less than 0.05 was considered significant.

Results:

The outcome of 60 patients with moderate CTS wereevaluated in this study. From those, 32 underwent steroid injection and 28 were treated surgically.Fifty four patients remaining at the end of the study (30 hands in the corticosteroid group and 24 hands in the surgery group). The clinical and demographic characteristics of the 2 study groups have beendemonstrated and compared in Table 1.

Table 1: Demographic characteristics at the beginning of the study in corticosteroid and surgery groups

Variable	Steroid Injection Group (n 32)	Surgery Group (n 28)	P Value
Age (years)	45.4 ± 8.4	46.2 ± 7.8	0.63
Gender			
Male	6(11)	5(11)	0.93
Female	24(43)	19(43)	
Preoperative Signs			
Tingling	30 (100%)	20 (94%)	0.72
Finger numbness	26 (94%)	21 (91%)	
Tinnel sign	23 (70%)	19 (71%)	
Weakness	9 (27%)	11 (60%)	

Abbreviations: FSS: Functional Status Scale; SSS: Symptom Severity Scale;Data are shown as mean ± SD or number (%)
P - value of < 0.05 is considered signficant.

Both groups were congruent and similar in mean age and severity of disease before treatment.No meaningful difference was detected.

Table 2: Pain severity, symptom and functional status before and 3 months after the treatment in both groups

Group	Variable								
	Pain (VAS1)	Pain (VAS2)	*Pvalue within group	Function (FSS 1)	Function (FSS 2)	*P value within group	Symptom (SSS 1)	Symptom (SSS 2)	*P value within group
Corticoteroid	5 ± 2.7	2.23 ± 1.30	P = 0.0001	1.54 ± 0.50	1.17 ± 0.21	P = 0.0001	2.51 ± 0.61	2.07 ± 1.95	P = 0.0001
Surgery	4.8 ± 2.4	2.29 ± 1.75	P = 0.0001	1.86 ± 0.56	1.37 ± 0.49	P = 0.0001	2.42 ± 0.67	1.70 ± 0.50	P = 0.0001

***paired t test**
P value between groups: P value > 0.05(t test)

3 months post-intervention pain (based on VAS), symptom severity (based on Boston SSS) and functional status (based on Boston FSS) improved in bothgroups significantly. However, there was no meaningful difference between the two groups when compared by t test (P value > 0.05).

Discussion:

There is no universally accepted guideline for treatment of various stages of CTS. Surgical treatment is generallyaccepted in severe cases,but it is not clear whether surgical treatment overweighs the non - surgical approaches such as steroid injection in thetreatment of patients withmoderate CTS[13].

Here we designed a clinical trial to compare the outcome of surgery vssteroid injection in patients with moderate CTS. According to ourresults, both treatments significantly improved the symptoms at a follow-up period of 3 months. No significant difference was observedbetween the 2 groups in terms of functional status and symptom severity.

Hui et al. assessed the efficacy of surgery vs. steroid injection in relieving moderate CTS in a clinical trial composed of 50 patients, 25 patients for each group. Over a follow - up period of 20 weeks, their results showed a better symptomatic and neurophysiologic outcome in patients of the surgery group[14].

Ly-Pen et al in a randomized clinical trial, compared the efficacy of surgical decompression vs steroid injection in 163 patients with clinical diagnosisand neurophysiological confirmation of moderate CTS, over a follow - up period of 2 years. Based on their results, both steroid injection and surgery were effective inalleviating symptoms of CTS[15].

While we observed no significant difference between the outcome of steroid injection and surgery in the management of moderate CTS, other investigations showed the priority of surgical decompression. The present inconsistency could be associated with the difference in the follow - up period ofthe studies, which has also been pointed out in earlier investigations.

Demirci et al compared the efficacy of steroid injection and surgery in 90 CTS patients of moderate severity. Although both groups showed significant improvement at 3 and 6 months follow - up, by the end of follow - up, 5% of the patients in surgery group and 13% of the patients in the steroid injection group showed electrophysiological worsening. They concluded that although steroid injection provides an improvement comparable with surgical decompression, thisimprovement is not long-lasting[16].

The study of Ismatullah, in a short series of 40 patients, also showed that steroid injection only provides transient relief in CTS, whereassurgery results in long-lasting alleviation[17].

Hui et al compared the efficacy of surgical treatment of moderate CTS with conservative treatment in a systematic review. They found that whilethe positive impact of conservative management plateaus within 3 months, surgical intervention has a superior benefit in both symptoms andfunction at 6 and 12 months after the treatment. They also found that the patients who underwent surgery were 2 times more likely tohave normal nerve conduction studies. Even so, the complication and side effects of CTR were more considerable as well. Altogether, theyconcluded that since conservative management is effective in relieving symptoms in a certain proportion of cases and can avoid thecomplications of the surgery, it remains a justified first line treatment[18].

Based on the results of earlier investigations, it seems that longer follow-up of the patients or multi - steps evaluation of outcome wouldfurther clarify the potential of each treatment in the management of CTS. Consequently, short - term and single - step follow-up of thepatients could be considered as the biggest limitations of our study.

Conclusion:

According to this study, both corticosteroid and surgical decompression are effective in short - term improvement of clinical findings of moderate CTS. However, there is no statistical difference between the two groups. Due to the probable patients drop out in long term follow up, 3 months follow up was considered for this study. The lack of control group and rather small sample size are among other study limitations. In order to gain more definite results, a study with larger sample size and longer follow up period with control group with no therapeutic interventionis necessary.

References:

1. Gelfman R, Melton LJ, Yawn BP, Wollan PC, Amadio PC, Stevens JC. Long-term trends in carpal tunnel syndrome. Neurology. 2009;72 (1):33–41.

2. Latinovic R, Gulliford MC, Hughes RAC. Incidence of common compressive neuropathies in primary care. J Neurol Neurosurg Psychiatry. 2006;77(2):263–5.

3. Bebbington E, Furniss D. Linear regression analysis of Hospital Episode Statistics predicts a large increase in demand for elective hand surgery in England. J PlastReconstrAesthet Surg. 2015;68(2):243–51.

4. Ortiz-Corredor F, Enríquez F, Díaz-Ruíz J, Calambas N. Natural evolution of carpal tunnel syndrome in untreated patients. Clin Neurophysiol. 2008;119(6):1373–8.

5. Resende LA, Tahara A, Fonseca RG, Sardenberg T. The natural history of carpal tunnel syndrome. A study of 20 hands evaluated 4 to 9 years after initial diagnosis. Electromyogr Clin Neurophysiol. 2003;43(5):301–4.

6. Padua L, Padua R, Aprile I, Pasqualetti P, Tonali P. Italian CTSSG Multiperspective follow-up of untreated carpal tunnel syndrome: a multicenter study. Neurology. 2001;56(11): 1459–66.

7. Becker J, Scalco RS, Pietroski F, Celli LFS, Gomes I. Is carpal tunnel syndrome a slow, chronic, progressive nerve entrapment? Clin Neurophysiol. 2014; 125(3):642–6.

8. Gerritsen AM, de Vet HW, Scholten RM, Bertelsmann FW, deKrom MM, Bouter LM. Splinting vs surgery in the treatment of carpal tunnel syndrome: a randomized controlled trial. JAMA. 2002;288(10):1245–51.

9. Ly-Pen D, Andréu J-L, Millán I, de Blas G, Sánchez-Olaso A. Comparison of surgical decompression and local steroid injection in the treatment of carpal tunnel syndrome: 2-year clinical results from a randomized trial. Rheumatology. 2012;51(8):1447–54.

10. Hagebeuk EE, de Weerd AW. Clinical and electrophysiological follow-upafter local steroid injection in the carpal tunnel syndrome. ClinNeurophysiol. 2004;115(6):1464–8.

11. Levine DW, Simmons BP, Koris MJ, Daltroy LH, Hohl GG, Fossel AH, et al. Aself-administered questionnaire for the assessment of severity of symptomsand functional status in carpal tunnel syndrome. J Bone Joint Surg Am.1993;75(11):1585–92.

12. Rezazadeh A, Bakhtiary A, Samaei A, Moghimi J. Validity and reliability of the Persian Boston questionnaire in Iranian patients with carpal tunnelsyndrome. Koomesh. 2014;15(2):138–45.

13. Marshall S1, Tardif G, Ashworth N. Local corticosteroid injection for carpaltunnel syndrome. Cochrane Database Syst Rev. 2007 18;(2):CD001554.

14. Hui ACF, Wong S. Surgery versus steroid injection in carpal tunnel syndrome: comment on the article by Ly-Pen et al. Arthritis Rheum 2005;52:2578.

15. Ly-Pen D, Andreu JL. Surgery versus steroid injection incarpal tunnel syndrome: comment on the article by Ly-Penet al. Reply. Arthritis Rheum 2005;52:2578-9.

16. Demirci AL, Ly-Pen D, Andreu JL, De Blas G. Surgical decompression versus local steroidinjection in carpal tunnel syndrome: a prospective, randomized, open, controlled clinical trial. Arthritis Rheum 2005;52:612-9.

17. IsmatullahA, Wong S, Leung CH, Tong P, Mok V, Poon D, et al. A randomized controlled trial of surgery vs steroid injection for carpal tunnel syndrome.Neurology. 2005;64(12):2074-8.

18. Hui ACF, Wong S, Leung CH, Tong P, Mok V, Poon D, et al. A randomized controlled trial of surgery vs steroid injection for carpal tunnel syndrome.Neurology. 2005;64(12):2074-8.

Original Article

DCIMCJ

DCIMCJ 2019 July;6(2):30-35

Role of Common Addictive Habits on Hypovitaminosis D Among Bangladeshi People

Rahman AHMH[1], Begum R[2], Karim MS[3], Ahamed M[4],Khanom S[5]

Abstract:

Introduction: Hypovitaminosis D is a silent but very devastating health issue throughout the world. Some common addictive habits in our country play important role on the issue. Objective: The objective of this study was to determine the role of common addictive habits onhypovitaminosis D among the clients attending specialized hospitals.Methods: This cross-sectional study was conducted among 264 respondents attended Armed Forces Institute of Pathology (AFIP), Dhaka Cantonment for estimation of 25(OH) D within the period of July 2017 to June 2018. Data were collected by face-to-face interview, reviewing with Vitamin D level of the participants from laboratory with the help of a semi-structured questionnaire and checklist respectively. Results: Among the respondents, majority (68.56%) were female. The mean + SD age of the respondents was 48.23 + 14.05 years. The mean+ SD level of 25(OH) D was 50.01+ 29.93 nmol/L. Among the males, it was 50.86 +28.61 nmo/L and 49.60+26.19 nmol/L among the female. The proportion hypovitaminosis D was 84.84% and a mare difference was found among male and female respondents (84.5% and 85.5% respectively. Smokers (43.88+ 13.01 nmol/L) were found with lower level of vitamin D than non-smokers (50.88+ 28.08 nmol/L) (p<0.05).The respondents having habit of chewing betel nut showed lowerlevel of 25 (OH) D than those does not practice that (51.63+18.07 Vs 46.12+13.01 mmol/L).Conclusion: The proportion of hypovitaminosis D was too high. Effective measure to be taken at all level to overcome the nutritional disorder.

Keywords: 25 (OH) D, smoking, betel nut, sun shine

Introduction:

Despite of ample amount of sunshine in Bangladesh vitamin D deficiency is present in a sizeable share of general population which in itself seems to be a paradox[1]. This sub-continent receivesa plenty of sunshine all year round and thus people in India shouldnot lack vitamin D. On the contrary, epidemiologic studies from different parts in India reported higher than 70% prevalence of vitamin D deficiency in all age groups, including toddlers, school children, pregnant women and their neonates and adult males[2]. Leading more of an indoor life due to urbanization underlies one of the causes of such deficiency in children brought up in well off families.

With the advance of development and technological improvement it is fact that life expectancy is increasing day by day. Bangladesh is also achieving that in a higher scale. With the age people are suffering from various physical problem. Issues originated from vitamin D deficiency is also playing serious role in our daily life. Though many of our population are suffering from different types of problem including unusual pain, there are very less study conducted on this topic in Bangladesh.

1. Dr (Lt. Col.) A H M Habibur Rahman, Working as Health Care Provider in Bangladesh Armed Forces. Presently Wirking as Commanding Officer CMH Mymenshing.

2. Dr. Rahana Begum, Assistant Professor, Department of Community Medicine, Dhaka Central International Medical College.

3. Dr. Md. Shajedul Karim, Registrar, Department of Medicine Universal Medical College,Dhaka.

4. Dr. MahamudaAhamed, Assistant Professor, Department of Community Medicine, East West Medical College, Dhaka

5. Dr. SayedaKhanom, Associate Professor, Department of Pharmacology & Therapeutics, Dhaka Central International Medical College.

Correspondence: Dr (Lt Col) A H M Habibur Rahman
E-mail: habib03r @gmail.com

A high prevalence of vitamin D deficiency, low dietary intake of calcium was observed in premenopausal Bangladeshi women of both high and low socioeconomic status. Their lifestyle largely confining them to the home and the traditional clothing that Bangladeshi women wear exposes very little of their skin to sunlight. Under these conditions women in different groups are at risk of developing vitamin D deficiency [3].

Assessment of vitamin D is based on measurement of serum 25(OH)D. Vitamin D deficiency is typically defined as circulating 25 (OH)D concentrations less than 20 ng/mL (50 nmol/L). In this state, the subsequently low ionized calcium concentration stimulates PTH secretion, which eventually leads to increased 25(OH)D synthesis[4]. An insufficient exposure to sunlight is a major cause of vitamin D deficiency. Other causes are sunscreen sun protection, dark skin, body mass index (BMI) greater than 30, malabsorptive conditions, and use of a wide variety of medications including antiretroviral drugs. Geographic latitude, time of the day for sunlight exposure, seasonal fluctuations and age also determine the vitamin D levels[5].

Material and methods:

A cross sectional study was carried out to identify the sociodemographic determinants of Hypovitaminosis D. A total of 264 young adults were enrolled during July 2017 to June 2018 and were recruited from biochemistry lab of Armed Forces Institute of Pathology (AFIP) Dhaka cantonment. Information on sociodemographic factors including education and income were obtained by self-reported questionnaires. Cut off point of hypovitaminosis D was set as 75 nmol/L. Data were analyzed by SPSS version 23. Statistical tests were done by chi square test, One-way ANOVA and t Test in specific issues.

Food and addictive factors of Hypovitaminosis DCommon food:

Very few foods in nature contain vitamin D. The flesh of fatty fish (such as salmon, tuna, and mackerel) and fish liver oils are among the best sources[6]. Small amounts of vitamin D are found in beef liver, cheese, and egg yolks. Vitamin D in these foods is primarily in the form of vitamin D3 and its metabolite 25(OH)D3[7]. Somemushrooms provide vitamin D2 in variable amounts[8]. Mushrooms with enhanced levels of vitamin D2 from being exposed to ultraviolet light under controlled conditions are also available[6].

Smoking:

Several hypotheses have been put forward concerning the mechanisms by which smoking affects bone, the main focus being on the anti estrogenic effect. Smokers are lean[9], have an early menopause[10], and have reduced levels of circulating oestrogens due to an increased hepatic turnover[11]. All these factors contribute to a reduced exposure to estrogen, resulting in an increased early bone loss.

Other lifestyle factors are regarded as more prevalent among smokers compared to nonsmokers such as less physical activity, increased alcohol intake, associated nutritional deficiencies, all of which might play a role. A direct toxic effect of tobacco smoking on bone cells is also a possibility[12]. Other hormonal systems, glucocorticoids, pituitary, and thyroid hormones, may be affected by smoking[13]. Parathyroid hormone (PTH) and vitamin D metabolites are crucial in the regulation of calcium homeostasis and bone metabolism. An effect of smoking on PTH or 25-hydroxyvitamin D (25OHD) levels has only been investigated in few studies[14].

Betel nut:

Areca nut has diverse effects on the digestive system and metabolism of food in the human body. It leads to lowering of plasma cholesterol by up to 25% due to inhibition of intestinal acetyl co-enzyme acyltransferase (ACAT) and pancreatic cholesterol esterase (pACE), resulting in decreased cholesterol absorption[15]. Areca nut users have aggravated effects of Vitamin D deficiency due to the powerful effect of increased expression of 25(OH)ase, leading to decreased serum calcitriol as areca nut has an independent effect on 25(OH)ase[16].

Table-1: Some demographic data of the respondents:

Variable	Group	Frequency	Percent
Gender	Male	83	31.44
	Female	181	68.56
Menopausal state (F)	Menopause	90	49.72
	Non menopause	91	50.28

The above table shows gender and menopausal state of the respondents About gender, 68.56% were female and rest were male. Among the female respondents 90 (49.72%) has developed their menopause and rest 91 (50.28%) were in reproductive age group.

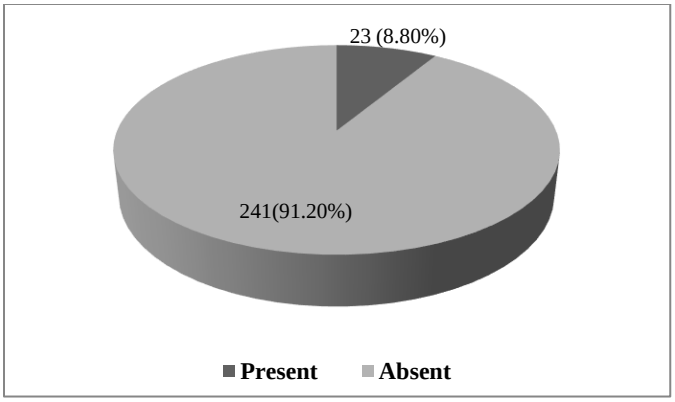


Figure 1: Distribution of respondents by their habit of smoking(n=264)

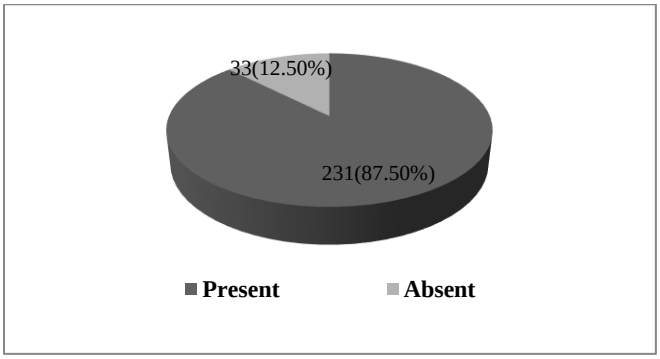


Figure 2: Distribution of the respondents by chewing betel nut (n=264)

Table-2: Distribution of hypovitaminosis D by habit smoking (n=264)

State of smoking	Presence of hypovitaminosis D: Present	Absent	Test of significance
Smoking	21(9.38%)	2(10.0%)	χ^2=4.521 df=1 p= 0.019
Not smoking	203(90.62%)	38(90.0%)	
Total	224(100.0%)	40(100.0%)	

The table shows a strong relation between smoking and chance of having hypovitaminosis D. Among the smokers the proportion of hypovitaminosis D was 91.3% (21 out of 29) and among non-smokers it was 84.1% (201 out of 239). This association was statistically significant ($p<0.05$).

Table-3: Distribution of hypovitaminosis D by habit of chewing betel nut (n=264)

Chewing betel nut	Presence of hypovitaminosis D: Present	Absent	Test of significance
Yes	31(13.84%)	2(5.0%)	χ^2=6.769 df=1 p= 0.003
No	193(86.16%)	38(95.0%)	
Total	224(100.0)%	40(100.0%)	

The table shows a strong relation between taking of betel nut and chance of having hypovitaminosis D. Among those who did not take betel nut their hypovitaminosis D level was 83.5% (193 out of 231). But the persons who used to take betel nut at any amount their proportion was 93.9% (31 out of 33). Those were mainly female populations. This association was statistically significant ($p<0.01$).

Table- 4: Relation of addictive habit with mean vitamin D level (n=264)

Variable		Frequency (%)	Mean± SD vit D (nmol/L)	t Score	p Value
Habit of chewing betel nut	Present	33(12.5%)	44.12±13.01	-2.519	0.012
	Absent	231(87.5%)	51.63±28.07		
Habit of smoking	Present	23(8.71%)	43.88±13.01	-1.977	0.049
	Absent	241(91.29%)	50.88±28.08		

The above table shows that the mean level of vitamin was clearly different between two groups of same variable. Respondents bearing habit of chewing betel nut showing less vitamin D than those who do not chew that. Mean vitamin D level was lower among the smoker than that of non-smokers.

Discussion:

The present study found 23 (8.71%) as smoker. Among the smokers the proportion of hypovitaminosis D was 91.30% (21 out of 23) and among the non-smokers the proportion was 84.23 (203 out of 241). Regarding mean value of vitamin D among two groups, there was some differences in serum 25 (OH)D level. The mean ± SD level of 25 (OH)D among the smokers was 46.23± 13.11nmol/L and that of non-smokers was 51.02 ± 18.88nmol/L (t, $p<0.05$) [17] by their study in Athens recommended that smokers had a significantly higher risk of vitamin D deficiency. A cross sectional study was carried out in Copenhagen from June 2012 to May 2014 on sociodemographic determinants of hypovitaminosis D. It was revealed that smoking was associated with higher RR=1.33 (1.02,1.73) for vitamin D deficiency/insufficiency compared with non-smokers[18].

In this study 33 respondents were found having practice of chewing betel nut. Among those proportion of hypovitaminosis D was remarkably high. The study shows a strong relation between taking of betel nut and chance of having hypovitaminosis D. Among those who did not take betel nut their hypovitaminosis D level was 83.5%. But the persons who used to take betel nut at any amount their proportion was 93.9%. They were mainly female populations. This association was statistically significant ($p<0.01$). More previous studies have suggested that chewing betel nut may aggravate vitamin D deficiency[19], since compounds present in betel nut may increase expression of the enzyme 24-hydroxylase, which catalyzes conversion of 1,25 $(OH)_2$ vitamin D to the relatively inactive 24,25 $(OH)_2$ vitamin D.

Conclusion:

Smoking and Areca nut are the addictive substance consumed in many parts of the world by people of all the age groups also not so uncommon among the people of Bangladesh. Apart from being carcinogenic to the oral cavity, pharynx, esophagus, liver and uterus, it has many diverse effects on the human bodyaffecting almost all the organs.

Women who consume areca nut regularly have more incidences of low birth weight and preterm deliveries. Thus, it is evident that these two addictive habits are harmful and affects the whole human body, and its use must be tightly regulated for the welfare of the society.

References:

1. Harinarayan CV, Joshi SR. Vitamin D status in India-Its implications and remedial measures. J Assoc Physicians India. 2009;57:40-48.

2. Babu US, Calvo MS. Modern India and the vitamin D dilemma: evidence for the need of a national food fortification program. MolNutr Food Res. 2010; 54:1134–47.

3. Islam MZ, Lamberg-Allardt C, Karkkainen, M. Vitamin D deficiency: a concern in premenopausal Bangladeshi women of two socio-economic groups in rural and urban region. Eur J ClinNutr. 2002;56:51-56.

4. Brehm JM, Schuemann B, Fuhlbrigge AL. Serum vitamin D levels and severe asthma exacerbations in the Childhood Asthma Management Program study. J Allergy ClinImmunol. 2010;126(52):8.

5. Lenders, C.M., Feldman, H.A. and Von Scheven, E. Relation of body fat indexes to vitamin D status and deficiency among obese adolescents. American Journal of Clinical Nutrition. 2009;90(3):459–67.

6. U.S. Department of Agriculture, Agricultural Research Service. USDA, National Nutrient Database for Standard Reference, Release 24. Nutrient, Data Laboratory,[Online] 2011. Available,at: http://www.ars.usda.gov/ba/bhnrc/ndl. [Accessed on 24 March 2018]

7. Ovesen L, Brot C, Jakobsen J. Food contents and biological activity of 25-hydroxyvitamin D: a vitamin D metabolite to be reckoned with? Ann NutrMetab. 2003; 47:107-13.

8. Mattila PH, Piironen VI, Uusi-Rauva EJ, Koivistoinen PE. Vitamin D contents in edible mushrooms. J Agric Food Chem. 1994;42:2449-53.

9. Wack JT, Rodin J. Smoking and its effects on body weight and systems of calorie regulation. Am J ClinNutr. 1982;35:366-380.

10. Jick H, Porter J, Morrison AS. Relation between smoking and age of natural menopause. Lancet. 1977;1:1354-55.

11. Daniel M, Martin AD, Drinkwater DT. Cigarette smoking, steroid hormones, and bone mineral density in young women. Calcif. Tissue Int. 1992;50:300-5.

12. Fang MA, Frost PJ, Lida-Klein A, Hahn TJ. Effects of nicotine on cellular function in UMR 106-01 osteoblast-like cells. Bone. 1991;12:283-86.

13. Fisher CL, Mannino DM, Herman WH, Frumkin H. Cigarette smoking and thyroid hormone levels in males. Int J Epidemiol. 1997; 26: 972-77.

14. Landin-Wilhelmsen K, Wilhelmsen L, Lappas G, RoseÂn T, Lindstedt G, Lundberg, PA. Serum intact parathyroid hormone in a random population sample of men and women: relationship to anthropometry, life- style factors, blood pressure, and vitamin D. Calcif. Tissue Int. 1995;56:104-8.

15. Park YB, Jeon SM, Byun SJ, Kim HS, Choi MS. Absorption of intestinal free cholesterol is lowered by supplementation of Areca catechu L. extracts in rats. Life Sci. 2002;70:1849–59.

16. Wu PF, Chiang TA, Chen MT, Lee CP, Chen PH, Ko AM, et al. A characterization of the antioxidant enzyme activity and reproductive toxicity in male rats following sub-chronic exposure to areca nut extracts. J Hazard Mater. 2010;178:541–6.

17. Kassi EN, Stavropoulos S, Kokkoris P, Galanos A, Moutsatsou P, Dimas C. Smoking is a significant determinant of low serum vitamin D in young and middle-aged healthy males. Hormones(Athens). 2014;14:245–50.

18. Sambrook PN, Cameron ID, Cumming RG. Vitamin D deficiency is common in frail institutionalised older people in northern Sydney. Med J Aust. 2002;176:560.

19. Ogunkolade WB, Boucher BJ, Bustin SA, Burrin JM, Noorian K, Mannan, N.Vitamin D metabolism in peripheral blood mononuclear cells is influenced by chewing “betel nut” (Areca catechu) in vitamin D status. J ClinEndocrMetab. 2006;91(7):2612-17.

Original Article

DCIMCJ

DCIMCJ 2019 July;6(2):36-42

Sensorineural Hearing Loss in Mucosal Type of Chronic Suppurative Otitis Media in Adult

Barua R[1], Ahsan AI[2], Jamil ANM[3], Zaman H[4]

Abstract:

Background: Chronic suppurative otitis media (CSOM) of mucosal variety is one of the most common cause of conductive hearing loss worldwide. Sensory neural hearing loss (SNHL) is rare but well stablished complication of CSOM of squamous variety. This study was carried out to determinate whether CSOM of mucosal type can cause SNHL and to notes its relation with age, gender and duration of diseases. Methods: A total of 88 cases of either sex between 15 and 50 years of age suffering from unilateral mucosal type of CSOM were studied retrospectively for the pattern of hearing impairment on the basis of PTA, normal ear served as control. Results: Out of total 88 cases of CSOM of mucosal variety, 25 had SNHL affecting 11 males and 14 females with male to female ratio 1:1.27.Mean bone conduction threshold in male at 500 Hz, 1000Hz, 2000 Hz, 4000 Hz is 28.18, 32.73, 39.09 & 45.91 respectively and mean bone conduction threshold in female 26.79, 32.86, 41.79 & 45.71.Conclusion: Significant SNHL was seen in our study. Age, gender didn't have any impact, but duration of disease had impact on degree of SNHL.

Keywords: CSOM, SNHL, mucosal type

Introduction:

Chronic suppurative otitis media (CSOM) is a disease where the persistent inflammatory reaction in the middle ear cleft mucosa leads to intermittent or persistent, mucoid or mucopurulent aural discharge from the middle ear through a persistent defect in the tympanic membrane (lasting >12 weeks)[1].

It is a major public health problem and one of the most common condition encountered by otologist in daily practice. It was observed that CSOM frequently affects children in developing countries[2]. In a study in our country it was found 16.96% of school goingchildren had CSOM with mild to moderate hearing loss[3,4].

1. Dr. Raju Barua, Assistant Professor, Department of ENT and HNS, Dhaka Central International Medical College.

2. Dr. Ali Imam Ahsan, Consultant, ENT and Head Neck Cancer Hospital and Institute, Dhaka.

3. Dr. Abu Naser Md. Jamil, Assistant Professor, Department of ENT and HNS, Universal Medical College.

4. Dr. Hasnat Zaman, Assistant Professor, Department of Surgery, Dhaka Central International Medical College.

Correspondence: Dr. Raju Barua
E-mail:b.raju6737@gmail.com

The classic type of hearing loss described for the condition is conductive due to pathology in the middle ear conductive pathway. However, several investigations have reported sensorineural hearing loss (SNHL) do occur concomitantly or as sequelae of CSOM despites the absence of symptoms of labyrinthitis[5]. The microorganism e.g:-Pseudomonas aeruginosa or Streptococcus pneumonia in chronically inflamed middle ear mucosa liberates toxins[6,7]. Toxin enters the inner ear through round window membrane[8] and biochemically alters the inner ear fluids[9] resulting in damage to sensory cells in inner ear and gradual end organ dysfunction[10]. This may cause SNHL or mixed type of hearing impairment.

Aims and objectives:

The apparent study was carried out to study the determinants or association of SNHL in the patients with mucosal type of CSOM in adults.

Objectives:

1. To evaluate the prevalence, type and severity of CSOM.

2. To study correlation of incidence of SNHL with duration of mucosal type of CSOM.

Materials and Methods:

Study design: Retrospective study

Place of study: This study was carried out in ENT and Head-cancer hospital and institute, Agargaon, Dhaka and department of otolaryngology and Head-Neck surgery of Dhaka Central International Medical College, Shyamoli, Dhaka.

Duration of study: January,
2018 to December,2018.

Study population: All patients with unilateral mucosal type of CSOM in inactive stage.

Sample size: 88

Sampling method: Purposive, non-random sampling.

Inclusion criteria:

1. Unilateral mucosal type of CSOM in inactive stage (normal tympanic membrane in contralateral ear). The normal contralateral ear will serve as a control because it eliminates variables such as noise, hereditary or congenital cause.
2. Both ear is free from other disease (Otitis externa, congenital anomaly)
3. Patients with age ranging from 15-50 years.

Exclusion criteria:

1. Patients with active or discharging ear.
2. History of previous otologic surgery, head injury, meningitis or chronic noise exposure.
3. Patients with bilateral CSOM.
4. History of familial hearing loss.
5. Previous exposure to otologic drug, positive fistula test, frank labyrinthitis.
6. Patients not giving consent for study.

Methods:

Purposive consecutive all patients with mucosal type of CSOM according to inclusion criteria in the out patients department of Otolaryngology and Head-Neck surgery of Dhaka Central International Medical College, Shyamoli and ENT and Head-Neck cancer hospital and institute with the study period were selected each of the participants was interviewed with a pre tested structured questionnaire and complete ENT examination was carried out in each patients with particular reference to the otoscopic findings. Nose and throat were examined to exclude any associated pathology. Tuning fork test (Rinne's, Weber's and Absolute bone conduction test) were done using 512 Hz in each patients. Audiological evaluation included Pure Tone Audiometry (PTA) and impedance Audiometry. The patients hearing levels in decibel were assessed with a biologically calibrated AA222 diagnostic audiometer. The BC threshold at the affected side were measured at a frequency of 500, 1000, 2000 and 4000 Hz respectively in an acoustically treated sound proof room and compared with those in the unaffected ear. Air and bone conduction threshold were determined. The mean hearing loss was calculated through the pure tone average taken at 500, 1000, 2000 and 4000 Hz for each site of perforation. When the bone conduction threshold difference between contralateral normal ear is >15 dB in the patients with mucosal type of unilateral CSOM (inactive stage) was considered as significant difference. All the information and data were recorded and compiled in a structured data sheet.

Data analysis:

All collected data were checked and verified thoroughly to reduce in consistency. The test statistics used for analysis of data were Z test (for comparison of data presented in quantitive scale) and Chi square test of Fisher's exact test (for comparison of data presented in categorical scale). P values <0.05 was considered as statistically significant.

Results:

The present study was conducted in 88 patients suffering from unilateral mucosal type of CSOM and

out of which 48 (54.54%) were male and 40 (45.46%) females giving male to female ratio – 1.19:1

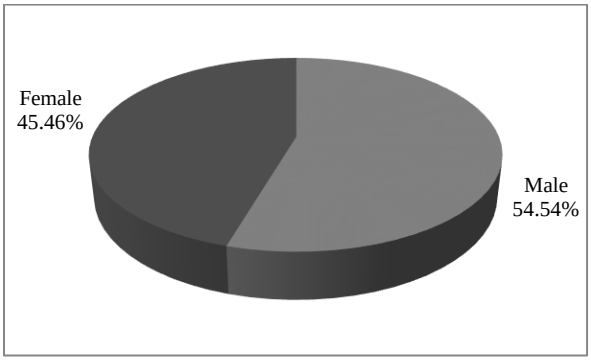


Fig 1: Male-Female ratio of unilateral CSOM

It was observed that largest group (37.5%) comprised of patients in 31-40 years age group followed by the group of patient's age between 21-30 years.

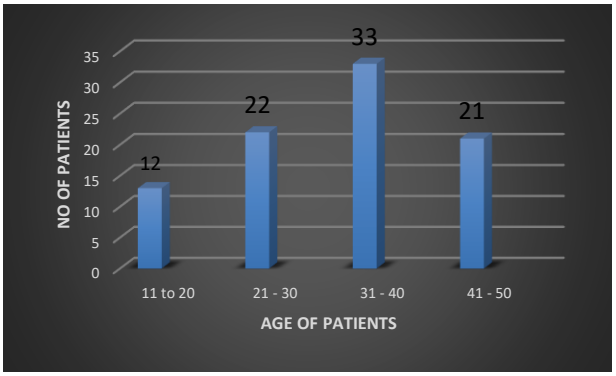


Fig -2:Age distribution of different patients

The smallest group consisted of patients in 10-20 years age group (18%). The mean age was 33.78 years.Out of total 88 cases of CSOM of mucosal variety 25 (28.41%) had sensorineural hearing loss affecting 11 (12.5%) male and 14 (15.9%) female with male to female ratio 1:1.27. The mean age was 32.68 years.

Table 1: Audiological profile of diseased ear in male

SL no	Age (years)	Bone conduction Threshold (dB) at				Air conduction Threshold (dB) at			
		500 Hz	1000 Hz	2000 Hz	4000 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
1.	46	30	35	40	45	40	45	50	60
2.	16	25	30	35	40	30	35	55	65
3.	23	30	35	40	45	45	50	60	70
4.	47	25	30	35	45	30	40	45	55
5.	25	25	35	40	50	30	40	45	60
6.	31	30	35	45	50	40	45	60	70
7.	34	25	30	40	45	35	40	55	60
8.	43	30	35	40	50	40	45	50	70
9.	28	25	30	40	45	35	40	50	60
10.	36	25	30	35	40	35	40	50	60
11.	37	30	35	40	50	40	45	60	70

Table 2: Audiological profile of diseased ear in female

SL no	Age (years)	Bone conduction Threshold (dB) at				Air conduction Threshold (dB) at			
		500 Hz	1000 Hz	2000 Hz	4000 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
1.	16	30	40	45	50	35	45	55	65
2.	23	25	30	40	45	35	40	50	60
3.	33	25	25	35	40	30	35	45	60
4.	26	30	30	45	55	35	40	65	70
5.	34	25	30	40	35	35	45	55	65
6.	18	25	25	40	45	30	35	55	70
7.	29	35	35	50	50	40	45	60	70
8.	35	25	30	35	40	30	40	45	50
9.	45	35	35	40	45	40	40	55	65
10.	46	25	40	35	40	30	35	45	55
11.	37	30	35	45	50	35	45	60	70
12.	43	25	40	45	55	30	40	60	70
13.	28	20	30	40	45	30	40	55	65
14.	38	20	35	50	45	30	40	55	60

Table 3: Audiological profile of normal ear in male

SL no	Age (years)	Bone conduction Threshold (dB) at				Air conduction Threshold (dB) at			
		500 Hz	1000 Hz	2000 Hz	4000 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
1.	46	10	15	20	20	15	20	25	25
2.	16	5	5	15	15	10	10	20	20
3.	23	5	10	15	10	10	15	20	15
4.	47	5	10	10	15	10	15	20	20
5.	25	10	10	15	10	10	15	15	20
6.	31	5	5	10	10	10	10	15	20
7.	34	5	10	10	15	10	15	15	20
8.	43	5	10	20	15	15	15	20	25
9.	28	10	15	10	20	10	15	20	25
10.	36	5	10	15	10	15	15	20	20
11.	37	10	15	10	20	15	20	15	25

Table 4: Audiological profile of normal ear in female

SL no	Age (years)	Bone conduction Threshold (dB) at				Air conduction Threshold (dB) at			
		500 Hz	1000 Hz	2000 Hz	4000 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
1.	16	5	10	5	10	15	20	20	15
2.	23	10	15	20	15	20	20	25	15
3.	33	0	5	10	15	5	10	15	15
4.	26	5	10	15	10	10	15	20	20
5.	34	0	10	15	15	5	10	10	15
6.	18	10	5	5	10	10	10	15	25
7.	29	0	0	10	5	5	10	5	10
8.	35	15	20	10	20	10	10	15	25
9.	45	10	20	15	10	15	15	20	25
10.	46	5	10	10	25	15	20	25	20
11.	37	0	5	5	0	5	10	5	5
12.	43	10	15	20	15	15	20	25	15
13.	28	15	10	25	25	10	15	10	20
14.	38	10	15	15	10	10	15	10	10

Table 5: Comparison of Audiological profile in diseased and non-diseased ear in male

		500 Hz		1000 Hz		2000 Hz		4000 Hz	
		Diseased	Non-Diseased	Diseased	Non-Diseased	Diseased	Non-Diseased	Diseased	Non-Diseased
Mean Bone	Mean	28.18	6.82	32.73	10.45	39.09	13.64	45.91	14.55
Conduction	SD	2.78	2.52	2.61	3.50	3.01	3.93	3.75	4.16
	P	<0.001		<0.001		<0.001		<0.001	

Table 6: Comparison of Audiological profile in diseased and non-diseased ear in female

		500 Hz		1000 Hz		2000 Hz		4000 Hz	
		Diseased	Non-Diseased	Diseased	Non-Diseased	Diseased	Non-Diseased	Diseased	Non-Diseased
Mean Bone	Mean	26.79	6.79	32.86	10.71	41.79	12.86	45.71	13.21
Conduction	SD	4.46	5.40	5.08	5.83	5.04	6.11	5.84	6.96
	P	<0.001		<0.001		<0.001		<0.001	

Table 7: Co-relation of sensorineural impairment with duration of disease (n=88)

Duration in years	Without Sensorineural impairment	With Sensorineural impairment	Total
5	15 (83.33)	3 (16.67)	18
6-10	25 (67.57)	12 (32.42)	37
11-15	14 (63.64)	8 (36.36)	22
>15	6 (54.55)	5 (45.45)	11
	63	25	88

Discussion:

CSOM is one of the most common condition encountered by ENT surgeon in day to day practice. CSOM of mucosal variety usually causes conductive deafness, but recently gained attention is additional hearing loss concomitantly or as sequel of chronic otitis media also. This study was carried out among 88 patients with male-female ratio of 1.19:1.

In this series, age range of patient was from 15 years to 50 years (mean 32.78± 7.2). Average 32.68% of patients were is 30 to 40 years of age. This age range matches the sample of other studies (31.276 and 35.3)[11,12]. As the more active person in our society are within this age group, they have come to make which their having problem and attended to the Otolaryngologist. However when we analyzed the effect of the patients age on the degree of SNHL in the diseased ears, there was still no significant correlation. On the contrary, other workers had found that increasing age was a risk factor in evaluation of SNHL in patients with CSOM[9].

Paperellaetal 1972 believed that SNHL commonly occur in patients with this disease[9]. The SNHL in CSOM has been variously been calculated to be upto 43% by Paperellaetal, 12% Levine, 2.4% by Kaur et al and 9.4% by Sharona[10.13]. In our study the SNHL was 28.41% similar to above studies with range from 9.4 to 43%.

We found that 28.41% of mucosal type of CSOM patients affected by SNHL, i.e bone conduction is elevated in diseased side and this elevation was significant ($p<0.001$). In male at500 Hz, 1000 Hz, 2000 Hz, 4000 Hz mean bone conduction threshold in diseased ear are 28.18% , 32.73%, 39.09%, 45.91% respectively and incase of female the mean bone conduction threshold at500 Hz, 1000 Hz, 2000 Hz, 4000 Hz are 26.79%, 32.86%, 41.79%, 45.71% respectively. This observation of greater SNHL at higher frequencies correlation with findings of other values[8,9].

In general, it is shown that duration of disease causes progressive bone conduction threshold deterioration.

Among 88 patients, 11 patients had disease more than 15 years and 45.45% of them had sensorineuralhearing impairment. In contrast 16.67% patients had sensorineural hearing impairment having disease for 5 years or less.

In general, it is shown that duration of disease causes progressive bone conduction threshold deterioration. Among 88 patients, 11 patients had disease more than 15 years and 45.45% of them had sensorineural hearing impairment. In contrast 16.67% patients had sensorineural hearing impairment having disease for 5 years or less.

Statistically significant increase in sensorineural component of hearing loss related to duration of pathology was found in another studies[11,12].

Conclusion:

Audiometric evaluation of 88 cases of unilateral mucosal variety of CSOM done and compared with normal control ear. CSOM mucosal variety have significant effect on cochlear function causing SNHL in duration. We emphasis that it is very important to council regarding chance of SNHL in CSOM mucosal variety and early detection and prompt treatment may limit this potential handicap.

Limitation and Recommendation:

The limitations of this study were small number of cases and short period of study. Further study should be required including large number of cases and long duration of study and follow up for better conclusion.

Reference:

1. Raquib A, Taous A, Haque R, Sensorineural component of CSOM Bangladesh & otolaryngology 2009; 15(2): 69-74.

2. Acuin JM. Chronic suppurative otitis media: a disease waiting for solutions.CommEar hearing H2007; 4(6): 17-19.

3. Amin MN, Datta PG, Amin AS. Incidence of hearing impairment amongst the school going children. Journal of Bangladesh College of Physician and Surgeon 1992; 10(1): 23-25.

4. Sharma Karan, Gulati SK, KaurRupinnder. SNHL in CSOM safe type. Indian J of Otology, March 2005; 11: 22-26.

5. Linstrom CJ, Silverman CA, Rosen A, MeItelesLz, Bone conduction impairment in chronic ear disease. Ann OtolRhino Laryngology, 2001: 110: 437-41.

6. Paparella MM, Odam, Hiraide F, Brady D; pathology of SNHL in otitis media, Ann Otol 1972:81:632-45.

7. Morizoto T, Giebink S, Paparella MM. SNHL in experimental purulent otitis media due to S. pneumoniae. Arch Otolaryngol. 1985; 111:794-8.

8. Lundmam L, Santi PA, Morizono T. inner ear damage and passage through the window membrane of P. aeruoginosa exotoxin A in a chinchilla model. Ann Otol Rhino Laryngol 1992; 101:437-44.

9. Redaelli de Zinis RO, Capovecchi C, Parinello G. predisposing factor inner ear hearing loss association with chronic otitis media. Int J Audiol 2005; 44:593-8.

10. Paparella MM, Odam M, Hiraide F, Brady D. Pathology of SNHL in otitis media Ann OtolRhinolLarOtol Rhino Laryngol 1992; 101:437-44.

11. Cusimano F, Cocita VC, D'Amico A. SNHL in CSOM. J. Laryngol. Otol. 1989; 103:158-163.

12. El-Sayed Y. Bone conduction impairment in uncomplicated CSOM. Am J Otolaryngol 1998; 19(3): 149-53.

13. Levine BA. Shelton C. Sheehy JL. SNHL in otitis media. Is it clinically significant? Arch otolaryngol Head Neck Surg. 1989; 115; 814-6.

DCIMCJ

Original Article

DCIMCJ 2019 July;6(2):43-46

Study of Hospital Outcome of Stroke Patients Admitted in a Tertiary Level Hospital

HossainMI[1], IslamMMS[2],Ahammed F[3]

Abstract:

Stroke is one of the leading causes of death worldwide and in-hospital mortality is high in stroke patients. This cross sectional study was carried out in Faridpur Medical College Hospital from November 2018 to April 2019 to assess patterns of hospital outcomes and associated factors among admitted stroke patients. A total of 390 stroke patients were included. Most patients were male (56.4%) and ischemic stroke was the commonest type of stroke (65.6%) diagnosed. The substantial number of patients (85.6%) had one or more comorbidities and Hypertension (74.1%) was the commonest comorbid condition. There were significant numbers of patients who developed one or more in-hospital complications (34.1%). The in-hospital case fatality rate was 16.4%. Age and sex were not significant factors of stroke treatment outcome. The Patients with intracerebral hemorrhages have high death rate of 28.92 %, followed by subarachnoid hemorrhage of 23.06% and ischemic stroke of 10.1%. The patients who developed in-hospital complications like pneumonia, electrolyte imbalance and seizures had poorer outcome. The results of the study highlights that the in hospital mortality rate of stroke patients remains high in our settings and stroke type and complications during hospitalization have significant effect on mortality.

Keywords: Stroke, ischemic stroke, mortality rate

Introduction:

Stroke is an important cause of disability among adults and is one of the leading causes of death worldwide[1]. It is the second most common cause of mortality globally and the third leading cause of mortality in low-income countries[2]. Eighty percent of all stroke deaths occur in low- and middle-income regions including Bangladesh[3,4]. The reported prevalence of stroke in Bangladesh is 0·3%[4]. In-hospital, mortality of stroke patients has been estimated to be between 6 and 14% in most of the cases. However, little is known about time trends in mortality during stroke hospitalization, which may series reported[5]. Fortunately recent data suggest declining overall deaths attributable to stroke. reflect a stroke's direct effects, medical complications, or care quality[6].

Stroke has a varying form of presentation and a diverse etiopathogenesis. The associated risk factors and prognosis also vary according to the subtype of stroke. This situation makes it difficult to obtain reliable data about factors associated with an increased risk of death that are valid for all affected patients[7]. Approximately two-thirds of early death and poor outcome in acute stroke is attributed to non-modifiable predictors (stroke severity, age and prestroke disability)[8]. The short-term prognosis of patients with lacunar stroke is better in comparison with other ischemic stroke subtypes.

About hemorrhagic strokes, patients aged 85 and older show higher in-hospital mortality than younger patients. Medical and neurological complications remain frequent at the acute stroke phase, causing a

1. Dr. Mohammad Iqbal Hossain, Assistant Professor, Department of Medicine, Faridpur Medical College.

2. Dr. M. M. Shahin-Ul-Islam, Associate Professor (c.c), Department of Gastroenterology, Faridpur Medical College.

3. Dr. FerdausAhammed, Junior Consultant, Department of Medicine, Sylhet MAG Osmani Medical College.

Correspondence: Dr. Mohammad Iqbal Hossain
E-mail:hossain9596@gmail.com

high intra-hospital mortality of about 26%[9]. Despite the high prevalence of stroke in Bangladesh, there is a paucity of data regarding hospital outcomes and other contributing factors in stroke patients. Hence, the present study was aimed to assess patterns of treatment outcomes and associated factors among hospitalized stroke patients at Faridpur Medical College Hospital.

Methods:

This cross-sectional study was carried out in the Department of Medicine of Faridpur Medical College from November 2018 to April 2019 with prior approval of ethical committee. All clinically suspected stroke patients confirmed by neuroimaging (CT/MRI) were included as cases. Patients were excluded if (1) the cerebral disorders were due to traumatic, tumoral or infectious etiologies or due to cerebral venous sinus thrombosis , (2) transferred out to another acute care facility, (3) left against medical advice or if the discharge status was unknown, (4) they did not give consent to take part in the study. Cases have been recorded irrespective of age and sex. Stroke was defined as "a focal (or at times global) neurological impairment of sudden onset, and lasting more than 24 hours (or leading to death) and of presumed vascular origin"[10]. Data were collected by detailed history (from patients or their relatives) and thorough physical examination; patients were followed up throughout the hospital stay; then those data were checked, verified for consistency and edited for result. After editing and coding, the coded data were analyzed by using the SPSS software package.

Results:

A total of 390 stroke patients were included in the study; 220 (56.4%) were male and 170 (43.6%) were female with a male female ratio of 1:0.77. Age of patients ranged between 18-110 years with mean age of 63.31 year. Maximum patients (75.6%) lie in 50-75 year age group. Considering stroke events, 83.1% patients presented as first time and 16.9% with recurrent stroke. Most of the patients presented with ischemic stroke (65.6%) followed by intracerebral hemorrhage (31%), and subarachnoid hemorrhage (13%) respectively. The patients predominantly have one or more comorbidities (85.6%) and Hypertension (74.1%) was the commonest one. Considering outcome, 326 (83.6%) patients out of 390 were discharged uneventfully and 64 (16.4%) patients expired (Table 1); 11.9% patient of below 50 year age group, 16.94% of 50-75 year age group and, 16.98% of above 75 year age group expired in the hospital settings. The mortality rate in male is 18.63% and in female 13.52%.

Table 1: Distribution of patients according to in-hospital Outcome (n=390)

Outcome	Frequency (%)
Discharged	326 (83.6)
Death	64 (16.4)

There is no significant difference in outcome regarding age, sex and stroke events(Table 2, 3, 4).

Table 2: Distribution of patients' outcome in relation to age (n=390)

Age group	Dischargd	Death	Total	p value *
Below 50 year	37	5	42	
50-75 year	245	50	295	0.706
Above 75 year	44	9	53	

*Test was carried out by $\chi 2$ test. df =2

Table 3: Distribution of patients' outcome in relation to sex (n=390)

Gender	Discharged	Death	Total	p value *
Male	179	41	220	0.177
Female	147	23	170	

*Test was carried out by $\chi 2$ test. df =1

Table 4: **Distribution of patients' outcome in relation to Stroke Event (n=390)**

Stroke Event	Discharged	Death	Total	P value*
First stroke	270	54	324	0.762
Recurrent stroke	56	10	66	

*Test was carried out by $\chi 2$ test. df =1

The Patients with intracerebral hemorrhages have high death rate of 28.93 %, followedby subarachnoid hemorrhage of 23.08% and ischemic stroke of 10.16 % (Table 5); this is statistically significant.

Table 5: **Distribution of patients' outcome in relation to stroke type (n=390)**

Classification	Dischargd	Death (%)	Total	p valu*
Ischemic stroke	230	26 (10.16)	256	0.000
Intracerebral hemorrhage	86	35 (28.93)	121	
Subarachnoid haemorrhage	10	3 (23.08)	13	

*Test was carried out by $\chi 2$ test. df =2

Regarding complications, 65.9% patients developed no complications and 34.1% have one or more in hospital complications. The patients who developed in-hospital complications like pneumonia, electrolyte imbalance and seizures have poorer outcomes whereas those with no in-hospital complications have relatively better outcome (Table 6); this is statistically significant.

Table 6: Distribution of patients' outcome in relation to in hospital complications (n=390)

In-hospital complications	Discharged	Death (%)	Total	P value*
Pressure sore	39	1 (02.50)	40	0.002
Pneumonia	12	16 (57.10)	28	
Electrolyte imbalance	16	5 (23.80)	21	
Deep venous thrombosis	1	0 (00.00)	1	
Seizure	10	3 (23.07)	13	
Shoulder dysfunction	13	1 (07.14)	14	
Fall	6	0(00.00)	6	
Depression	4	00(00.00)	4	
Others	6	0(00.00)	6	
None	219	38 (14.78)	257	

*Test was carried out by χ 2 test. df =9

Discussion:

In this study a total of 390 stroke patients were included and demographic as well aspertinent data regarding stroke including their hospital outcome were collected. Most patients were male (56.4%) and ischemic stroke was the commonest type of stroke (65.6%) diagnosed. The substantial number of patients (85.6%) had one or more comorbidities and Hypertension (74.1%) was the commonest comorbid condition. There were significant numbers of patients who developed one or more in hospital complications (34.1%).

The in-hospital case fatality rate was 16.4%; the value is a little higher than most published series (8 to 14%)[7]. The result is fairly worse than nationwide trends of in-hospital mortality in US of 10.3 -11.5%[6].

Age and sex were not significant factors of stroke treatment outcome which is coherent with a previous hospital based study[3]. Stroke type had a significant effect on in hospital mortality (28.93% intracerebral hemorrhage, 23.08% subarachnoid hemorrhage and 10.16% ischemic stroke) which was coherent with a previous study (1.7% in ischemic strokes and 4.8% in hemorrhagic strokes)[5]. Medical and neurological complications remain frequent at the acute stroke phase, causing a high intra-hospital mortality of about 26%[9]. In this study in hospital complications like pneumonia (57.10%), electrolyte imbalance (23.80%) and seizures (23.07%) had a worse outcome.

Limitations:

Although it was the first study in our knowledge that investigated the hospital outcome of stroke in Bangladesh, it had some limitations too. The first limitation was, relatively small number of patients included. The second limitation was the generalizability of the results; the number of stroke-related deaths in the community may be limited because the sample in this study was chosen from a tertiary level hospital.

Conclusion:

The percentage of stroke hospitalizations resulting in death remains high in our settings. However, the management of these patients in a dedicated neurology unit and/or improving individual/hospital-level characteristics may facilitate decline of in-hospital mortality.

References:

1. Rai ON, Kumar A. Study of serum lipid profile in stroke patients in Northern India. Int J Adv Med.2017; 4(5):1374-7.

2. Gebreyohannes EA, Bhagavathula AS, Abebe TB, Seid MA, Haile KT. In-Hospital Mortality among Ischemic Stroke Patients in Gondar University Hospital: A Retrospective Cohort Study. Stroke Research and Treatment. 2019;2019:7.

3. Temesgen TG, Teshome B, Njogu P. Treatment Outcomes and Associated Factors among Hospitalized Stroke Patients at Shashemene Referral Hospital, Ethiopia. Stroke Research and Treatment. 2018;2018:5.

4. Islam MN, Moniruzzaman M, Khalil MI, Basri R, Alam MK, Loo KW, et al. Burden of stroke in Bangladesh. Int J Stroke. 2013; 8(3):211-3.

5. Rodríguez LF, Pujol LV, Ameriso S, Povedano G, Díaz MF, Hlavnicka A, et al. In-hospital mortality due to stroke. Medicina (B Aires). 2013; 73(4):331-4.

6. Ovbiagele B. Nationwide trends in in-hospital mortality among patients with stroke. Stroke. 2010; 41(8):1748-54.

7. Álvarez SJ. In-hospital mortality in stroke patients. Rev EspCardiol. 2008;61(10):1007-9.

8. Koennecke HC, Belz W, Berfelde D, Endres M, Fitzek S, Hamilton F, et al. Factors influencing in-hospital mortality and morbidity in patients treated on a stroke unit. Neurology. 2011; 77(10):965-72.

9. Labodi LD, Kadari C, Judicael KN, Christian N, Athanase M, Jean KB. Impact ofmedical and neurological complications on Intra-hospital mortality of stroke in a reference hospital in Ouagadougou (Burkina Faso). JAMMR. 2018; 26(10): 1-13.

10. World Health Organization. Stepwise approach to stroke surveillance. Geneva: World Health Organization; 2010.p.11-12.

DCIMCJ

Original Article

DCIMCJ 2019 July;6(2):47-50

Comparison between Scalpel and Electrocautery, in Seroma Formation Following Modified Radical Mastectomy (MRM)

Zaman H[1], Hossain SMA[2], Alam ABMK[3], Uddin SS[4]

Abstract:

Background and Objective: Seroma is encountered as the commonest complication after mastectomy. Though various factors are suspected in causation of seroma, in this prospective study, we tried to evaluate the role of two different surgical technique of MRM in causation of seroma formation. Materials and Methods: In this observational comparative study, a total of 88 patients of early breast carcinoma who had undergone Modified Radical Mastectomy (MRM) in 3 tertiary care hospital of Dhaka were divided into 2 groups. In Group A, we used electrocautery for raising the skin flap and axillary dissection while in Group B we used scalpel to raise the skin flap along with aid of scissors and suture ligation for axillary dissection. Incidence of seroma formation was compared in both the groups. Results: Incidence of seroma was significantly higher with use of electrocautery. Results in both the groups were compared by Chi-square method, and statistically significant difference in incidence of seroma formation was found between this two groups.Conclusion: Breast surgery, as MRM does not support injudicious use of electrocautery.

Keywords: Mastectomy, Electrocautery, Tissue damage, Seroma, MRM

Introduction:

Seroma is a collection of sterile serous fluid in the dead space of post-mastectomy skin flap and axilla following breast and axillary surgery, and it is the commonest early complication that is seen[1, 2] with an incidence of 3 to 85 % reported from various studies[3]. Though some surgeons merely view it as a side effect and nuisance, seroma following mastectomy can lead to significant morbidity, and more importantly, at times delay in the initiation of adjuvant therapy[4]. Exact risk factors for its formation have still not been identified, but extent and technique there is little consensus as of yet. It is believed that meticulous attention to technique of breast surgery to minimize the leakage from dissected blood vessels of surgery are most important in its development. In order to prevent seroma, various techniques and their modifications have been practised and published, but and lymphatics may reduce the incidence of seroma formation[5]. Use of electrocautery because of its charring effect on tissue during breast surgery has been reported as a cause of seroma formation[6]. The aim of our study was to identify any significant association between use of electrocautery and seroma formation during Modified Radical Mastectomy (MRM).

1. Dr. HasnatZaman , Assistant Professor, Department of Surgery, Dhaka Central International Medical College.
2. Dr. S.M. Amjad Hossain, Professor, Department of Surgery, Dhaka Central International Medical College.
3. Dr. Abul Bashar Mohammad Khurshid Alam, Professor and Head, Department of Surgery, Dhaka Medical College.
4. Dr. Samia Shihab Uddin, Assistant Professor, Department of Surgery, Green Life Medical College Hospital, Dhaka.

Correspondence: Dr. Hasnat Zaman
E-mail:zimzex@gmail.com

Materials and methods:

This observational comparative study was conducted between the year 2017 and 2019 in the Department of Surgery of 3 tertiary care hospitals of Dhaka; Dhaka Medical College Hospital, Dhaka Central International Medical College Hospital and Green Life Medical College Hospital. 88 patients of early breast cancer (Stage I/II Breast cancer) who had undergone Modified Radical Mastectomy (MRM) were selected for the study. Inclusion criteria were a) Female patient, b) Early breast cancer (Stage I/II Breast Carcinoma) c) Undergone Modified Radical Mastectomy (MRM), d) Aged above 18 years.

Exclusion criteria of a) Locally advanced breast cancer (stages III and IV), b) Body mass index (BMI) greater than 30 kg/m^2 and less than 18.5 kg/m^2, c) Diabetes mellitus, d) Uncontrolled hypertension (systolic BP > 150 or diastolic BP >100), e) Patients having received neoadjuvant treatment. MRM was a uniform initial treatment for all patients. After giving single prophylactic dose of IV antibiotic (1 gm Ceftriaxone) at the time of induction of anesthesia, all patients were operated upon under general anesthesia. Informed consent was obtained from all patients. A total of 88 patients included in this study were divided into two groups. During MRM, in group A (sample size 55), coagulating mode electrocautery was used to raise the skin flap and for axillary dissection. In Group B (sample size 33), during MRM, scalpel blade no. 15 was used to raise the skin flap, along with aid of scissors and suture ligation for axillary dissection, wherever necessary. Further, in group B, there was an extremely minimal use of electrocautery wherever found necessary to achieve hemostasis (with coagulating mode) but otherwise absolutely avoided for routine raising of the skin flap and for axillary dissection. Both the groups underwent standard Modified Radical Mastectomy with lymph node dissection of level I, II, and III. Closed suction drain with negative pressure (number 16) was kept in both the groups, with one tube along the lower skin flap and another tube in the axilla. Skin closure was done with nonabsorbable monofilament. On histopathological report, adequate lymph node dissection (a minimum number of 10 axillary nodes) was ensured in both the groups. In the postoperative period, drain quantity was monitored and noted every 24 h for both the groups. Postoperatively our criteria for drain removal was when drain quantity in the last 24 hours had fallen to less than 30 ml. Development of seroma as a complication was defined when drain quantity continued to be more than 40 ml after 7th post-operative day or if there was clinical evidence of fluid collection beneath the skin flap during follow up of patients after discharge from hospital.

After removal of drain, we followed up the patients for the next 12 weeks; skin flaps were examined regularly to see any fluid collection noticing fluctuation, and seroma was confirmed with aspiration of fluid. Chi- square test was applied for comparison of seromaformation between both the groups. The level of significance was set at p value <0.05.

Result and analysis:

Group A comprised of 55 females with a mean age of 53 years, and group B comprised of 33 females with mean age of 54 years. There was no significant differences between the two groups with respect to age, BMI, tumor size, nodal yield (both groups underwent level I, II, and III nodal clearance) and nodal involvement. The number of patients who developed seroma in groups A and B has been illustrated in Table 1. Duration of surgery was longer in group B (mean duration for groups A and B was 70 and 111 min, respectively). Mean duration of time for removing a drain in number of days was 8 for group A and 5 for group B.

Comparison of seroma formation in both the groups in the form of percentage of patients in either group is shown in Fig. 1.

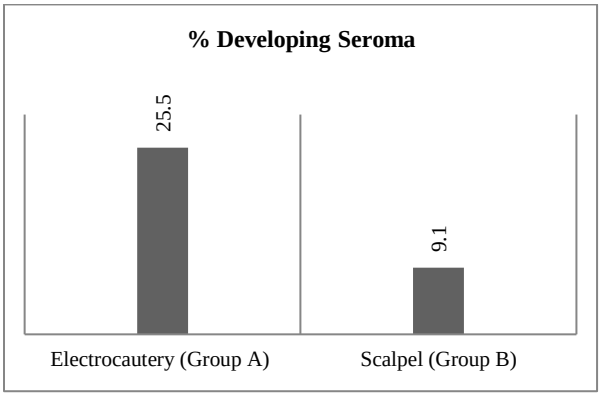


Fig.1-Percentage of patients developing seroma

Table 1: Comparison of seroma formation in two groups

Group	Dissection technique (Total number of patients)	Number of patients who developed seroma	Number of patients who did not develop seroma	P Value
Group A	Electrocautery (55)	14	41	0.049
Group B	Scalpel and scissors (33)	3	31	

Discussion:

Post-mastectomy seroma is often perceived as a side effect of breast surgery rather than a complication. Even so, it can lead to significant morbidity after the procedure. It continues to be an unresolved problem as the risk factors for its causation have still not been found, but extent and technique of procedure are often considered as factors responsible for its development. Though the precise pathogenesis of seroma has not been fully elucidated, it is believed that seroma forms due to acute inflammatory exudates in response to surgical trauma in the acute phase of wound healing[7]. As lymphatic drainage of breast is rich which drains through intramammarylymphatics to the axillary, supraclavicular and internal mammary nodal basins, there is a tendency for seroma formation after breast surgery. During breast surgery, damage to small blood vessels and lymphatics cause leakage of fluid which presents as seroma[8]. It has been proposed that the low fibrinogen levels and net fibrinolytic activity within lymphatic fluid collections aggravates seroma formation[7, 9]. Collection of seroma raises the flaps from the chest wall and axilla thereby preventing their adherence to the tissue bed. It thus can lead to significant morbidity such as wound hematoma, delayed wound healing, wound infection, wound dehiscence, prolonged hospitalization, delayed recovery as well as delayed initiation of adjuvant therapy and cosmetically poor skin flap[7,8]. Investigating about factors in its development might help in its prevention. There seems to be evidence against the use of electrocautery in breast surgery, as electrocautery produces significant thermal trauma and inflammation after its charring effect on fat, blood and lymphatic vessels. So, it is believed that electrocautery leads to more seroma formation[7]. Two prospective clinical trials by K Porter et al. and Keogh G et al. randomly assigned patients who had breast cancer to undergo surgery either only with electrocautery or with scalpel. These studies have confirmed that there is a lower incidence of seroma formation with dissection by scalpel compared to electrocautery[6, 10]. Our findings match with the above mentioned studies, as evident from Table 1 of results and analysis; seroma formation is less in group B.

Conclusion:

Electrocautery is significantly associated with the seroma formation in breast surgery. Therefore, there should not be an injudicious use of electrocautery during mastectomy for breast cancer. Routine use of electrocautery to raise the skin flap should be avoided, and its use should be restricted to achieve hemostasis whenever necessary.

References:

1. Chilson TR, Chan FD, Lonser RR, Wu TM, Aitken DR, et al. Seroma prevention after modified radical mastectomy. Am Surg.1992; 58:750–4.

2. Hashemi E, Ahmad K, Masoume N Seroma formation after surgery for breast cancer. World J Surg Oncol. 2004;2:44.

3. Kumar S, Lal B, Misra MC Post-mastectomy seroma: a new look into the aetiology of an old problem. J R CollSurgEdinb. 1995;40:292–94.

4. Srivastava V, Basu S, Shukla VK Seroma formation after breast cancer surgery: what we have learned in the last two decades. J Breast Cancer. 2012; 15(4):373–80.

5. Gong Y, Xu J, Shao J, Sheng H, Wu X, Zhao D, et al Prevention of seroma formation after mastectomy and axillary dissection by lymph vessel ligation and dead space closure: a randomized trial. Am J Surg. 2010;200:352–56.

6. Porter KA, O'Connor S, Rimm E, Lopez M Electrocautery as a factor in seroma formation following mastectomy. Am J Surg.1998; 176:8–11.

7. Pogson CJ, Adwani A, Ebbs SR Seroma following breast cancer surgery. Eur J SurgOncol. 2003; 29:711–717.

8. Sanjitha S, Gabriel R Seroma formation after mastectomy: pathogenesis and prevention. Indian J Surg Oncol.2010;1(4):328–33.

9. Bonnema J, Ligtenstein DA, Wiggers T, van Geel AN. The composition of serous fluid after axillary dissection. Eur J Surg. 1999; 165: 9–13.

10. Keogh G, Doughty J, McArdle CSM, Cooke TG, et al. Seroma formation related to electrocautery in breast surgeryda prospective, randomized trial. Breast. 1998; 7:39–41.

Original Article

DCIMCJ

DCIMCJ 2019 July;6(2):51-56

Effect of Perioperative Blood Transfusion on Early Outcome Following off Pump Coronary Artery Bypass Surgery

SaklayenSMG[1], Zahan LA[2],Wadud MA[3],Hoque R[4],RahmanMA[5]

Abstract:

Introduction: Bleeding during and after operation commonly result in blood transfusions following off pump coronary artery bypass surgery (OPCAB). Objective: The purpose of the present investigation was to quantify the effect of blood transfusion on early outcomes in patients having OPCAB surgery. We also examined the impact of number of units of blood transfused on mortality and morbidity. Methods: This prospective observational study included 60 patients who underwent OPCAB surgery from July, 2016 to December, 2017 at the dept. of cardiac surgery, BSMMU.Among the 60 patients 30 patients (50%) were transfused. Risk-adjusted probability of developing mortality and morbidity as a function of blood transfusion was modeled using logistic regression.Results: Transfusion of blood was associated with a risk-adjusted increased risk for every postoperative morbid events: The mean mechanical ventilation time was 9.7 ± 3.2 h for the transfused group and 6.8 ± 2.4 h for the nontransfused group (*P* <0.001). The mean ICU stay for the transfused group was 5.8 ± 2.1 d and 4.7 ± 1.3 d for the non transfused group (*P*-0.006). The postoperative hospital stay was 12.3 ± 3.1 d for the transfused group and 9.6± 2.2 d for nontransfused group (*P*-0.003). The transfused patients had significantly more postoperative complications than their nontransfused counterparts (*P* ≤ 0.05). Logistic regression model was used to assess the effect of number of units of blood transfused perioperatively and found morbidity and mortality increased with the increase number of blood units transfused. The 30-day hospital mortality was 3.3% for the transfused group with no deaths in the nontransfused group (*P* <0.001).Conclusion: Perioperative blood transfusion is a single most important factor that is associated with increased risk of postoperative morbidity and mortality in patients undergoing OPCAB surgery and adverse outcome increased with increase number of blood units transfused.

Keywords: Blood transfusion, OPCAB, outcome.

Introduction:

Blood transfusion is common in patients undergoing OPCAB surgery[1]. The evidence base on which blood are transfused is poor. A low hematocrit in the absence of hemorrhagic shock remains the most common indication[2]. However, the hematocrit level at which the benefits of transfusion outweigh the risks is unclear. Consequently, the hematocrit threshold at which patients are transfused varies widely both within and between institutions, with 25% to 95% of patients receiving blood transfusions in surveys[3]. Transfusion of allogenic blood is increasingly recognized as a risk factor for adverse outcome after OPCAB surgery[4]. Blood transfusion has been associated with morbidity and mortality for both medical and surgical patients[5]. Transfusions are associated with transmission of infectious agents[6], postoperative infectious complications[7], surgical site infections[8], postoperative pneumonia[9], renal dysfunction[10], impaired postoperative pulmonary function[11] cardiac complications, neurological events, excessive bleeding required re exploration, multiple organ failure[12],increased mechanical ventilation

1. Dr. SMG Saklayen, Assistant Professor and Associate Consultant, Department of Vascular Surgery, Ibrahim Cardiac Hospital and Research Institute.
2. Dr. Laila AkterZahan, Registrar and Specialist, Department of Vascular Surgery, Ibrahim Cardiac Hospital and Research Institute.
3. Dr. Mohammad ArmaneWadud, Department of Cardiac Surgery, Ibrahim Cardiac Hospital and Research Institute.
4. Dr. Rezwanul Hoque, Professor, Department of Cardiac Surgery, Bangabandhu Sheikh Mujib Medical University.
5. Dr. Md. Amanur Rahman, Medical Officer, Bangabandhu Sheikh Mujib Medical University.

Correspondence: Dr. SMG Saklayen
E-mail:saklayendmc@gmail.com

time, ICU stay[13] and hospital length of stay[14] and increased mortality. It is expected that with the increase in age and comorbidities among patients presenting for surgery, blood transfusion will further increase[15].

The objective of our study was to examine the effect of blood transfusion on morbidity and mortality in patients undergoing OPCAB surgery. We also examined the relation between the number of units of blood transfused and outcome in this group of patients.

Methods:

This prospective observational study done with a total study population of 60 patients who underwent OPCAB surgery from July, 2016 to December, 2017 at the dept. of cardiac surgery, BSMMU. Study protocol was approved by Ethical Committee of BSMMU and informed written consent was taken from each patient before enrollment. We evaluate the effect of blood transfusion on morbidity and mortality following OPCAB surgery.

All patients underwent OPCAB surgery through a median sternotomy incision. Aspirin was discontinued 7 d prior to elective surgery. On the day of surgery patients were pre medicated with midazolam as deemed appropriate by the anesthesiologist. Per operative monitors included along with 5-lead electrocardiogram with continuous automated ST segment analysis, continuous arterial pressure determination using a radial artery catheter. All patients received standard anesthetic protocol. Patients underwent off-pump coronary artery bypass (OPCAB) received 100 to 200 units/kg of heparin to maintain the ACT above 350 s. Both groups received additional heparin as deemed necessary to maintain the ACT at the desired levels. The left internal mammary artery was harvested as surgically indicated and the radial artery and great saphenous vein were used for additional conduits. Patients undergoing OPCAB, special off-pump coronary retractors and stabilizers were used during distal coronary anastomosis. Proximal anastomoses were constructed using partial cross-clamp technique. The guidelines we followed for blood transfusion was triggered by the hematocrit values, ventricular function and other associated comorbidities. The end points of blood transfusion were to maintain a hematocrit value over 25% in patients with normal hemodynamics and ventricular function.

All demographic and clinical data were collected on the standardized data collection forms for predicting the risk-adjusted mortality rate. This included age, sex, body mass index (BMI), left ventricular ejection fraction, comorbid conditions such as diabetes, hypertension, chronic obstructive pulmonary disease (COPD) and previous myocardial infarction. The data regarding mechanical ventilation time, ICU stay, postoperative hospital stay, surgical site infection, cardiac complications, renal failure, pulmonary complications, neurologic events, postoperative bleeding requiring reoperation and mortality were also collected. Data were summarized and described using means, standard deviations and proportions. The demographic, clinical and outcome variables were compared between the transfused and non transfused groups using the unpaired student t test and chi square test. *P* value of <0.05 was considered significant. Logistic regression analysis were used for assessing the relations between the key outcome variables and units of blood transfused.

Result:

The demographic and clinical data are presented in Table 1.

Table 1: Demographic and clinical data

Variable	Nontransfused	Transfused	*P* value
Age (years)	52.8 ± 5.4	61.0 ± 5.9	<0.001
Sex-female (%)	6.7	20	<0.001
BMI	26.4± 2.8	29.2 ± 3.9	0.038
EF (%)	51.5 ± 12.1	45.8 ± 12.6	0.006
Diabetes (%)	29.5	34.2	0.041
Hypertensin (%)	63.4	72.6	<0.001
COPD (%)	5.7	11.2	<0.001
Prior MI (%)	21.9	22.4	NS
PVD (%)	10.8	22.3	<0.001

The transfused patients demonstrated a significantly higher incidence of surgical site infection, postoperative pulmonary complications, renal dysfunction, neurological complications, cardiac complications, multi organ failure and mortality. They also exhibited a higher incidence of postoperative bleeding requiring re exploration. No deaths occurred among the patients of the non transfused group as compared to 3.3% among the transfused group. These data are displayed in Table 2. Table 3 show the relation between the number of units of blood transfused and outcome in this group of patients.

Table 2: Postoperative outcome

Variable	Nontransfused	Transfused	*P* value
Ventilation time(h)	6.8 ± 2.4	9.7 ± 3.2	<0.001
ICU stay(d)	4.7 ± 1.3	5.8 ± 2.1	0.006
Hospital stay(d)	9.6± 2.2	12.3 ± 3.1	0.003
Surgical site infection (%)	3.3	10	<0.001
Pulmonary complications (%)	6.7	10	0.041
Renal dysfunction (%)	6.7	16.7	<0.001
Neurologic events (%)	3.3	13.3	<0.001
Cardiac complications (%)	13.3	16.7	NS
Reoperation (%)	0	6.7	<0.001
Multi organ failure (%)	3.3	6.7	<0.001
Mortality (%)	0	3.3	<0.001

Table 3: Estimates of the increase in effects of transfusion with increasing number of units of blood (OR with 95%CI)

Units of blood	1	2	3 or 4	5-9	>9
Ventilation time	1.14(1.12-1.17)	1.23(1.19-1.28)	1.34(1.31-1.40)	1.73(1.68-1.82)	3.12(2.93-3.67)
ICU stay	1.12 (1.09–1.17)	1.20 (1.17–1.23)	1.38 (1.34–1.42)	1.78 (1.72–1.86)	3.32 (3.13–3.75)
Hospital stay	1.11(1.08-1.15)	1.20(1.16-1.23)	1.33(1.31-1.40)	1.75(1.65-1.79)	3.10(2.85-3.76)
Surgical site infection	1.44 (0.90–2.01)	2.26 (1.62–3.0)	3.78 (2.82–4.42)	9.56 (5.93–13.9)	15.44(12.6–17.3)
Pulmonary complications	1.42(1.23-1.56)	1.67(1.53-2.09)	2.11(1.95-3.19)	2.89(2.34-4.32)	4.02(3.75-5.63)
Renal dysfunction	1.21(1.11-1.36)	1.37(1.23-1.49)	1.52(1.39-1.85)	1.83(1.67-2.15)	3.42(2.98-4.31)
Neurologic events	1.63 (1.02–2.48)	2.30 (1.32–3.50)	4.49 (2.78–6.22)	11.79 (6.80–16.7)	46.39 24.5–75.4
Cardiac complications	1.09(1.01-1.21)	1.25(1.21-1.42)	1.41(1.33-1.49)	1.76(1.63-2.21)	3.23(2.72-4.11)
Reoperation	1.03(0.83-1.14)	1.18(1.15-1.29)	1.32(1.27-1.39)	1.67(1.52-1.86)	3.03(2.67-4.10)
Multi organ failure	1.12(1.04-1.18)	1.19(1.6-1.24)	1.35(1.29-1.42)	1.73(1.68-1.79)	2.98(2.56-3.84)
Mortality	1.01(0.7-1.05)	1.13(1.05-1.20)	1.29(1.25-1.35)	1.82(1.74-1.97)	4.36(3.79-5.31)

Discussion:

The goal of the present investigation was to examine the impact of blood transfusion on morbidity and mortality in patients undergoing elective OPCAB surgery at BSMMU. Out of the 60 patients, 30 received blood transfusion, while 30 did not. It is important to note that our transfused patients were older. The transfused group comprised significantly more females. All these are the known risk factors for transfusion[16]. The transfused group also had significantly more preoperative comorbidities like diabetes, hypertension, COPD, previous MI and PVD. This is similar to what has been reported in study done by Kuduvalli and his collegues[17]. The mean time for mechanical ventilation was 9.7 ± 3.2h for the transfused group and 6.8 ± 2.4h for the nontransfused group (*P* <0.001). The mean ICU stay was 5.8 ± 2.1 versus 4.7 ± 1.3d for the nontransfused group (*P*-0.006). The mean postoperative hospital stay was 12.3 ± 3.1d for the transfused group and 9.6± 2.2d for the nontransfused group (*P*-0.003). The significant findings of this study are that the transfused patients required mechanical ventilation for prolonged duration, this data is in agreement with data of Leal-Noval and his collegues,[18] and had significantly longer ICU stay and this fact is in agreement with those from Vamkas and his collegues,[19] and postoperative hospital stay as compared to their nontransfused counterparts, our results are in agreement with the results of study done by Basran and his collegues[20]. The transfused patients also had significantly higher incidence of postoperative neurological, pulmonary complications, renal insufficiency and infection. They also exhibited a higher incidence of postoperative bleeding requiring re exploration. This data is in agreement with previously reported study done by Engoren and his collegues[21]. We examined the 30-day mortality and found that patients who received blood transfusion had significantly higher incidence of 30-day mortality. No deaths occurred in the nontransfused group. Previous studies have examined mortality in the transfused OPCAB patients and a majority of these reports have documented the deleterious effects of transfusion on mortality.

Our results are in agreement with the study done by Koch and his collegues[22]. We further examined the relationship between the number of units of blood transfused and outcome. We found that morbidity and mortality increased proportionally with the number of units of blood transfused. This is in agreement with a previously published report examining the relation between outcome and number of units of blood transfused[19].

Conclusions:

Patients who received perioperative blood transfusion had significantly longer mechanical ventilation time, ICU stay and postoperative hospital stay. They also had significantly higher incidence of morbidity and mortality following OPCAB surgery and adverse outcome increased with increase number of blood units transfused. The relation between the effects of transfusion with number of units of blood is dose dependent.

References:

1. Spiess BD. Transfusion and outcome in heart surgery. Ann Thorac Surg. 2002;74(4):986-987.

2. Corwin HL, Gettinger A, Pearl RG, Fink MP, Levy MM, Abraham E, et al. The CRIT Study: anemia and blood transfusion in the critically ill: current clinical practice in the United States. Crit Care Med. 2004; 32(1):39-52.

3. Stover EP, Siegel LC, Parks R, Levin J, Body SC, Maddi R, et al. Variability in transfusion practice for coronary artery bypass surgery persists despite national consensus guidelines: a 24-institution study: Institutions of the Multicenter Study of Perioperative Ischemia Research Group. Anesthesiology. 1998; 88(2):327-33.

4. Koch CG, Li L, Duncan AI, Mihaljevic T, Cosgrove DM, Loop FD, et al. Morbidity and mortality risk associated with red blood cell and blood-component transfusion in isolated coronary artery bypass grafting. Crit Care Med. 2006; 34(6):1608-16.

5. Vincent JL, Baron JF, Reinhart K, Gattinoni L, Thijs L, Webb A,et al. Anemia and blood transfusion in critically ill patients. JAMA 2002; 288(12):1499-1507.

6. Schreiber GB, Busch MP, Kleinman SH. The risk of transfusion-transmitted viral infections: The Retrovirus Epidemiology Donor Study. N Engl J Med. 1996; 334(26):1685-90.

7. Chelemer SB, Prato BS, Cox PM Jr, O'Connor GT, Morton JR. Association of bacterial infection and red blood cell transfusion after coronary artery bypass surgery. Ann Thorac Surg. 2002; 73(1):138-42.

8. Zacharias A, Habib RH. Factors predisposing to median sternotomy complications: Deep vs superficial infection. Chest. 1996; 110(5):1173-78.

9. Leal-Noval SR, Marquez-Vacaro JA, Garcia-Curiel A. Nosocomial pneumonia in patients undergoing heart surgery. Crit Care Med. 2000; 28(4): 935-40.

10. Ranucci M, Pavesi M, Mazza E, Bertucci C, Frigiola A, Menicanti L, et al. Risk factors for renal dysfunction after coronary surgery: The role of cardiopulmonary bypass technique. Perfusion. 1994; 9(5):319-26.

11. Vamvakas EC, Carven JH. Allogeneic blood transfusion and postoperative duration of mechanical ventilation: Effects of red cellsupernatant, platelet supernatant, plasma components and total transfused fluid. Vox Sang. 2002; 82(3):141-49.

12. Moore FA, Moore EE, Sauaia A. Blood transfusion: An independent risk factor for Postinjury multiple organ failure. Arch Surg. 1997; 132(6):620-25.

13. Leal-Noval SR, Rincon-Ferrari MD, Garcia-Curiel A, Herruzo-Aviles A, Camacho-Laran P, Garnacho-Montero J, et al. Transfusion of blood components and postoperative infection in patients undergoing cardiac surgery. Chest. 2001; 119(5):1461-68.

14. Malone DL, Dunne J, Tracy JK, Putnam AJ, Scalea TM, Napolitano LM. Blood transfusion, independent of shock severity, is associated with worse outcome in trauma. J Trauma. 2003; 54(5):898-907.

15. Scott B, Seifert FC, Glass PS, Grimson R. Blood utilization in patients undergoing coronary artery bypass surgery: Impact of cardiopulmonarybypass pump, Hematocrit, Gender, Age and Body weight. AnesthAnalg. 2003; 97(3):958-63.

16. Parr KG, Patel MA, Dekker R, Levin R, Glynn R, Avorn J, et al. Multivariate predictors of blood product use in cardiac surgery. J CardiothoracVascAnesth. 2003; 17(2):176-81.

17. Kuduvalli M, Oo AY, Newall N, Grayson AD, Jackson M, Desmond MJ, et al. Effect of perioperative red blood cell transfusion on 30 day and 1 year mortality following coronary artery bypass surgery. Eur J Cardiothorac Surg. 2005; 27(1):592-98.

18. Leal-Noval SR, Jara-Lopez I, Garcia-Garmendia JL, Marín-Niebla A, Herruzo-Avilés A, Camacho-Laraña P, et al. Influnce of erythrocyte concentrate storage time on post surgical morbidity in cardiac surgery patients. Anesthesiology. 2003; 98(4):815-22.

19. Vamkas EC, Carven JH. RBC transfusion and postoperative length of stay in the hospital or the intensive care unit among patients undergoing coronary artery bypass graft surgery: The effects of confounding factors. Transfusion. 2000; 40(7):832-39.

20. Basran S, Frumento RJ, Cohen A, Lee S, Du Y, Nishanian E, et al. The association between duration of storage of transfused red blood cells and morbidity and mortality after reoperative cardiac surgery. AnesthAnalg. 2006; 103(1):15-20.

21. Engoren MC, Habib RH, Zacharias A, Schwann TA, Riordan CJ, Durham SJ. Effect of blood transfusion on long term survival after cardiac operation. Ann Thorac Surg. 2002; 74(4):1180-86.

22. Koch G, Li L, Duncan AI, Mihaljevic T, Loop FD, Starr NJ, et al. Transfusion in coronary artery bypass grafting is associated with reduced long term survival. Ann Thorac Surg. 2006; 81(5):1650-57.

Original Article

DCIMCJ

DCIMCJ 2019 July;6(2):57-64

Anthropometric Study of the Facial Morphology in Bangladeshi Manipuri Adult Females

Habiba NS[1], Banu LA[2]

Abstract:

Objective: To calculate the selected indices and the morphometric types of the face and nose and whether there is any correlation between selected measurements of adult Bangladeshi Manipuri females.Study design: The present study was observational, cross-sectional with descriptive and some analytical components. Place and period of the study: The present study was carried out in the Department of Anatomy, Bangabandhu Sheikh Mujib University (BSMMU), Dhaka and the period of study was March, 2015 to February 2016. Selections of the subjects: A sample population was drawn from a selection of total 130 adult Bangladeshi Manipuri females by using the convenience sampling technique from the Madhavpur village of the Kamalganj Police Station in Maulavibazar district of Sylhet, Bangladesh. Methods: Four facial dimensions such as morphological face height, maximum facial breadth, nasal length and nasal breadth were measured directly from the subjects by using a spreading caliper and slide caliper. Facial and nasal indices were then calculated and correlation between the morphological face height and the nose height,between the maximum facial breadth and nose width of face were assessed. Results:The mean values of the morphological face height, maximum facial breadth, Nasallength and nasal breadth were 10.72 (±0.45), 12.13 (±0.83), 4.79 (±0.37) and 3.45(±0.24) respectively. The mean value of the facial and nasal indices were 88.67 (leptoprosop) and 72.69 (mesorrhin) respectively. This could be useful in forensic investigation as well as in plastic and reconstructive surgery of the face. The nose height showed significant positive correlation with the morphological face height and the nose width showed significant positive correlation with the maximum facial breadth. Conclusions: The results of the present study can provide the fundamental framework for the selected facial measurements in adult Bangladeshi Manipuri female population. These could be useful in forensic exploration as well as in plastic and reconstructive surgery of the face.

Keywords: Anthropometry, morphological face height, maximum facial breadth, facial index, nasal index

Introduction:

For the purpose of understanding human physical variations anthropometry is a systematic quantitative representation of the human individual. The human face is the living mirror. A common term is “I may forget a name, but I’d never forget a face’. The facial dimension attracts the attention of the artists, poets and scientist and takes a major importance in medical and dental fields in diagnosis and treatment planning. Consequently, researchers on craniofacial study of different ethnic groups are going to establish ethnic specific antropometric data for populations with different ethnic background [1].

Methods:

The study was predominantly an observational, cross-sectional with descriptive and some analytical components. The present study was carried out among 130 adult Bangladeshi Manipuri females, 25 to 45 years of age in Madhavpur village of the Kamalganj Police Station in Maulavibazar district of Sylhet, Bangladesh.Ethical clearance was taken from the Institutional Review Board (IRB) of BSMMU and written informed consent was taken from all participants.

1. Dr. Nigar Sultana Habiba, Assistant Professor, Department of Anatomy, Green Life Medical College.

2. Dr. Laila Anjuman Banu, Professor, Department of Anatomy, BSMMU.

Correspondence: Dr. Nigar Sultana Habiba
E-mail:nigarsultana_16@yahoo.com

The morphological face height, the maximum facial breadth, nose height and nose width was measured by using spreading caliper and slide caliper. At first took consent from the participants and asked to sit on a chair in a relaxed mood with head in anatomical position[2].All the measurements were taken thrice to ensure accuracy and the mean of the three readings was taken as the final reading[3]. All the subjects measured were healthy and free from apparent symptomatic craniofacial deformity and there was no evidence of any treatment or surgery of disorders. Each measurement were recorded, tabulated and statistically analysed.

Facial and nasal indices were then calculated and the data collected were recorded and subjected to statistical analysis. Facial index has been classified as, hypereuryprosop (very short face) up to ≤ 76.9; euryprosop (short face) between77-80.9; mesoprosop (medium or round face) between 81-84.9; leptoprosop (long face) between 85-89.9 and hyperleptoprosop (very long face) up to ≥ 90 and above while nasal index is classified as, hyperleptorrhin (very narrow nose) up to ≤ 54.9; leptorrhin(narrow nose) between 55 69.9; mesorrhin (medium nose) between 70- 84.9; chamaerrhin (wide nose) between 85-99.9 and hyperchamaerrhin (very wide nose) up to ≥ 100[4].

Anthropometry:

Nasion (n): It is the midpoint of the nasofrontal suture. In the lateral view, it represents the apex of the frontonasal angle.

Gnathion (gn): It is the lowest point in the midline on the lower border of chin.

Zygion (zy): It is the most lateral point on the zygomatic arch.

Alare (al): It is the most lateral point on the nasal ala on each side of the nose.

Subnasale (sn): It is the junction between the lower border of the nasal septum and the cutaneous portion of the upper lip in the midline.

Morphological face height (n-gn): Linear distance between the 'nasion' and 'gnathion'.

Maximum facial breadth (zy-zy): Linear distance between the 'zygions'.

Nose height (n-sn): Linear distance from the 'nasion' to the' subnasale'.

Nose width (al-al): Linear distance between the 'alares'. Mean and standard deviation were calculated for each measurement. Correlation between the morphological face height and the nose height,between the maximum facial breadth and nose width of face were assessed and the findings are displayed using scatter diagrams.

Method of calculation of indices:

Facial index= It is the ratio of the morphological face height to the maximum facial breadth expressed as a percentage. The formula is (Farkas & Munro 1987, p. 13)[5]:

$$\text{Facial index} = \frac{\text{Morphological face height (n – gn)}}{\text{Maximum facial breadth (zy – zy)}} \times 100$$

Morphometric type based on facial index[4]

Types of face	Facial index value
Hypereuryprosop (very short face)	≤ 76.9
Euryprosop (short face)	77-80.9
Mesoprosop (medium or round face)	81-84.9
Leptoprosop (long face)	85-89.9
Hyperleptoprosop (very long face)	≥ 90

Nasal index= It is the ratio of the nasal width to the nasal length expressed as a percentage. The formula is (Farkas & Munro 1987, p. 15) [5]:

$$\text{Nasal index} = \frac{\text{Nasal width (al – al)}}{\text{Nasal height (n – sn)}} \times 100$$

Morphometric type based on nasal index [4]

Types of nose	Nasal Index value
Hyperleptorrhin (very narrow nose)	≤ 54.9
Leptorrhin(narrow nose)	55-69.9
Mesorrhin (medium nose)	70- 84.9
Chamaerrhin (wide nose)	85-99.9
Hyperchamaerrhin (very wide nose)	≥ 100

Results:

Table-1 showed that the mean values and standard deviations of the morphological face height, the maximum facial breadth, the nose height and the nose width. The mean (±SD) of the morphological face height, the maximum facial breadth, the nose height and the nose width were 10.72 (±0.45), 12.13 (±0.83), 4.79 (±0.37) and 3.45 (±0.24) respectively.

Table 1: Selected linear facial measurements and the stature (N=130)

Measurement	Value (cm)	
	Range	Mean (±SD)
Morphological face height	9.58 – 11.82	10.72 (±0.45)
Maximum facial breadth	11.00 – 15.00	12.13 (±0.83)
Nose height	2.33 – 5.42	4.79 (±0.37)
Nose width	2.64 – 4.00	3.45 (±0.24)

Table-2: showed that the range and mean values of facial and nasal indices of the adult Bangladeshi Manipuri females. The mean values are 88.67 (leptoprosop) for facial index and 72.69 (mesorrhin) for nasal index.

Table 2: Facial & Nasal indices of the Manipuri females (N=130)

Index	Value (cm)	
	Range	Mean (±SD)
Facial index	70.00 – 97.84	88.67 (±6.11)
Nasal index	57.80 – 150.70	72.69 (±9.49)

Figure 1: showed nearly half of these Manipuri females had the 'hyperleptoprosop' face type (49%) and the second most common type was 'leptoprosop' (26%). Figure 2 showed the most common type was 'mesorrhine' (61%) and the second most common was 'leptorrhin' (36%). 'Hyperchamaerrhin' (0%) type of nose was absent in these Manipuri females.

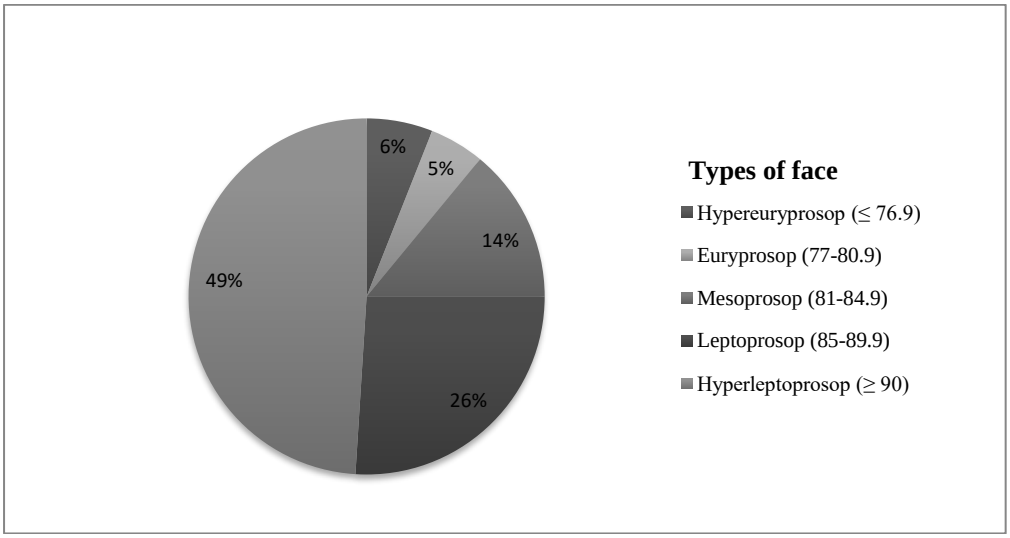


Fig 1: Relative percentage frequencies of types of face based on the facial index in the Manipuri females (N=130).

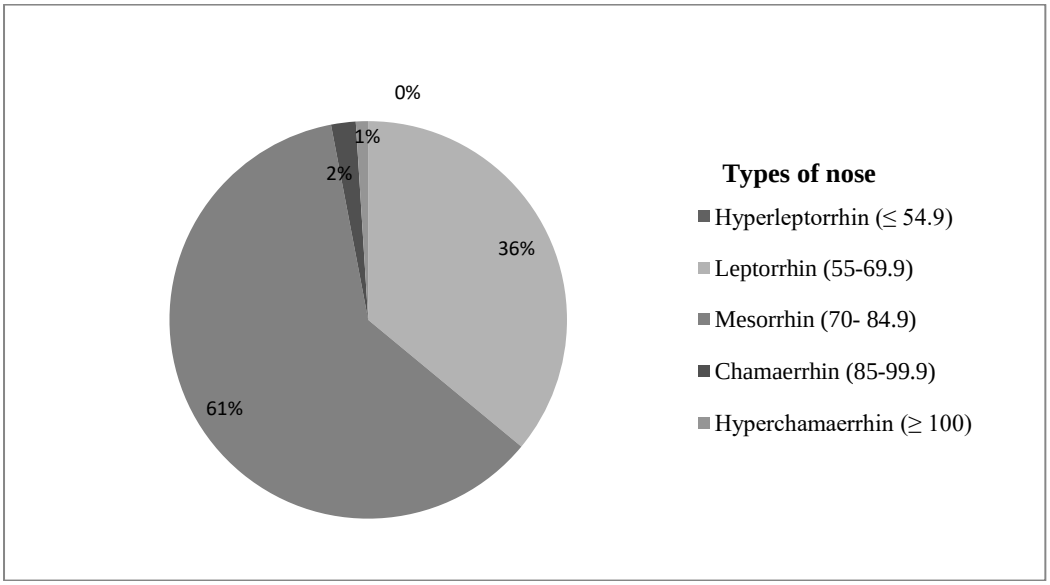


Fig: 2 Relative percentage frequencies of types of nose based on the nasal index in the Manipuri females (N=130).

Table 3 and Table 4 showed correlation between the morphological face height and the nose height,between the maximum facial breadth and nose width in adult BangladeshiManipuri females respectively. Here, the nose height showed a significant positivecorrelation (r = 0.406, p = <0.001) with the morphological face height and the nose widthshowed significant positive correlation (r = 0.250, p = 0.004) with the maximum facialbreadth showed in scattered diagram (Figure 3 & Figure 4).

Table 3: Correlation coefficients of nose height with the morphological face height in adult Bangladeshi Manipuri females

Measurement	Correlation coefficient (r)	Significance (p) of correlation with the morphological face height
Nose height	0.406	<0.001 (S)

Table 4: Correlation coefficients of nose width with the maximum facial breadth in adult Bangladeshi Manipuri females

Measurement	Correlation coefficient (r)	Significance (p) of correlation with the maximum facial breadth
Nose width	0.250	0.004 (S)

p≤ 0.05 was considered as significant

S= significant

NS= Non-significant

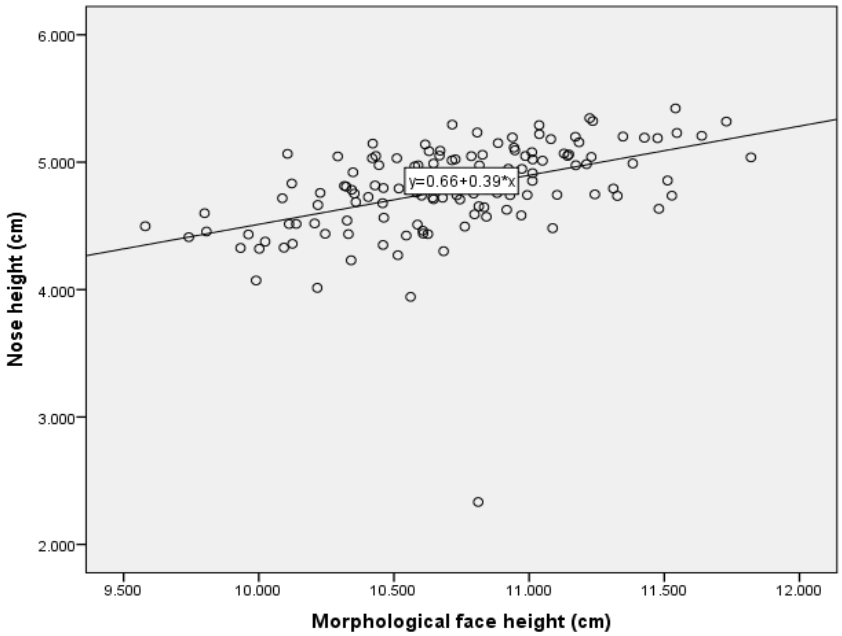


Fig. 3: Regression analysis, showing significant positive correlation (r = +0.406, p = <0.001) between the nose height and the morphological face height (N= 130).

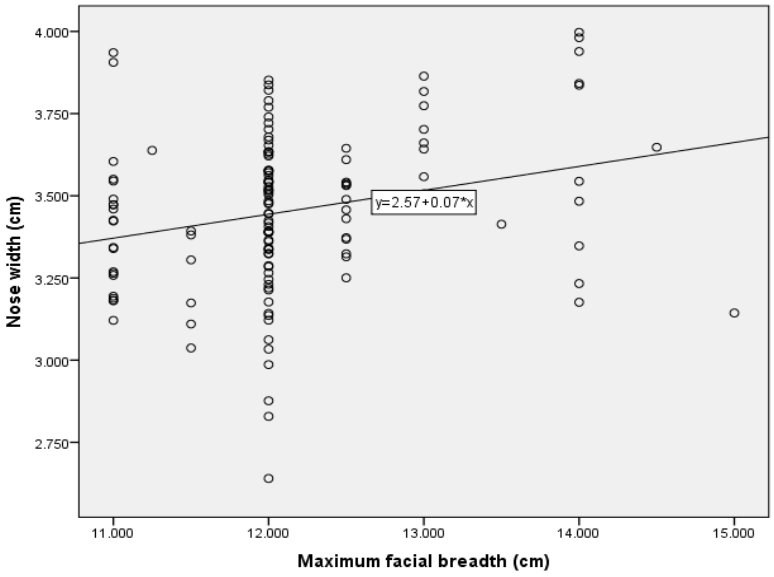


Fig- 4: Regression analysis, showing significant positive correlation (r = +0.250, p = 0.004) between the nose width and the maximum facial breadth (N= 130).

Discussion:

Large variation in anthropometric criterion between various racial and geographical groups can naturally be expected.

In the present study, the morphological face height showed a similar mean value to those of the Mongoloid adult Christian Garo females, Dhaka, Bangladesh[6] and adult Buddhist Chakma females, Chittagong and Rangamati, Bangladesh[7] and also the Austroasiatic adult Santal females, Bangladesh[8].The maximum facial breadth had a mean value similar to that of the Latvian residents, Latvia[9]. The nose height of the Mongoloid adult Christian Garo females, Dhaka, Bangladesh[6] had a similar mean value to Manipuri females of the present study. The nose width of the present study had a mean value similar to those of the Mongoloid adult Buddhist Chakma females, Chittagong and Rangamati, Bangladesh[7] and Korean American, USA[10]. They also showed a similar mean value to those of the Iraqi adult males and females, Basrah Governorate, Iraq[11] and the Negroid Onge males and females tribe, Andaman and Nicobar Island, India[4].

In present study, the mean value of the facial index of the Manipuri females had similar to those of the undergraduate Medical students of Nepalese origin, Nepal[12]. On the other hand, the present study showed a greater mean value to those of the Mongoloid adult Christian Garo females, Dhaka, Bangladesh[6], the adult Buddhist Chakma females, Chittagong and Rangamati, Bangladesh[7] and female's tribe, Andaman and Nicobar Island, India[4]. On the other hand, they showed a smaller mean value to those of the Mongoloid adult Christian Garo females, Dhaka, Bangladesh[6], the Austroasiatic adult Santal females, Bangladesh[8], the dental students of a University, Tehran, Iran[13] and population of the central part, Serbia[14].

The mean value of the nasal index of Manipuris of Bangladesh had greater to those of the Caucasoid Dental students of Tehran, Iran[13] and the Proto-Australoid 'Adult Santal females' population of Bangladesh[8]. However, the Manipuri females of the present study was found to have a much smaller mean

value to those of the Mongoloid 'Garo females'[6] and 'Adult Buddhist Chakma females' population of Bangladesh[7]. They also showed a smaller mean value to those of the Negroid 'Onge' population of Andaman Island of India[4], 'Omoku' population of Nigeria [15] and the Isokos in Delta State in Nigeria[2].

Nearly half of Manipuri females had the 'hyperleptoprosop' face type (49%) and the second most common type was 'leptoprosop' (26%). Facial index is important for orthodontic treatment. Nasal index of Manipuri females showed the most common type was 'mesorrhine' (61%) and the second most common was 'leptorrhin' (36%). 'Hyperchamaerrhin' (0%) type of nose was absent in these Manipuri females. Both indices are important in anthropometry, forensic medicine and as well as genetics scientists.

Conclusion:

This study describes the findings of previous studies and compares those studies with the present one. The formulae derived in the present study are applicable to that population from which the data has been taken.

References:

1. Ewunonu EO, Anibeze CIP. Anthropometric study of the Facial Morphology in a South-Eastern Nigerian Population. Human Biology Journalb 2013;2 (4): 314-23.

2. Anibor E, Etetafia MO, EbohDEO, Akpobasaha O. Anthropometric study of the nasal parameters of the Isokos in Delta State of Nigeria. Annals of Biological Research 2011;2 (60): 408-13.

3. Ngeow WC, Aljunid ST. Craniofacial anthropometric norms of Malaysian Indians.Indian J of Dent Res 2009; 20: 313-19.

4. Pandey AK. Cephalo-facial Variation Among Onges. Anthropologist 2006; 8 (4): 245-49.

5. Farkas LG, Munro IR. Anthropometric facialproportions in Medicine. Charles C Thomus Publisher Ltd., Springfield, Illinois; 1987. 13.

6. Ferdousi A. Comparative Craniofacial Anthropometry of Adult Christian Bangladeshi Garo Males and Females, masters thesis, Bangabandhu Sheikh Mujib Medical University, Dhaka 2011.

7. Mostafa A, Banu LA, Rahman F, Paul S. Craniofacial anthropometric profile of adult Bangladeshi Buddhist chakma females. Journal of Anthropology 2013;1-7.

8. Talukder M. Craniofacial Measurements and Their Relationships with Each Other and with the stature in Adult Bangladeshi Santal Females, masters thesis, Bangabandhu Sheikh Mujib Medical University, Dhaka, 2014.

9. Nagle E, Teibe U, Kapoka D. Craniofacial anthropometry in a group of healthy Latvian residents. Acta medica Lituanica 2005; 12 (1): 47-53.

10. Choe KS, Sclafani AP, Linter JA, Yu GP, Romo III T. The Korean American Woman's Face Anthropometric Measurements and Quantitative Analysis of Facial Aesthetics. Archi of Facial Plast Surg 2004; 6:244-52.

11. Al-jassim NH, Fathallah ZF, Abdullah NM.Anthropometric measurements of human face in Basrah.Basrah Journal of Surgery 2014; 29-40.

12. Shah S, Koirala S, Khanal L. Variation in Craniofacial Anthropometry of 17-25 Years Old Adult Population of Nepal. European Journal of Forensic Sciences 2014;1 (1): 5-8.

13. Amini F, Mashayekhi Z, Rahimi H, Morad G. Craniofacial Morphologic Parameters in a Persian Population: An Anthropometric Study. The Journal of Craniofacial Surgery 2014;25 (5): 1874-81.

14. Jeremic D, Kocic S, Vulovic M, SazdanovicM, Sazdanovic P, Jovanovic B, et al. Anthropometric study of the facial index in the population of Central Seabia.Arch. Biol. Sci. 2013; 65(3): 1163.

15. Oladipo GS, Okoh PD, Akande PA, Oyakhire MO. Anthropometric study of some craniofacial parameters: head circumference, nasal height, nasal width and nasal index of adult Omoku indigenes of Nigeria. American Journal of Scientific and Industrial Research2011; 2 (1): 54-57.

.....

Case Report

DCIMCJ

DCIMCJ 2019 July;6(2):65-67

A Case of Henoch-Schonlein Purpura Treated with Mycophenolate Mofetil

Nomany BMS[1], Gani MO[2], Mukta M[3], Rabiul M[4], Tasmiya T[5]

Abstract:

Henoch-Schonlein purpura is an immunoglobulin A (IgA)- immune complex mediated leukocytoclastic vasculitis that classically manifests with palpable purpura, abdominal pain, arthritis, and hematuria or proteinuria. The condition is much more predominant in children (90% of cases) and commonly follows an upper respiratory infection. We present a case of recurrent Henoch- Schonlein purpura (HSP) complicated by glomerulonephritis in an adult female initially categorized as IgA nephropathy (IgAN). We review the pathophysiologic basis of HSP nephritis as the variant of HSP accompanied by renal involvement and its pathogenetic commonality with IgA nephropathy.

Keywords: Henoch – Schonlein purpura, mycophenolate mofetil.

Epidemiology:

The annual incidence varies geographically from 6.2 to 70.3 per 100,000 in children less than 17 years of age with slight male predominance (M : F = 1.2 : 1.0). Peak age incidence is 4–6 years and 90% of HSP cases occur before the age of 10 years. Worldwide, Afro-Caribbeans have the least incidence while Asians have the highest incidence. In North America, the incidence is 13.5 per 100,000 children. Caucasians have the highest incidence while Afro-Americans have the lowest incidence. HSP is most commonly seen in winter and spring seasons. In adults, the incidence varies between 3.4–14.3 per million population. As this disease is self limited, its true incidence may be under reported.

1. Dr. Bakhtiare Md. ShoebNomany, Associate Professor, Department of Medicine, Dhaka Central International Medical College.
2. Dr. Mohammad Osman Gani, Associate Professor, Department of Medicine, Dhaka Central International Medical College.
3. Dr. Meherunnesa Mukta, Assistant Professor, Department of Medicine, Dhaka Central International Medical College.
4. Dr. Md RabiulIslam , Registrar , Department of Medicine, Dhaka Central International Medical College.
5. Dr. TaharaTasmiya, Intern Doctor, Dhaka Central International Medical College.

Correspondence:Dr. Bakhtiare Md. ShoebNomany
E-mail: shoebnomany@googlemail.com

Introduction:

Henoch-Schonönlein Purpura (HSP), also known as IgA vasculitis is a small vessel vasculitis with IgA1-dominant immune deposits predominantly on capillaries, venules or arterioles. It often involves skin and gastrointestinal system and may also cause arthritis. It is commonly seen in children and characterized by palpable purpura more commonly located in the dependant body parts like lower extremities and buttocks[1,2] arthritis/arthralgia, bowel angina along with hematuria/proteinuria[3]. The various etiology has been suggested like varieties of pathogens, drugs, environmental exposure among which Group A beta hemolytic Streptococcus has been much studied. The natural history of the disease has self-limiting course in most of the cases except that those of renal complications associated with it. Symptomatic treatment with Non-steroidal anti-inflammatory drugs (NSAIDs) along with the steroids will have the joint and abdominal pain relief. Corticosteroids if given in the early course of disease can help to provide a better clinical outcome. The prognosis is good, with exception of renal involvement that may need the follow up till six months or longer. The exact prevalence of HSP in our settings has yet to be discovered but various studies revealed it to be oneof the important causes of childhood renal disease.

Case presentation:

Miss. Shuchona, 20 years old regular menstruating young leady presenting with recurrent episode of erythematous palpable rashes over her both lower limbs and buttocks for 2 years following an episode of common cold 2 weeks back. This episode is not associated with fever, itiching,abdominal pain, arthralgia,oral ulcer, melena or hematochezia andhematuria. Color of rash was changed from red to blackish then vanished within 2 weeks spontaneously. Rash is appeared at winter and developed on pressure area of body. Then she also developed gum bleeding for last 10 days after brushing. There is no H/O taking vaccine recently. Her mother is diabetic (type -2) and her father is suffering from psoriasis and renal disease. Patient is ill-looking, vital signs are normal. Blanchable multiple purpura over both lower limbs and buttocks. Other systemic examination reveal no-abnormal findings. labratory finding-C.B.C- reveals Hb%-12.5 g/dl, W.B C-14,000/cmm, PLT-3,50,000/cmm and ESR-35, routine examination of urine reveals haematuria with proteinuria with normal creatinine level, serum IgA level was 3.84g/l (normal) and also ANA (ANTI NUCLEAR ANTIBODY),P-ANCA and C-ANCA ,all were negative. On the other hand, skin biopsy with Direct Immunoflurescence study from lesions reveals moderate granular deposited of Ig A was present around dermal vessels and confirmed as a case of Henoch – ScholeinPurpura .Then the patient wastreated with Mycophenolate Mofetil for 6 months with tapering doses of Prednisolone for 1 month and Anti-ulcerant (Omeprazole). After the medications the patient gradually started to recover and she was discharged from the hospital, patient was regularly follow up now the patient's is completely recovered.

Discussion:

Henoch Schonlein purpura is a distinct multiorgan small vessel vasculitic syndrome that was first described in the early part of the 19th century by Heberden. Schonlein identified the arthropathy component of the syndrome, designating the clinical complex as peliosis rheumatic a. The full designation as HenochSchonlein purpura acknowledges the contributions made by Henoch in the later part of the 19 th century when he described gastrointestinal symptoms, skin lesions, arthralgias and kidney involvement in some patients. The two broad categories of HSP are based on the presence or absence of renal involvementinde pendent of severity and symptoms The designation of HSP nephritis isused when there is renal involvement and recognizes a spectrum of disease clinically and pathologically affecting the kidney. The most severe would be true nephritic HSP whereby the patient has nephritic syndrome. Perhaps th e most famous patient to die from nephritic HSP was Wolfgang Amadeus Mozart. Unfortunately, at the time of his untimely and premature demise, neither HSP nor its effective treatment was known[4,5]. The current management of HSP includes oral prednisone, topical and intravenous corticosteroids, dapsone, and cyclophosphamide. When renal involvement occurs, such as in the case of HSPN, angiotensin converting enzyme inhibitors, cyclosporine A, azathioprine, mycophenolate mofetil, intravenous immunoglobulin, and plasma exchange can be incorporated into the treatment plan. The efficacy of the previously mentioned treatments is still uncertain due to lack of a controlled study Rituximab has been used with some success in child and adult corticosteroid dependent patients with HSP. The authors propose that the elimination of B lymphocytes may reduce IgA1 and therefore IgG anti glycan antibodies, removing one of the inciting agents in thedisease process[6]. Anakinra, the interleukin receptor antagonist, was used with partial response in a child with severe systemic HSP. The patient failed treatment with methylprednisolone, mycophenolate mofetil, and IVIG therapy. Anakinra was implemented under the rationale that the IL 1 blockade could improve the massive inflammatory assault on the patient's end organs. The patient improved with anakinra therapy but ultimately died of renal failure[7].

Conclusion:

Henoch Schonlein purpura is a distinct syndromic complex where many of the manifestationsare

attributable to a leukocytoclastic vasculitis such as palpable purpura, arthritis, and gastrointestinal and pulmonary haemorrhage. The renal involvement reflects both the mesangial proliferative effects of abnormal IgA containing immune complexes as well as small vessel injury the latter manifesting as crescentic glomerulonephritis. HSP with renal involvement is pathogenetically distinct and is associated with a genetic abnormality in IgA, with the potential for progression to chronic renal disease. Such patients must be carefully monitored since common exogenous triggers especially related to infection Serve as an impetus to abnormal IgA 1 production.

References:

1. Jithpratuck W, Elshenawy Y, Saleh H, Youngberg G, Chi D, Krishnaswamy G. The clinical implications of adult-onset henoch-schonelin purpura. Clinical and Molecular Allergy. 2011;9(1):9.

2. Sohagia AB, GunturuSG, Tong TR, Hertan HI. Henoch-SchonleinPurpura; A Case Report and Review of the Literature. Gastroenterology Research and Practice. 2010; 2010:597648.

3. Ozen S, Ruperto N, Dillon MJ, et al. EULAR/PReS endorsed consensus criteria for the classification of childhood vasculitides. Annals of the Rheumatic Diseases. July 1, 2006 2006;65(7):936-941.

4. Matteson EL. Notes on the history of eponymic idiopathic vasculitis: the diseases of Henoch and Schönlein, Wegener, Churg and Strauss, Horton, Takayasu, Behçet, and Kawasaki. Arthritis Care Res. 2000 Aug;13(4):237-45.

5. Zegers RH, Weigl A, Steptoe A. The death of Wolfgang Amadeus Mozart: an epidemiologic perspective. Ann Intern Med. 2009 Aug 18;151(4):274-8, W96-7.

6. Pindi Sala T, Michot J-M, Snanoudj R, et al. Successful Outcome of a Corticodependent Henoch-Schonlein Purpura Adult with Rituximab. Case Reports in Medicine. 2014;2014:4.

7. Boyer EM TM, O'Neil KM. Partial response to anakinra in life-threatening Henoch-Schonlein purpura: case report. Pediatric Rheumatology Online Journal. 2011.

Case Report

DCIMCJ 2019 July;6(2):68-70

A Case of G6PD Deficiency Anemia with Severe Hemolysis

Ali M[1], Nomany BMS[2], Gani MO[3], Islam MR[4], Mustafiz SM[5]

Abstract:

Severe hemolysis occurred in a febrile patient due to G6PD deficiency where the causative factor could be antibiotic or infection. We described one young patient with severe hemolysis. The patient presented with fever and later developed yellow discoloration of skin and sclera. His Hb level decreased to 5.8 gm/dL, Bilirubin level raised to 50 mg/dL. Other pausible causes like autoimmune hemolytic anemia, septicemia with DIC, Malaria etc. were excluded.

Keywords:G6PD Deficiency, hemolysis

Introduction:

Glucose 6 phosphate Dehydrogenase (G6PD) deficiency is a genetic disorder characterized by decreased level of Glucose 6 phosphate Dehydrogenase which leads to the destruction of red blood cells. G6PD reduces the Nicotinamide Adenine Dinucleotide (NADP). Hemoglobin and RBC membranes are usually protected from oxidative stress through reduced glutathione. In G6PD deficiency formation of NADPH and reduced glutathione is impaired, as a result there is damage of RBC membrane. Clinically it's characterized by acute hemolytic anemia, in paediatric case neonatal Jaundice occurs. Here we discuss acase of hemolytic anemia due to G6PD deficiency in a young male patient.

6. Dr. Mohammad Ali, Associate Professor, Department of Medicine, Dhaka Central International Medical College

7. Dr. Bakhtiare Md. ShoebNomany, Associate Professor, Department of Medicine, Dhaka Central International Medical College.

8. Dr. Mohammad Osman Gani, Associate Professor, Department of Medicine, Dhaka Central International Medical College.

9. Dr. Md Rabiul Islam, Registrar, Department of Medicine, Dhaka Central International Medical College

10. Dr. SM Mustafizur Rahman, Intern Doctor, Dhaka Central International Medical College

Correspondence:Dr. Mohammad Ali
E-mail: drmali79@yahoo.com

Case Report:

A 22 years old male presented with high grade fever which was continuous in nature, not associated with chills and rigor, highest recorded temperature was 103°F and partially subsided by antipyretic drug. At first he was suspected as a case of dengue fever and admitted in Dengue ward. So Intravenous fluid was given. But fever was persisting and gradually patient became toxic. Meanwhile Dengue fever was excludedby negative NS1 Antigen, Dengue IgG, IgMand after sending blood and urine cultureIV Levofloxacin was started blindly.Serial electrolyte revealed1episodeofhypokalemia(2.3mmol/L),latercorrected;S.Creatinine(1.28mg/dL). 2 days after admission after getting this treatment he developed yellow discoloration of his scleraand passage of yellowish urine which was gradually increasing. At that time he also developed loss of appetite, Nausea and vomiting for several times. In last few episodes vomitus was bile stained, but no blood. His Stool was yellowish, not voluminous, not clay colored. There was no history of itching. At that time he also complaints of mild pain in right upper abdomen. It was not related to food or no radiation. Liver function test was done and it revealedmarked rise of bilirubin level which was 16 mg/dL, SGPT wasseverely high (4234 U/L), Prothrombin time 17 second ALP was normal. Viral markers revealed acute viral hepatitis due to Hepatitis A virus (Anti HAV IgM positive).

As patient developed raised Prothrombin time, Vitamin K Injection was given. 2 days after giving injection patient developed severe anemia(Hb- 6.8 g/dL)and deep jaundice (Bilirubin 50mg/dL;Direct:36.94&Indirect:13.96mg/dL)Then haemolytic screening was done where LDH raisedinhightitre (1932U/L).D DIMER1.56µg/mLPlasmaAmmonia 85umol/L;COOMB' STESTNegative, ICTforMalariawasalso Negative. He also developed severe generalized weakness during this time.Anemiawascorrectedby2unitbloodtransfusion. There was no history of skin rash, contact with jaundice patient, injection, infusion, blood transfusion,travel history or sexual exposure.

Test	27/07 /19	29/07 /19	31/0 7/19	02/0 8/19	03/08 /19	05/08 /19	07/08 /19
Hb	13.8	12.5	9.6	6.8	5.8	9.5	11.4

Table1: Serial hemoglobin level of patient

There was no significant past historyof hospitalization or any severe illness. He was non smoker and non alcoholic. There was no such illness in his family or any other significant illness.

On examination He was ill looking and highly icteric. No cyanosis clubbing, koilonychias, leukonychina, edema, spider nevi, palmer erythema or flapping tremor. No lymphadenopathy or thyromegaly. His vitals were within normal range (pulse 80 bpm, BP 100/60 mmHg). On examination of abdomen there was tenderness in right hypochondriac region and other systems examination revealednoabnormality.

AfterrecoveryofacuteillnessG6PDlevelofbloodwasdoneanditwas2.1U/gHb(Ref:6.97-20.5U/gHb)

He wasfinally diagnosed as Acute Viral Hepatitis due to Hepatitis A Virus with Acute hemolytic crisis due to G6PD deficiency. He was treated with blood transfusion and discharged with support of folic acid, Lactulose and some other symptomatic treatmentand also advised to avoid some drugs which may initiate hemolysis.

Discussion:

Our patient presented with severe hemolysis with acute viral infection, so there were 4 primary suspicion, i) Autoimmune hemolytic anemia, ii) G6PD deficiency, iii) Pyruvete kinase deficiency and iv) septicemia with DIC. ThenCOOMBs test, D Dimer, Serum LDH was done and Autoimmune hemolytic anemia and septicemia was excluded. InBangladesh G6PD deficiency is more common than pyruvate kinase deficiency. This why G6PD level was checked and it was very low.

We know there are some trigger factor for hemolytic anemia in G6PD deficiency. These are Infections, acute illness (e.g. DKA), Drugs including Antimalarial (Primaquine, Quinine, Chloroquine, Pyrimethamine), Analgesic (Aspirin, Phenacetin), Antibiotics (Sulphonamide, Nitrofurantoin, Ciprofloxacin), Miscellenious (Vitamin K, Dapsone, Probenacid, Quinidine), Fava beans (possibly other vegitables)[1,2].As our patient had raised prothrombintime, so he was given Vitamin K Injection, moreover he had viral hepatitis too. Again he was also treated with Levofloxacinafter sending culture. One or all of these factors may initiate the hemolytic event occurred here.

Variety of normal genetic variants of G6PD enzyme is wide, most common type B (Western) and type A (Africans). More than 400 variants caused by point mutations or deletions of the enzyme G6PD have been characterized that show less activity than normal and worldwide over 400 million people are G6PD deficient in enzyme activity (Fig. 1)[3].

The inheritance is sex linked (X linked recessive), males are affected and females are carrier,very rarely affected. The female heterozygotes have an advantage of resistance to Falciparum Malaria.

Patients with G6PD deficiency mostly remains asymptomatic until they exposed to an oxidative

stressor. Symptoms includes Jaundice, dark coloured urine, back pain due to kidney damage and symptoms of anemia (fatigue, hypotension, tachycardia, confusion)

Diagnosis is sometimes made when suspected of recent exposure to oxidant, blood tests reveals decreased level of Hb, Increased level of Reticulocyte count, LDH & Bilirubin, decreased haptoglobin, Negative COOMBS test, Blood smear with Bite cells and Heinz

Definitive test is Enzyme assay of G6PD level.

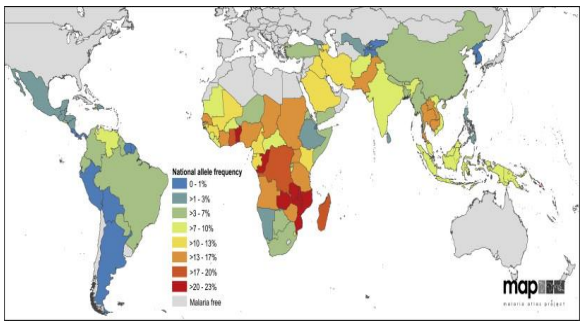


Fig. 1 : Global distribution of G6PD gene variants causing G6PD deficiency.

Management involves:

- Stopping any precipitant agent.
- Treating any underlying infection or acute illnesses.
- Maintaining hydration and high urine output
- Acute transfusion is very necessary for severe anemia.

Conclusion:

Hemolytic anemia due to G6PD deficiency is not uncommon in our subcontinent, rather it's misdiagnosed. Diagnosis of this disease is important as early as possible. In many developed country newborns are tested a few days after birth. So we should not forget the disease when a patient presents withfeatures of hemolysis.

References:

1. Watson HG, Craig JIO, Manson LM, Blood Disease. In: Walker BR ,Colledge NR, Ralston SH, Penman ID, editors. Davidson's principles & Practice of Medicine. 22nd edition, imprint of Elsevier Limited, 2014. P. 989-1056.

2. Hoffbrand AV, Moss PAH, Essential Hematology, 6thedition. Blackwell Publishing limited, 2011. P.73-87.

3. Hoffbrand AV, Moss PAH, Essential Hematology, 6thedition. Blackwell Publishing limited, 2011. P.73-87.

DCIMCJ

DCIMCJ 2019July;6(2):71-73

Medical Quiz: Images

Mamun KAA[1], Parvin A[2]

A 60 years old female presented with new onset recurrent focal seizure involving right side of the body.She was suggested MRI Brain and EEG.

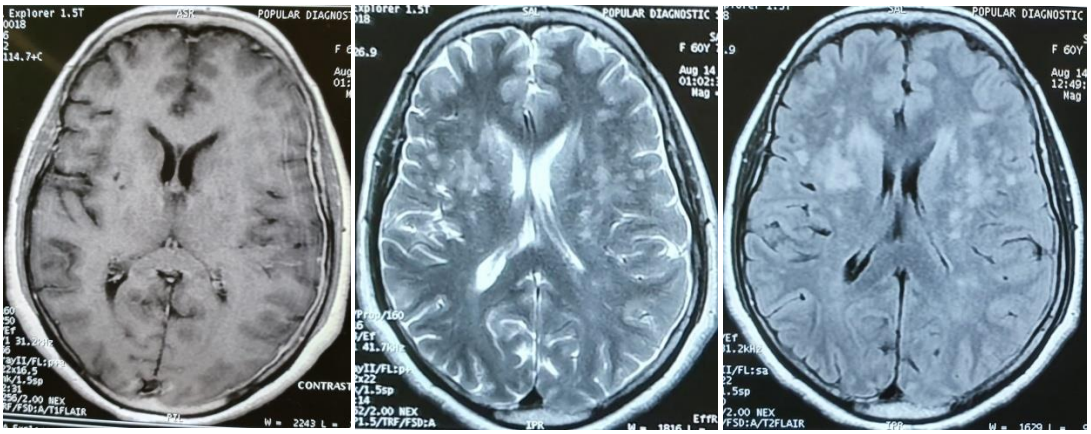


Figure 1: MRI Brain

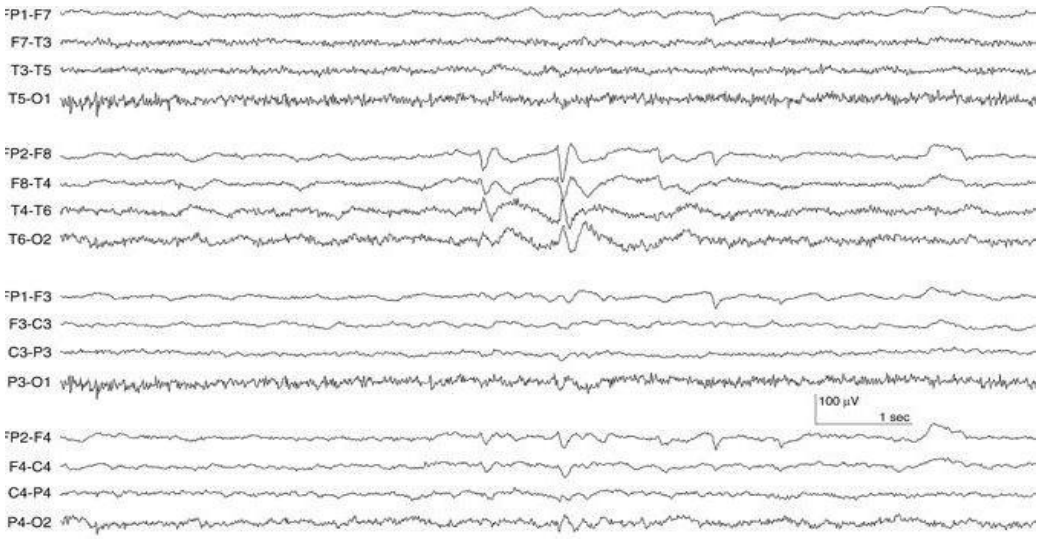


Figure 2: EEG

1. *Dr.Kazi Abdullah Al Mamun, Associate Professor (Neuromedicine)*
Dhaka Central International Medical College.

2. *Dr. Afroza Parvin, Assistant Professor(Radiology)*
Dhaka Central International Medical College.

- **Q1**.Mention abnormal findings in MRI brain.
- **Q2**. Mention abnormal findings in EEG.
- **Q3**. What other investigations should be done?
- **Q4.** What is the diagnosis?
- **Q5**. What are the differential diagnosis?

Answer to Medical Quiz: Images

- ✓ MRI brain revealed the presence of multiple scattered small hyperintensedeep white matter lesions in T2 and FLAIR sequences. The images were radiologically suggestive of Vasculitis.
- ✓ EEG shows focal epileptiform discharge.
- ✓ CBC,CRP,ANA ,cANCA, pANCA, VDRL,TPHA
- ✓ Recurrent seizure due to CNS Vasculitis
- ✓ Differentials include Multiple sclerosis, ADEM

Discussion:

Primary CNSvasculitisis a rare and poorly understood variant of vasculitis that is restricted to the CNS[1]. The median age at diagnosis is 45 years with a male to female ratio of 4 to 3[2].

Headache and cognitive decline are the most common reported symptoms at presentation [3]. Although less common, seizures were reported in the range of 7–29% [4].Seizures are usuallydrug-resistant.

Cerebrospinal fluid findings play a crucial role in the diagnosis of Primary CNSvasculitisand to exclude other differential diagnoses. It is abnormal in 80–90% cases[5]. It shows lymphocytic pleocytosis with an elevated protein.

Brain MRI shows features of multi-focal supratentorial lesions representing infarcts involving the cortical, subcortical and deep white matter [6]. MRAfeatures of primary CNS vasculitis include segmental arterial narrowing and dilatation, vascular occlusion and collateral formation[7].

Brain biopsy confirms the diagnosis of Primary CNS vasculitis[8].

References:

1. Wilder-Smith EP, Lim EC, Teoh HL, Sharma VK, Tan JJ, Chan BP. The NORSE (new-onset refractory status epilepticus) syndrome: defining a disease entity. Ann Acad Med Singapore. 2005 Aug;34(7):417–420.

2. Gall CR, Jumma O, Mohanraj R. Five cases of new onset refractory status epilepticus syndrome: outcomes with early immunotherapy. Seizure. 2013 Apr;22(3):217–220.

3. Costello DJ, Kilbride RD, Cole AJ. Cryptogenic new onset refractory status epilepticus in adults-infectious or not? J Neurol Sci. 2009 Feb 15;277 (1–2):26–31.

4. Néel A, Pagnoux C. Primary angiitis of the central nervoussystem. ClinExpRheumatol. 2009 Jan-Feb;27(1 Suppl 52):S95–107.

5. Salvarani C, Brown RD, Christianson T, Miller DV, Giannini C, Huston J.3rd An update of the Mayo clinic cohort of patients with adult primary central nervous system vasculitis: description of 163 patients. Medicine (Baltimore) 2015 May; 94(21)

6. Hajj-Ali RA, Calabrese LH. Central nervous system vasculitis. CurrOpinRheumatol. 2009 Jan;21(1):10–18.

7. Salvarani C, Brown RD, Calamia KT, Christianson TJ, Weigand SD, Miller DV. Primary central nervous system vasculitis: analysis of 101 patients. Ann Neurol. 2007 Nov; 62(5):442–451.

8. Calabrese LH, Mallek JA. Primary angiitis of the central nervous system. Report of 8 new cases, review of the literature, and proposal for diagnostic criteria. Medicine (Baltimore) 1988 Jan;67(1):20–39.