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The Journal of Bangladesh College of Physicians and Surgeons is a peer reviewed Journal. It is published four times a year, (January, April, July and October). It accepts original articles, review articles, and case reports. Complimentary copies of the journal are sent to libraries of all medical and other relevant academic institutions in the country and selected institutions abroad.

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Editor-in-Chief, Journal of Bangladesh College of Physicians and Surgeons, BCPS Bhaban, 67, Shaheed Tajuddin Ahmed Sarani Mohakhali, Dhaka-1212, Tel : 8825005-6, 8856616, 9884189, 9884194, 9891865 Ext. 124, Fax : 880-2-8828928, E-mail : bcps@bcps-bd.org Editor's e-mail: journal.bcps@gmail.com

Journal of Bangladesh College of Physicians and Surgeons (JBCPS)

INFORMATION FOR AUTHORS

MANUSCRIPT PREPARATION AND SUBMISSION

Guide to Authors

The Journal of Bangladesh College of Physician and Surgeons, provides rapid publication (quarterly publication) of articles in all areas of the subject. The Journal welcomes the submission of manuscripts that meet the general criteria of significance and scientific excellence.

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Editor-in-Chief
Dr. Ferdousi Islam
BCPS Bhaban
67 Shaheed Tajuddin Sarani
Mohakhali, Dhaka 1212,
Bangladesh.
Phone: +8802-8825005 +8802-8825006
Fax: +88002-9848928

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Submit manuscripts as e-mail attachment to the editorial office at: journal.bcps@gmail.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, as an attachment.

The Journal of Bangladesh College of Physicians and Surgeons will only accept manuscripts submitted as e-mail 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 communications 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 concise and no longer than 4 to 6 printed pages (about 12 to 18 manuscript pages). It should be focused and must 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 weeks. The editorial board will re-review manuscripts that are accepted pending revision. The JBCPS editorial board will try to publish the manuscript as early as possible fulfilling all the rigorous standard journal needs.

I. A. Preparing a Manuscript for Submission to JBCPS

Editors and reviewers spend many hours reading manuscripts, and therefore appreciate receiving 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.

Conditions for submission of manuscript:

- All manuscripts are subject to peer-review.
- Manuscripts are received with the explicit understanding that they are not under simultaneous consideration by any other publication.
- Submission of a manuscript for publication implies the transfer of the copyright from the author to the publisher upon acceptance. Accepted manuscripts become the permanent property of the Journal of Bangladesh College of Physicians and Surgeons and may not be reproduced by any means in whole or in part without the written consent of the publisher.
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Ethical aspects:

- Ethical aspect of the study will be very carefully considered at the time of assessment of the manuscript.
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- 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 manuscript:

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

Preparation:

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

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

I. A. 1. a. General Principles

- The text of observational and experimental articles is usually (but not necessarily) divided into the following sections: 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, crosslinking or extracting portions of articles, and the like only in the electronic version.
- 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 text line by line and add comments and queries directly on the paper copy.

- If manuscripts are submitted electronically, the files should be double-spaced to facilitate printing for reviewing and editing.
- Authors should number on right upper all of the pages of the manuscript consecutively, beginning with the title page, to facilitate the editorial process.

I. A. 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 JBCPS 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 is the EQUATOR Network (http: //www.equator-network.org/home/) or CONSORT network (http:// www.consort-statement.org).

I. A .2. Title Page

The title page should have the following information:

1. Article title. Concise titles are 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 institutional affiliations.
3. The name of the department(s) and institution(s) to which the work should be attributed.
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5. Contact information for corresponding authors. The name, mailing address, telephone and fax numbers, and e-mail address of the author responsible for correspondence about the manuscript .
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9. The number of figures and tables. It is difficult for editorial staff and reviewers to determine whether he 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.

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To prevent potential conflicts of interest 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 journals (http://www.icmje.org/coi_disclosure.pdf) and JBCPS has accepted that.

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- 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), 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 problem and its significance). It should be very specific, identify the specify knowledge in the aspect, reasoning and what the study aim 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 observational or experimental participants (patients or laboratory animals, including controls) 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 of research is not always clear, authors should explain their use when they are included in a study report—for example, authors should explain why only participants of certain ages were included or why women were excluded. The guiding principle should be clarity about how and why a study was done in a particular way. When authors use such variables as race or ethnicity, they should define how they measured these variables and justify their relevance.

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 descriptions for methods that have been published but are not well-known; describe new or substantially modified methods, give the reasons for using them, and evaluate their limitations. Identify precisely all drugs and chemicals used, including generic name(s), dose(s), and route(s) of administration.
- Authors submitting review article should include a section describing the methods used for locating, selecting, 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. Results

- Present results in logical sequence in the text, tables, and illustrations, giving the main or most important findings first. Please keep the result 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 from them in the context of the totality of the best available evidence.
- Do not repeat in detail data or other information given in the Introduction or the Results section.
- For experimental studies, it is useful to begin the discussion by briefly summarizing the main findings, then explore possible mechanisms or explanations for 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 completed. 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 numbers of references to key original papers often serve as well as more exhaustive lists, 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.
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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 /fig 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 abbreviations in footnotes, and use the following symbols, in sequence:

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

I. A. 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 _ 173 mm (5 _ 7 inches).
- Letters, numbers, and symbols on figures should therefore be clear and consistent throughout, and large enough to remain legible when the figure is reduced for publication.
- Photographs of potentially identifiable people must be accompanied by written permission to use the photograph. Figures should be numbered consecutively according to the order in which they have been cited in the text.
- If a figure has been published previously, acknowledge the original source and submit written permission from the copyright holder to reproduce the figure. Permission is required irrespective of authorship or publisher except for documents in the public domain.
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I. A. 12. Legends for Illustrations (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

- Measurements of length, height, weight, and volume should be reported in metric units (meter, kilogram, or liter) or their decimal multiples.
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- 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, send the required number of copies of the manuscript and figures; they are all needed for peer review and editing, and the editorial office staff 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 available in JBCPS web site.

Editing and peer review: All submitted manuscripts are subject to scrutiny by the Editor in-chief or any member of the Editorial Board. Manuscripts containing materials without sufficient scientific value and of a priority issue, or not fulfilling the requirement for publication may be rejected or it may be sent back to the author(s) for resubmission with necessary modifications to suit one of the submission categories. Manuscripts fulfilling the requirements and found suitable for consideration are sent for peer review. Submissions, found suitable for publication by the reviewer, may need revision/ modifications before being finally accepted. Editorial Board finally decides upon the publishability 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 Bangladesh College of Physicians and Surgeons:

1. Forwarding/Cover letter and declaration form,
2. Authorship and conflicts of interest form,
3. Manuscript
   - o Sample of the above documents is available in the following links: http://www.bcpsbd.org (registration required for download)
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- General outline for article presentation and format
  - Δ Double spacing
  - Δ Font size should be 12 in arial
  - Δ Margins 5 cm from above and 2.5 cm from rest sides.
  - Δ Title page contains all the desired information (vide supra)
  - Δ Running title provided (not more than 40 characters)
  - Δ Headings in title case (not ALL CAPITALS, not underlined)
  - Δ References cited in superscript in the text without brackets after with/without comma (,) or full stop (.)
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- **Language and grammar**
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  - Δ Numerals from 1 to 10 spelt out
  - Δ Numerals at the beginning of the sentence spelt out
- **Tables and figures**
  - Δ No repetition of data in tables/graphs and in text
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  - Δ Table and figure numbers in Arabic letters (not Roman)
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Manuscript Format for Research Article

- **Title**
  - Δ Complete title of your article
  - Δ Complete author information
  - Δ Mention conflict of interest if any
- **Abstract**
  - Δ Do not use subheadings in the abstract
  - Δ Give full title of the manuscript in the Abstract page
  - Δ Not more than 200 words for case reports and 250 words for original articles
  - Δ Structured abstract (Including introduction, methods, results and discussion, conclusion) provided for an original article and (Introduction, results and discussion , conclusion) for case reports.
  - Δ Key words provided – arrange them in alphabetical order (three – five)
- **Introduction**
  - Δ Word limit 150 -200 words
  - Δ Pertinent information only
- **Material and Methods**
  - Δ Study Design
  - Δ Duration and place of study
  - Δ Ethical approval
  - Δ Patient consent
  - Δ Statistical analysis and software used.
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  - Δ Clearly present the data
  - Δ Avoid data redundancy
  - Δ Use table information at the end of the sentence before full stop between the small bracket
- **Discussion**
  - Δ Avoid unnecessary explanation of someone else work unless it is very relevant to the study
  - Δ Provide and discuss with the literatures to support the study
  - Δ Mention about limitation of your study
- **Conclusion**
  - Δ Give your conclusion
  - Δ Any recommendation
- **Acknowledgement**
  - Δ Acknowledge any person or institute who have helped for the study
- **Reference**
  - Δ Abide by the Vancouver style
  - Δ Use reference at the end of the sentence after the full stop with superscript
- **Legends**
  - Δ Table
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CONTENTS

EDITORIAL

Role of Probiotics in Medical Practice

Hippocrates said that "Let food be the medicine and medicine be the food is certainly the tenet of today".[1] The most common problem prevailing in the field of medicine is the development of resistance to a range of antibiotics by the important pathogens. The promiscuous and heavy use of antibiotics has led to the emergence of multi-resistant strains of bacteria. This unfortunate development has led scientists to shift the paradigm of treatment from specific bacteria elimination to altering bacterial ecology by use of probiotic[2].Nobel laureate Élie Metchnikoff, postulated in 1907 that yogurt-consuming Bulgarian peasants lived longer lives because of this custom. He suggested that "the dependence of the intestinal microbes on the food makes it possible to adopt measures to modify the flora in our bodies and to replace the harmful microbes by useful microbes"[3].Metchnikoff proposed that consumption of fermented milk would "seed" the intestine with harmless lactic-acid bacteria and decrease the intestinal pH, and that this would suppress the growth of proteolytic bacteria. Different species of microorganisms such as lactic acid bacteria or yeasts have been proposed for human use.[4] The concept of probiotics was thus born and a new field of microbiology was opened.

Probiotics are live microorganisms that provide health benefits to the host when ingested in adequate amounts.Probiotics are referred to ingested micro-organisms associated with benefits for humans and animals.The term *probiotic*' is derived from the Latin preposition pro (for) and the Greek adjective (biotic), the latter deriving from the noun (bios, life).A consensus definition of the term *probiotics*, based on available information and scientific evidence, was adopted after a joint Food and Agricultural Organization (FAO) of the United Nations and World Health Organization (WHO) expert consultation. In October 2001, this expert consultation defined probiotics as live micro-organisms that "when administered in adequate amounts, confer a health benefit on the host." This definition necessitates that probiotics must be alive when administered (dead microbes cannot be called probiotic), must be the subject of research documenting health benefits and must be microbiologically defined.[5,6,7]

The microbes most often used as probiotics include species of the genera Lactobacillus and Bifido-bacterium. Other probiotics include *Streptococcus thermophilus*, *Saccharomyces cerevisiae (biovariant boulardii)*, and *Bacillus coagulans*. These microorganisms are different in their mechanism of action and indication.[5]Major probiotic mechanisms of action include enhancement of the epithelial barrier, increased adhesion to intestinal mucosa, and concomitant inhibition of pathogen adhesion, competitive exclusion of pathogenic microorganisms, production of anti-microorganism substances and modulation of the immune system.[8]Several factors are now leading physicians to examine probiotics and other alternatives to pharmaceutical remedies. These include the surging levels of multidrug resistance among pathogenic organisms, particularly in hospitals, the increasing demands of consumers for natural substitutes for drugs, and the emergence of scientific and clinical evidence showing the efficacy and effectiveness of some probiotic strains.

Probiotics could be used for several conditions such as diarrhea, necrotizing enterocolitis, candidal vaginitis, urinary tract infections, immune disorders, Irritable bowel syndrome, inflammatory bowel disease, recurrent abdominal pain, lactose intolerance, hyper-cholesterolemia, food allergy, to prevent and to treat post-surgical infections. [9-15]Health care providers use probiotics in their practices, even though the quality of evidence varies and additional, well-controlled human trials would enable stronger conclusions on best probiotic use. The manipulation of the gut microbiota is complex and may cause bacteria-host Interactions.[16] Though probiotics are considered safe, some have concerns about their safety in certain cases.[17] Clinical use of probiotics for vulnerable patients (such as premature infants or critical care patients) must be done with care. Probiotics for such uses should have demonstrated safety for the target patient population and should meet high quality standards.[18] Some people, such as those with immuno-deficiency, short bowel

syndrome, central venous catheters, cardiac valve disease and premature infants, may be at higher risk for adverse events.[19] In severely ill people with inflammatory bowel disease there is a risk of the passage of viable bacteria from the gastrointestinal tract to the internal organs (bacterial translocation) as a consequence of bacteremia, which can cause adverse health consequences.[20] Rarely, consumption of probiotics by children with lowered immune system function or who are already critically ill may result in bacteremia or fungemia, which can lead to sepsis, a potentially fatal disease. It has been suggested that Lactobacillus contributes to obesity in humans, but no evidence of this relationship has been found.[21]

There is no doubt that we will witness a significant increase in the role of probiotics in nutrition and medicine in the coming years. Their application in the prevention and treatment of various disorders should be considered by medical professionals as well as should be promoted by the food industry. The critical step in wider application will be to make products available that are safe and clinically proven in a specific formulation easily accessible to physicians and consumers. Efforts are needed to advance the scientific knowledge of probiotics and determine their mechanisms of action, as well as describe when and why they fail in certain situations. Various processing advances, such as microencapsulation and bacterial coating and addition of prebiotic compounds used as growth factors by probiotic organisms, will provide the means to optimize the delivery and survival of organisms at the site of action.[14]While many invasive interventions will be necessary long into the future, many other aspects of medicine will change dramatically in the next decades.

The key to a long, healthy life likely does lie in our food and microbes - we just need to understand how best to align them, in some cases also taking into consideration our genetic endowment. Time will tell how quickly we embrace the future.

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Professor Md. Abid Hossain Mollah, *Professor of Pediatrics, BIRDEM General Hospital and Ibrahim Medical College, Dhaka.*

Dr Mehdi Pervez, *Assistant Registrar, Pediatrics, Sher-E-Bangla Medical College Hospital, Barishal*

References:

1. Sumit N, Ruby G, Anu N. Probiotics in oral health care- A Review. Int. J. scientific engineering 2011; 2 :39-43.
2. Vishnu HP. Probiotics and oral health. In: Virdi M, editor. Oral Health Care: Pediatric Research, Epidemiology and Clinical Practices. Bangalore, India: Vydehi Institute of Dental Sciences and Research Centre 2012: 195–204.
3. Fuller R .Probiotics in man and animals. The Journal of Applied Bacteriology 1989; 66 (5): 365–78.
4. Metchnikoff E. Intestinal poisons and arteriosclerosis. Annales de l'Institut Pasteur 1910; 24:753–70.
5. Rijkers GT, de Vos WM, Brummer RJ, Morelli L, Corthier G, Marteau P. Health benefits and health claims of probiotics: Bridging science and marketing. British Journal of Nutrition 2011; 106 (9): 1291–6.
6. Magdalena Araya, Catherine Stanton, Lorenzo Morelli, Gregor Reid, Maya Pineiro, et al., 2006, "Probiotics in food: health and nutritional properties and guidelines for evaluation," Combined Report of a Joint FAO/WHO Expert Consultation on Evaluation of Health and Nutritional Properties of Probiotics in Food Including Powder Milk with Live Lactic Acid Bacteria, Cordoba, Argentina, 1–4 October 2001, and Report of a Joint FAO/WHO Working Group on Drafting Guidelines for the Evaluation of Probiotics in Food, London, Ontario, Canada, 30 April–1 May 2002 [FAO Food and Nutrition paper 85], pp. 1–50, Rome, Italy: World Health Organization (WHO), Food and Agricultural Organization (FAO) [of the United Nations], accessed 11 June 2015.
7. Parker, R. B. Probiotics, the other half of the antibiotic story. Animal Nutrition and Health 1974; 29: 4–8.
8. Bermudez-Brito M, Plaza-Diaz J, Munoz-Quezada S, Gomez-Llorente C, Gil A. Probiotic mechanisms of action. Ann Nutr Metab 2012; 61:160–174.
9. Cuello-Garcia CA, Bro|ek JL, Fiocchi A et al. Probiotics for the prevention of allergy: A systematic review and meta-analysis of randomized controlled trials. J. Allergy Clin. Immunol. (Systematic review & meta-analysis) 2015; 136 (4): 952–61.
10. Goldenberg JZ, Lytvyn L, Steurich J, Parkin P, Mahant S, Johnston BC. Probiotics for the prevention of pediatric antibiotic-associated diarrhea. Cochrane Database of Systematic Reviews 2015, Issue 12. Art. No.: CD004827. DOI: 10.1002/14651858.CD004827.pub4
11. Sazawal S, Hiremath G, Dhingra U, Malik P, Deb S, Black RE. Efficacy of probiotics in prevention of acute diarrhoea: a meta-analysis of masked, randomised, placebo-controlled trials. Lancet Infect Dis 2006; 6 (6): 374–82.
12. Arvola T, Laiho K, Torkkeli S, Mykkänen H, Salminen S, Maunula L, Isolauri E. Prophylactic Lactobacillus GG reduces antibiotic-

associated diarrhea in children with respiratory infections: A randomized study. Pediatrics 1999; 104 (5): e64.

13. Petrova MI, Lievens E, Malik S, Imholz N, Lebeer S (2015) Lactobacillus species as biomarkers and agents that can promote various aspects of vaginal health. Front Physiol 2015; 6:81.

14. Reid G, Jass J, Sebulsky M, McCormick J. Potential uses of probiotics in clinical practice. ClinMicrobiol Rev 2003; 16: 658–672

15. Khalesi S, Sun J, Buys N, Jayasinghe R. Effect of probiotics on blood pressure: a systematic review and meta-analysis of randomized, controlled trials. Hypertension (Systematic review & meta-analysis) 2014; 64 (4): 897–903.

16. Durchschein F, Petritsch W, Hammer HF. Diet therapy for inflammatory bowel diseases: The established and the new. World J Gastroenterol (Review) 2016; 22 (7): 2179–94.

17. Boyle RJ, Robins-Browne RM, Tang ML. Probiotic use in clinical practice: what are the risks?. Am J ClinNutr (Review) 2006; 83(6): 1256–64;

18. Skokovic-Sunjic D. Clinical guide to probiotic supplements available in Canada: 2016 Edition. Indications, dosage forms, and clinical evidence to date. International Scientific Association for Probiotics and Prebiotics website. Available at: isapp.net/Portals/0/docs/clincial%20guide%20canada.pdf. Accessed March 4, 2018.

19. Doron S, Snydman DR. Risk and safety of probiotics. Clin. Infect Dis (Review) 2015; 60 Suppl 2: S129–34.

20. Singhi SC, Kumar S. Probiotics in critically ill children. F1000Res (Review). 2016; 5: 407.

21. Lahtinen SJ, Davis E, Ouwehand AC. Lactobacillus species causing obesity in humans: where is the evidence?. Benef Microbes (Review) 2012; 3 (3): 171–4.

Efficacy of Probiotics to Reduce Nosocomial Infection and Feeding Intolerance in Hospitalized Low Birth Weight Babies

MM HAQUE[a], S AFROZA[b], AH MOLLAH[c]

Summary:

Background and objective: *Neonatal sepsis is associated with increased mortality and morbidity of newborns. Moreover, inability to tolerate enteral feeding contributes to prolonged hospital stay and nosocomial sepsis. Probiotics confers health benefit to host by altering the gut environment. This study aimed at determining the efficacy of probiotics in reducing nosocomial sepsis and feeding intolerance in hospitalized low birth-weight infants.*

Methods: *A quasi experimental clinical trial to compare between newborn infants getting probiotics along with breast milk (experimental group) with those getting breast milk only (non experimental group). Study was conducted from June to December 2013 with a total of 49 newborns, weighing 1000 to 2000gm.*

Results: *In weight category 1000-1250 gm, 15.8% developed culture proven sepsis in probiotics/experimental group (n=9) and 10.5% in breast milk/non experimental group (n=10); p value was 0.655. Feeding intolerance was developed in 10.6% of the probiotics group and 31.5% of breast milk group, p value was not significant but the mortality was significantly lower among the probiotics group i.e., 5.3% in probiotics group Vs 42.1% in breast milk group (p 0.018). Between weight range of 1250-1500 gm, sepsis and feeding intolerance showed no significant differences (p value 0.305 & 0.305 respectively) but mortality differed significantly (0% probiotics group Vs 20% breast milk group; p 0.043). In weight range 1500-2000 gm, the result was not statistically significant for sepsis (p value 0.292), feeding intolerance (p value 0.292) and mortality (p value 0.292). Mortality was significantly lower in two weight categories (1000-1250 gm & 1250-1500 gm) and hence the overall result showed significant difference in the statistical analysis (p value 0.001).There were no differences either in nosocomial sepsis or feeding intolerance between the probiotics group and the breast milk group.*

Conclusion: *Probiotics does not have any impact in reducing nosocomial infection and feeding intolerance but the use of probiotics seems to reduce mortality especially in the lower weight category.*

Key words: *Probiotics, nosocomial sepsis, feeding intolerance.*

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Introduction:

Nosocomial infection (also referred to as late-onset neonatal sepsis or health care associated infection) in the neonatal intensive care units (NICU) is associated with morbidity and mortality, prolonged hospitalization, and increased medical costs[1]. The nosocomial infection rate in the NICUs has increased over the past decades. About 6.2 to 33% of all neonates admitted to the NICU developed nosocomial infection[2]. Of all the very low birth weights (VLBW < 1500 gm) infants, 21% developed at least one episode of culture proven sepsis[3]. The most common organisms causing nosocomial infection in neonates include Staphylococcus, Escherichia coli, Klebsiella, and Candida. Coagulase-negative staphylococcus (CoNS) is responsible for almost half of the late-onset sepsis[3,4].

Feeding intolerance is one of the most significant contributors to growth failure in low birth-weight preterm infants[5]. The inability to sustain enteral feedings contributes to extended periods of hospital stay, dependency on parenteral nutrition, nosocomial sepsis and this forms a vicious cycle ultimately leads

a. Dr. Md. Mozammel Haque, Medical Officer, 250 Bedded TB Hospital, Shyamoli, Dhaka.

b. Professor Syeda Afroza, Ex professor & head of Pediatrics, Saheed Sohrawardi Medical College Hospital, Dhaka.

c. Professor Abid Hossain Mollah, Ex professor & head of Pediatrics, Dhaka Medical College Hospital, Dhaka.

Address of Correspondence: Dr. Md. Mozammel Haque, Medical Officer, 250 Bedded TB Hospital, Shyamoli, Dhaka. Email: mmhaque16rmc@yahoo.com, Cell: 8801711148068.

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to a very high mortality[5]. Establishing and tolerating adequate enteral nutrition is difficult due to the immaturity of the VLBW infants' gastrointestinal system; however, it is important for their normal growth, infection resistance, and long-term cognitive and neurologic development[5].

Probiotics are defined by the World Health Organization as "live microorganisms, which when administered in an adequate amount confer a health benefit to the host"[6]. The most frequently used probiotics are lactobacillus and Bifidobacterium. Potential mechanisms by which probiotics may protect high-risk infants from developing NEC and sepsis include increased barrier to migration of the bacteria and their products across the mucosa, competitive exclusion of potential pathogens, modification of host response to microbial products, augmentation of IGA mucosal responses, enhancement of enteral nutrition that inhibits the growth of pathogens, and up-regulation of immune responses[6]. Probiotics has an additional effect on feeding intolerance through the following mechanisms-breaking down food for digestion, producing the lactase enzyme (which helps digest milk sugar), boosting the immune system[7], increasing bowel movement[8]. Mihatsch et al. reported that some probiotics were beneficial in relation to reduction of severe NEC and reduction of mortality[9] but here there were no convincing benefits with regard to prevention of nosocomial sepsis. The authors concluded that there is insufficient evidence to recommend routine probiotics in preterm infants.

In this study prophylactic probiotics were used for preterm LBW newborns with the aim to observe the efficacy in reducing nosocomial infection and feeding intolerance.

Materials and Methods: It was a quasi experimental clinical trial conducted at Neonatal Care Unit (NCU) of Sir Salimullah Medical College & Mitford Hospital from a period of June to December 2013 involving 49 VLBW infants selected sequentially. The newborns with the following criteria were enrolled into this study: low birth-weight (1000-2000gm), hemodynamically stable, without any evidence of sepsis; birth asphyxia and respiratory distress syndrome were included when the newborns were stable to take the enteral feed. Babies were included in this study within 24 hours of starting enteral feeding. Newborns having following criteria were excluded from the study: any surgical condition like intestinal obstruction, perforation, gastroschisis, omphalocele, congenital diaphragmatic hernia, imperforate anus, cleft lip and palate, major congenital heart disease and in whom feeding started with formula milk.

After fulfillment of inclusion criteria, a total of 50 LBW infant (1000-2000gm) were enrolled among which 25 were given probiotics along with expressed breast milk and 25, breast milk only. To avoid disparities in weight category, equal number of participants in both group in the weight between 1000-1250gm, 1250-1500gm & 1500-2000gm were taken. Among 25 babies in the probiotics group there was one dropout because one mother refused to continue probiotics, so 24 enrolled newborn were followed as probiotics group. The probiotics group received a probiotics mixture containing six live microorganisms (Bifidobacteria infantis, Bifidobacteria bifidum, Bifidobacteria longum, Lactobacillus acidophilus, Lactobacillus casein, Lactobacillus rhamnosus, Streptococcus thermopiles, Bifidobacteria brave, Bifidobacteria infantis and Lactobacillus bulgaricus). This was commercially available as 'Protexin Restore'. One sachet of 'Protexin Restore' contains two gm powder in which 1×10^{10}CFU bacteria is present in each gm; dissolving this powder in four ml of expressed breast milk, 0.5ml (equivalent to 0.25gm) twice daily was given until discharge of the baby. Feeding intolerance was monitored based on vomiting (altered milk, bile or blood stained), abdominal distension (abdominal girth ≥2cm from baseline, measured at the level of the umbilicus), and increased gastric residuals (›50% of previous feed). All enrolled babies were investigated for the confirmation of sepsis by doing blood culture at least 48 hours after probiotics administration in probiotics group and 48 hours after the hospital stay in the breast milk group. Along with these parameters weight gain was observed by daily weight measurement during the data collection process. The lengths of total hospital stay and overall mortality were observed and recorded. Data were collected on a pretested structured case record form and analysed by using SPSS version 16.

Results:

A total of 49 preterm LBW newborns were included as study group according to inclusion criteria. Among the probiotics group 62.5% were female newborns whereas 32% among the breast milk group. Fifty percent of the newborns in the probiotics group and 20% in the breast milk group were delivered by lower uterine caesarean section (LUCS).

Among 24 babies in the probiotics group 12.5% developed culture proven sepsis and among the 25 in the breast milk group 20% developed sepsis during their hospital stay. The difference was not statistically significant, p value 0.460 (Table-1).

No significant differences were noted in feeding intolerance between the probiotics group and the breast milk group e.g. (altered vomitus 0% Vs 12%; altered vomitus, abdominal girth & gastric residual 4.2% Vs 8% between probiotics & breast milk group respectively (Table-2).

In the probiotics group 4.2% newborns died and 52% died in the breast milk group. This difference was statistically significant, p value 0.001(Table-3).

The mean hospital stay was 10.33 ± 5.40 days in the probiotics group and 7.72 ± 5.41 days in the breast milk group and the difference was not statistically significant, p value 0.097 (Table-4).

Table-I

Rate of culture proven nosocomial sepsis among the studied babies (n=49)

Nosocomial sepsis	Experimental group given probiotics along with breast milk		Non experimental group given breast milk only		Total		P value	Odds Ratio
	No	%	No	%	No	%		
Blood C/S Positive	3	12.5%	5	20.0%	8	16.3%	0.460	0.57
Blood C/S Negative	21	87.5	20	80.0%	41	83.7%	0.898	1.75

Test of significance was done by Fisher's Exact Test.

Table-II

Rate of feeding intolerance among the studied babies (n=49)

Feeding Intolerance	Experimental group given probiotics along with breast milk		Non experimental group given breast milk only		Total		pvalue	OddsRatio
	No	%	No	%	No	%		
Altered vomitus	0	. 0%	3	12.0%	3	6.1%	0.059	
Abdominal girth (>2cm from base line)	1	4.2%	1	4.0%	2	4.1%	1.00	1.05
Altered vomitus + Gastric residual	0	.0%	1	4.0%	1	2.0%	0.263	
Abdominal girth + Gastric Residual	0	.0%	1	4.0%	1	2.0%	0.263	
Altered vomitus + Abdominal girth + Gastric residual	1	4.2%	2	8.0%	3	6.1%	0.439	0.51
No intolerance	22	91.7%	17	68.0%	39	79.6%	0.396	5.20

Test of significance was done by Fisher's Exact Test.

Table-III

Mortality pattern among the studied babies (n=49)

Life Status	Experimental group given probiotics along with breast milk		Non experimental group given breast milk only		Total		pvalue	OddsRatio
	No	%	No	%	No	%		
Alive	23	95.8%	12	48.0%	35	71.4%	0.058	24.71
Dead	1	4.2%	13	52.0%	14	28.6%	0.001	0.04

Test of significance done by Fisher's Exact Test.

Table-IV

Total hospital stay (in days) of studied babies (n= 49)

Study Group	Mean ± SD (Days)	t	P value
Experimental group given probiotics along with breast milk	10.33 ± 5.40	1.69	0.097
Non experimental group given breast milk only	7.72 ± 5.41		

Test of significance was done by "t" test.

Discussion:

In this study, 24 newborns were in the probiotics group, and 25 were in the breast milk group. No significant differences in baseline characteristics in between groups were observed except mean gestational age, and mean age of starting feeding. Mean age of starting feeding in the probiotics group was 2.6 ± 0.9 days and in the breast milk group, it was 3.03 ± 0.85 days. It was consistent with previous studies by Samanta M et al[10] and Dani C et al[11]. In this study, probiotics was used in a twice daily dose until the baby was discharged from NICU. Samanta M et al[10] used probiotics twice daily until discharge or 60 days.

The cumulative results revealed no statistically significant differences in the occurrence of nosocomial sepsis between the probiotics group and the breast milk group (p value 0.460) which was consistent with the results of other studies done by Dani C et al[11] and Deshpande G et al[9]. In a meta-analysis by Deshpande G et al[9], the risk of blood culture positive sepsis (six trials, n=1355) did not differ significantly between probiotics and control group (RR 0.94, 95% CI: 0.74-1.20) which was consistent with the present study.

Feeding intolerance was analysed in the study population and revealed no differences in between groups. Hu XY et al[12] in their study showed that Probiotics reduced the incidence of feeding intolerance in LBW premature infants (4%. Vs 14%; $p<0.01$) that is not consistent with the present study.

Number of death was significantly lower in the probiotics group than in the breast milk group, which was consistent with the results of studies by Samanta M et al[10] and Lin CH et al[13]. A meta-analysis by Deshpande G et al[9] revealed significantly reduced mortality by probiotics use (RR 0.47, 95% CI: 0.30-0.73) which was comparable to this study result. One possible explanation for this better outcome was the higher female inclusion in the probiotics group as genetically female do better due to double 'X' chromosome.[14.]

The mean hospital stay in the probiotics group was 10.33 ± 5.4 days, and in the breast milk group, 7.72 ± 5.41 days; the difference was not statistically significant. Statistical analysis of weight gain in between groups was not performed because no study population gained weight until their discharge.

No studied newborns gained weight (between two groups) until discharge. The finding of 'no weight gain' in this study can be explained in various ways- while developing sepsis or feeding intolerance, or due to

prematurity itself, newborn remains on IV fluid containing glucose and electrolytes only. Even after starting feeds IV fluid is continued until the feed reaches at least 75% of total daily fluid requirement. This fluid strategy cannot meet the total expected calorie and nutrition requirement of the newborn. It is practically difficult to provide a newborn with expected daily calorie and nutrition in the existent NICU set up and hence they remain in a catabolic state.

Conclusion & Recommendation:

From the present study it can be concluded that Probiotics does not reduce nosocomial sepsis and feeding intolerance in low birth weight newborns. But it reduces death of LBW babies particularly in the lower weight category. Still, it is very difficult to comment on this because the sample size was small, study period was short and randomization was not done. Further multicenter studies are needed involving larger sample size.

References:

1. Polin R A, Denson S, Brady M T. Strategies for prevention of health care-associated infections in the NICU. Pediatrics 2012; 129(4):1085–93.
2. Clark R, Powers R, White R, Bloom B, Sanchez P, Benjamin B K. Jr. Nosocomial infection in the NICU: a medical complication or unavoidable problem. Journal of Perinatology 2004; 24(6): 382–88.
3. Stoll BJ, Hansen N, Fanaroff AA, Wright LL, Carlo WA, Ehrenkranz RA, et al. Late-onset sepsis in very low birth weight neonates: the experience of the NICHD Neonatal Research Network. Pediatrics 2002; 110(2): 285–91.
4. Sivanandan S, Soraisham A S, Swarnam K.Choice and duration of antimicrobial therapy for neonatal sepsis and meningitis. Int J Pediatr 2011; 48(3): 125-30.
5. Deshpande G, Rao S, Patole S. Probiotics for prevention of necrotising enterocolitis in preterm neonates with very low birthweight: a systematic review of randomised controlled trials. The Lancet 2007; 369(9573):1614–20.
6. Josef N. Gastrointestinal development and meeting the nutritional need of premature infants. Pediatrics 2007; 85(2): 629-34.
7. Laura K. How Probiotics Work; [accessed 4 Dec 2012]. Available from: http://www.ehow.com/how-does_5137299_ probiotics-work.html
8. Nacie C.Probiotic Effects; [accessed 9 Sep 2012]. Available from: http://www.ehow.com/about_5426722_probiotic-effects.html
9. Nair V, Soraisham A S. Probiotics and Prebiotics: Role in Prevention of Nosocomial Sepsis in Preterm Infants. Int J Pediatr 2013; 67(2): 85-91.
10. Samanta M, Sarkar M, Ghosh P, Ghosh Jk, Sinha Mk, Chatterjee S. Prophylactic probiotics for prevention of necrotizing enterocolitis in very low birth weight newborns. Journal of Tropical Pediatrics 2009; 55(2):128-31.
11. Dani C, Biadaioli R, Bertini G, Martelli E, Rubaltelli FF. Probiotics feeding in prevention of urinary tract infection, bacterial sepsis and necrotizing enterocolitis in preterm infants. Biol Neonate 2002; 82: 103-8.
12. Hu XY, Zhou YX, Xu SZ, Lin YY. Effect of probiotics on feeding intolerance in low birth weight premature infants. Chinese Journal of Contemporary Pediatrics 2010; 12(9): 693-5.
13. Lin CH, Su BH, Chen AC, LinTW, Tsai CH, The TF, Oh W. Oral probiotics reduce the incidence and severity of Necrotising Enterocolitis in very low birth weight infants. Pediatrics 2005; 115(1): 1-4.
14. XY vs XX, which chromosome is more superior and stronger? [accessed 27 Sep 2014]. Available from: https://answers. yahoo.com/ question/index? qid=200903120 12844AAb3Qd4

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Etiological Diagnosis of Non-Traumatic Myelopathies: Experience in a Tertiary Health Care Center in Bangladesh

NC KUNDU[a], FA QURAISHI[b], M SEN[c]

Summary:

Background: *The relative frequency of non-traumatic compressive and non-compressive myelopathies and their etiologies have not been evaluated extensively in Bangladesh. This study was aimed to identify the etiological diagnosis of non-traumatic myelopathies.*

Methods: *One hundred cases of non-traumatic myelopathic admitted patients were prospectively studied during 2009-2012 in the neurology ward of Sir Salimullah Medical College and Mitford Hospital, Dhaka, Bangladesh. Patients underwent a detailed clinical evaluation followed by laboratory investigations and neuroimaging studies.*

Results: *Among 100 cases, 46 patients (male 41 and female 5) presented with quadriparesis and 54 patients (male 30 and female 24) presented with paraparesis. Duration of symptoms before presentation to the hospital was considerably higher in quadriparesis compared to paraparesis (230.09 ± 31.16 days VS 136.82 ± 21.77 days; p value = 0.016). There were no significant differences in the number of patients admitted between compressive and non-compressive groups (p value – 0.4035). Common etiologies observed in this study were vertebral disc disease (23%), spinal cord tumor (15%), Pott's disease (15%), acute transverse myelitis (13%) and motor neuron disease (11%).*

Conclusion: *Vertebral disc disease, spinal cord tumors, infection (Pott's disease), post infectious condition (ATM), and neurodegenerative disease (MND) are mostly responsible for myelopathies.*

Keywords: *Non traumatic, Etiology, Paraplegia/ Quadriplegia.*

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Introduction:

The term myelopathy describes pathologic conditions that cause spinal cord, meningeal or perimeningeal space damage or dysfunction. Based on the Sicard and Forstier classification, myelopathies are divided into compressive and non-compressive, in relation to subarachnoid space obstruction. There are cases where the etiology is never identified, and they are classified as idiopathic myelopathy. Compressive diseases of the spinal cord divided into acute and chronic, including degenerative changes, trauma, tumor infiltration, vascular malformations, infections with abscess formation, and syringomyelia. Non-compressive myelopathy encompasses a large range of disease entities ranging from demyelination, infection, nutritional, toxic, and heredo-familial to degenerative conditions. The disease spectrum varies and is somewhat different in Asian countries as compared to western and African countries[1]. Infections and nutritional diseases are common in this part of the world while demyelinating and HIV associated diseases are common in western and African countries respectively. Quadriparesis and paraparesis due to non-traumatic myelopathies are common neurological diseases with high morbidity (up to 79% of patients will definitely remain disabled) and mortality[1-3]. Diseases affecting the spinal cord and complicated by neurological damage are important health problem in Bangladesh as they carry high rates of morbidity and mortality. With the advent of MRI, which is a very sensitive modality of investigation for the intramedullary spinal lesions and availability other investigations, it has become pertinent to have a relook at the profiles of non-traumatic myelopathies as many of the processes affecting the spinal cord may be reversible, if they are recognized and treated early. An increasing understanding of the underlying etiological

a. Dr. Narayan Chandra Kundu. Associate Professor, Neurology, Shaheed Suhrawardy Medical College. Sher-E- Bangla Nagar, Dhaka- 1207.

b. Prof. Firoz Ahmed Quraishi, Professor, Neurology, Anwer Khan Modern Medical College, Dhanmondi- 7, Dhaka.

c. Dr. Moushumi Sen, Associate Professor, Biochemistry, Anwer Khan Modern Medical College, Dhanmondi- 7, Dhaka.

Address of Correspondence: Dr. Narayan Chandra Kundu, Associate Professor, Neurology, Shaheed Suhrawardy Medical College, Sher-E-Bangla Nagar, Dhaka-1207, Mobile: 01711105369.

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factors will be beneficial in managing spinal cord diseases more comprehensively.

Material and Methods:

This cross sectional prospective observational study conducted on one hundred (100) patients with non-traumatic myelopathies admitted in the neurology ward of Sir Salimullah Medical College and Mitford Hospital during the period of 2009-2012. They were examined clinically and followed up by laboratory investigations and neuroimaging studies. Details of onset of illness, antecedent events, progression and symmetry/asymmetry of symptoms and findings of clinical examination were recorded in a structured format. Patients who fulfilled the inclusion and exclusion criteria were enrolled. A diagnosis of myelopathy was arrived at using the diagnosis algorithm.

Patients were classified as having compressive (CM) or non-compressive (NCM) myelopathies based on MRI findings. Routine investigations including complete blood count (CBC) with erythrocyte sedimentation rate (ESR), X–ray chest (CxR) (P/A), urine for routine examination, random blood sugar (RBS), and ultra-sonogram of whole abdomen were done in all patients. MRI of region of interest and extended screening was done whenever it was thought to be logical. Cerebrospinal fluid (CSF) study (routine) was done in selected cases. IgG index and oligoclonal band and serum aquaporin-4 antibodies (AQP4-Ab) were not done due to lack of facilities and economic constrain. Nerve conduction study (NCS and EMG) was done in appropriate case. Estimation of vitamin B12 level, rheumatoid factor, ANF, anti-ds DNA, VDRL (including CSF VDRL) and anti HIV antibody was done wherever suspected. Surface and CT guided fine needle aspiration cytology (FNAC) was done in selected cases. Upper gastrointestinal endoscopy and biopsy was done in cases of vitamin B 12 deficiency. Mantoux test (MT) and Slit Skin Smears (SSS) test were done as additional investigations for presence of Mycobacterium in suspected cases. Bone marrow study and other relevant investigations were done in few cases in consultation with the Hematologist.

Collected data were analyzed by using T-test, Fisher's exact test and considered significant with p value <0.05.

Results:

Age and sex distribution of 100 patients were presented in Table-1. Among 100 patients, 46 patients (male 41 and female 5) had quadriparesis and 54 patients (male 30 and female 24) presented with paraparesis and breakup of etiological diagnosis was showed in Table-2.

Duration of symptoms before presenting to this hospital varied widely and ranged from 1 day to 2 years or more. The mean disease duration before presentation was considerably higher in patients diagnosed with quadriparesis (230.09 days ± 31.16 days) compared to that of paraparesis (136.82 days ± 21.77 days) and the difference was statistically significant ($p< 0.05$) (Table-3). A further analysis showed the duration was significantly higher for quadriparesis compared to that of paraparesis ($p< 0.05$) (Table-4) in non-compressive cases. The mean duration was also higher for quadriparesis in compressive cases; however, the difference was statistically insignificant.

Among the patients with quadriparesis, presence of compressive lesion was higher compared to non-compressive disorder [(58.7% VS 41.3%) (Table-5)] . Similarly, compressive lesions accounted for the majority of paraparesis cases compared to non-compressive disorder (70.4% VS 29.6%). Overall, there were more cases of compressive disorder (Table-2 and Table- 5) which seemed to pose a slightly higher risk (RR=1.22) of being diagnosed with paraparesis, although, the difference was not statistically significant ($p= 0.4035$).

Among the compressive quadriparesis patients, 19 (70.37%) patients were due to cervical disc disease and 3 (11.11%) due to tuberculous disease of the spine. Spinal cord tumors and syringomyelia were responsible in remaining cases. For quadriparesis, the most important non-compressive cause was found to be motor neuron disease (MND) (57.89%) followed by acute transverse myelitis (21.05%). Sub acute combined spinal cord disease (SACD), Devic's disease and hereditary causes were the contributors in the remaining cases (21.10%).

Pott's disease, also known as tuberculous Spondylitis, was the most common [12 (32.43%)] compressive disorder to cause paraparesis. Spinal cord tumors were equally responsible for paraparesis (11/37). Non-Hodgkin's lymphoma came out to be an important cause

for compressive spastic paraparesis [4 (10.81%)]. Similar numbers of cases was due to metastatic spine disease. Disc disease was rather uncommon [4 (10.81%)]. On the other hand, acute transverse myelitis [9 (52.94%)] was the most common non-compressive cause accounted for paraparesis. In 4 (23.53%) patients no definite diagnosis could be reached by conventional investigations.

Interestingly, spinal cord tumors including metastatic spinal cord diseases were significantly higher in paraparesis compared to quadriparesis (15 VS 4) and the difference was statistically significant (Fisher's exact test, $p < 0.05$). On the contrary, vertebral disc disease was more predominant in quadriparesis compared to paraparesis where the difference was very highly significant ($p<0.001$). In addition, both Pott's disease and acute transverse myelitis were more common in paraparesis although the difference was significant only for Pott's disease ($p< 0.5$) (Table-6).

In three cases symptoms and clinical investigation results were suggestive of sub acute combined degeneration of spinal cord (one presented with quadriparesis and two with paraparesis). All three were male and none of them were pure vegetarian.

Rest of the conditions producing non-compressive myelopathies (paraparesis and quadriparesis) formed a small percentage and included 6 cases of hereditary and unclassified upper motor type lesion.

Syringomyelia, epidural abscess and parasagittal lesions were responsible for 3 cases (one for each) of compressive myelopathy.

Table-I

Age and Sex distribution of study population

Sex	Weakness	< 20 yrs.	21-30 yrs.	31-40 yrs.	41-50 yrs.	51-60 yrs.	>60 yrs.
M	Paraparesis	6	8	5	6	4	1
	Quadriparesis	1	6	8	11	11	4
F	Paraparesis	1	3	8	5	6	1
	Quadriparesis	1	2	0	2	0	0

Table-II

Etiological diagnosis of paraparesis and quadriparesis (N-100)

Etiology main group	Etiology subgroup	Paraparesis (N)	Quadriparesis (N)	Total (N)
Compressive	Vertebral disc disease	4 (10.81%)	19 (70.37%)	23
	Spinal cord tumors	11 (29.73%)	4 (14.81%)	15
	Pott's disease	12 (32.43%)	3 (11.11%)	15
	Metastases	4 (10.81%)	0	4
	Non-Hodgkin's Lymphoma	4 (10.81%)	0	4
	Others	2 (5.40%)	1 (3.70%)	3
Subtotal		37 (100%)	27 (100%)	64
Non-compressive	Motor neuron disease (MND)	0	11 (57.89%)	11
	Acute transverse myelitis	9 (52.94%)	4 (21.05%)	13
	No definite cause	4 (23.53%)	2 (10.52%)	6
	Others	4 (23.53%)	2 (10.52%)	6
Subtotal		17 (100%)	19 (100%)	36
Total		54 (100%)	46 (100%)	100

Note:
3 patients of sub acute combined degeneration of spinal cord, one each of syringomyelia, epidural abscess, parasagittal meningioma and anterior two third syndrome (vascular) included in other causes (both compressive and non-compressive).

Table-III

Duration of symptoms before presentation between paraparesis and quadriparesis

Data analyzed	Mean ± SEM (days)	p value
Paraparesis	136.82 ± 21.77	0.0162
Quadriparesis	230.09 ± 31.16	

Note: SEM- Standard error of Mean
t- Test: Two- Sample assuming unequal variance. Difference between paraparesis and quadriparesis is significant (p <0.05)

Table-IV

Duration of symptoms before presentation between compressive and non-compressive group

Etiology	Type of myelopathy		p value
	Paraparesis	Quadriparesis	
Compressive	149.00 ± 28.6 days	215.40 ± 42.9 days	0.204
Non-compressive	110.2 ± 30.10 days	250.90 ± 45.4 days	0.015

t- Test: Two- Sample assuming unequal variance. Difference between paraparesis and quadriparesis is significant (p <0.05)

Table-V

Compressive VS non-compressive causes of myelopathies

Data analyzed	Paraparesis	Quadriparesis	Total	p value
Compressive	37 (70.4%)	27 (58.7%)	64	0.4035
Non-compressive	17 (29.6%)	19 (41.3%)	36	

Fisher's exact test comparing compressive VS non-compressive causes of myelopathies. Significance at p value <.05.

Table-VI

Subgroup analysis of etiological diagnosis in two types of myelopathies (Paraparesis VS Quadriparesis)

Data analyzed	Paraparesis	Quadriparesis	Total	p value	95 % CI
Spinal cord tumors	16	04	20	o.0117	1.225-2.315
Pott's disease	12	03	15	0.468	1.161-2.257
Vertebral disc disease	04	19	23	<0.0001	0.1082-0.662
Acute transverse myelitis	09	04	13	.3717	.8834-2.028

Fisher's exact test comparing subgroup analysis of etiological diagnosis between compressive VS non-compressive causes of myelopathies. Level of significance (p value <.05).

Discussion:

Quadriparesis and paraparesis are conditions with considerable morbidity having tremendous social repercussions. They bring about endless and constant misery to the patients, family and the society.

In this series paraparesis was almost equally prevalent between 20-50 years of age while quadriparesis was more common between 41- 60 years in male population. This may be due to higher prevalence of motor neuron disease in those age groups. On the other

hand, most of the female presented with paraparesis between 31-60 years of age and no clusters were noted for quadriparesis.

Duration of symptoms before presenting to this hospital was different from few days to 2 years or more. The mean disease duration before presentation was considerably higher in patients diagnosed with quadriparesis (230.09 ± 31.16) compared to that of paraparesis (136.82 ± 21.77) and the difference was statistically significant ($p < 0.05$). This is much higher than studies done in some African countries[4,15-16]. The possible reasons are different patients setting and poor disease understanding both on the part of primary care givers and patients.

It is estimated that involvement of the spine occurs in less than 1% of patients with tuberculosis. Tuberculosis was one of the commonest causes of compressive paraparesis in this series and was diagnosed in 12 cases (32.43%) while in quadriparesis it was seen in only in 3 cases (11.11%). In three separate studies reported in Africa in 1995, 1995 and 2011 and one study from India in 2006, tuberculosis was the leading cause of paraparesis accounting for 29.69%, 47%, 44.9% and 33.33% cases respectively [5-8]. However, a study by Zingraff LLA et al in 2010 in Yaounde (Cameroon) reported that only 12.9% cases of myelopathy were due to spinal tuberculosis [9], which is quite a lower incidence that the present series and the mentioned studies. The involvement of lower thoracic spine (T7-T12) was seen in 75% cases while upper thoracic spine in 25% cases. This is just opposite to a study by Chaurasia RN et al where involvement was more in upper thoracic spine [4].

Disc disease was responsible in 70.37% cases to cause quadriparesis and when compared with paraparesis the difference was statistically highly significant ($p<0.001$). It is higher than that observed in a study by Chaurasia RN et al [4], and this higher incidence may be due to manual nature of work of the study population.

ATM is a monophasic illness and represents a localized form of post infectious encephalomyelitis. In this study acute transverse myelitis is more likely to cause paraparesis than quadriparesis [9 (56.94%) cases VS 4 (21.05%) cases] but not statistically significant. Overall incidence of ATM causing quadriparesis and paraparesis was 13% and compatible with the findings of Chaurasia RN et al [4].

Spinal cord tumors including metastases occur more commonly in dorsal spine than in cervical region. Overall number of patients was 19 [19%, 15 and 4 cases for paraparesis and quadriparesis respectively)]. This is in agreement with many studies where its incidence varies from 21-30% of all compression [4, 11-13]. However this was substantially lower when compared with a study done by Zingraff LLA et al [9], where its incidence was about 49% and was the leading cause of compressive myelopathy. In the present study, primary spinal cord tumors were diagnosed in 15 patients while secondary causes comprised of 4 cases.

4 cases of Non-Hodgkin's lymphoma were diagnosed and of which 2 patients were previously treated for Pott's disease.

Full blown clinical picture of vitamin B12 deficiency consists of macrocytic anemia, atrophic glossitis, peripheral and central neurological disorders [14]. In this series 3 cases were diagnosed as SACD of spinal cord. We were not able to do serum methyl malonic acid and serum intrinsic factor antibody. Early suspicion and relevant investigations and early treatment are essential to prevent irreversible damage.

In 6 cases (6%) no definite etiological diagnosis could be reached and leveled as heredo- familial (where possible) and unclassified upper motor lesion. This is due to lack of advance technological support including chromosomal studies.

Conclusion:

Compressive causes are commonly responsible for myelopathy and many of these could be make reversible by early surgical intervention. This study revealed that duration of symptoms is long and this may lead to a non-curable state even after surgery. On the other hand motor neuron disease was also presented late. Awareness of patients and attending doctors are essential for early recognition and treatment. Extension of investigation facilities in divisional level and trained man power are also equally important to handle these groups of patient.

References:

1. Prabhakar S, Syal P, Lal V, Khadelwal N, Das CP. Non-compressive myelopathy: clinical and radiological study. Neurol India 1999; 47: 294

2. Kim RY, Spencer SA, Meredith RF. Extradural spinal cord compression: analysis of factors determining functional prognosis-prospective study. Radiology. 1990; 1762: 279-82.

3. Scrimgeour EM. Non-traumatic paraplegia in northern Tanzania. BMJ 1981; 283: 975-80.

4. Chaurasia RN, Verma A, Joshi D, Misra S. Etiological spectrum of non-traumatic myelopathies: experience from a tertiary care centre. JAPI. 54; 2006: 445-48.

5. Zenebe G. Myelopathies in Ethiopia. East Afr Med J 1995; 72: 42-45.

6. Nyame PK. An etiological survey of paraplegia in Accra. East Afr Med J 1994; 71: 527-30.

7. Zenbe G, Oli K, Tekel-Haimanto R. Paraplegia at the Tikur Anbessa Teaching Hospital: A seven year retrospective study of 164 cases. Ethiop Med J 1995; 33: 7-13.

8. Owolabi LF, Ibrahim A, Samaila AA. Profile and outcome of non-traumatic paraplegia in Kano, northwestern Nigeria. Ann Afr Med 2011; 10: 86-90.

9. Zingraff LLA, kengne AP, Djienteceu Vincent de Paul, Kaute CT, Nijamnshi AK. Patterns of non-traumatic myelopathies in Yaounde (Cameroon): a hospital based study. J Neurol Neurosurg Psychiatry 2010; 81: 768-770.

10. Saleh M, Deeb Al, Basim A. Acute transverse myelitis- A localized form of post-infectious encephalomyelitis. Brain 1997; 7: 1115-22.

11. Mehrotra AN, Khosla SN, Pathak LR. Spinal paraplegias. J Assoc Physicians India 1966; 14: 121-28.

12. Chaudhary KL, Kulpati Bhargava SP, Mittal MM Sharma ML. Etiology of paraplegia. J Assoc Physicians India 1968; 16: 751-58.

13. Mani KS, Punekar BD, Rao J, Nair SD. Etiology of paraplegia. Neurology India 1966; 15: 19-26.

14. Toh BH, Van Driel IR, Glesson PA. Pernicious anemia. N Engl J Med 1997; 337: 144-48.

15. Abraham JL. Assessment and treatment of patients with malignant spinal cord compression. J Support Oncol 2004; 2: 377-401.

16. Chamberlain MC, Kormanik PA. Epidural spinal cord compression. Neuro Oncol 1999. 120-23.

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Minimal Hepatic Encephalopathy is an under Recognized Entity in Clinical Practice of Bangladeshi Physician

MF ABEDIN[a], MJ ABEDIN[b], MA MAHTAB[c], N AHMAD[d]

Abstract:

Background: Minimal Hepatic Encephalopathy, the mildest from of Hepatic Encephalopathy is characterized by subtle motor and cognitive deficits and impairs health related quality of life. Though the prevalence of Minimal Hepatic Encephalopathy in cirrhotic patient is high but awareness regarding MHE is yet not satisfactory. Moreover diagnosis of MHE, the cut off normative value for psychometric test is yet not established in Bangladesh. This is the first study in Bangladesh to find out the normative value for psychometric test and see the prevalence of Minimal Hepatic Encephalopathy in cirrhotic patient.

Methods: Cross sectional study done in Department of Hepatology, BSMMU, Dhaka from July 2012 to June 2014. Total 150 patient of which 50 patient with cirrhosis and remaining 100 healthy individual were included in the study. By doing number connection test, Serial dotting test and line tracing test in healthy individual, first normative values for psychometric test was detected then these test was done on cirrhotic patient, whose 2 psychometric test result among 3 above normal value were enrolled as a case of Minimal Hepatic Encephalopathy. None of the patient previously diagnosed as any type of Hepatic Encephalopathy.

Results: Cut off normative value for NCT, SDT, LTT is 52 seconds, 52 seconds and 84 seconds respectively (Mean+2SD). Prevalence of Minimal Hepatic Encephalopathy in this study was 66% and it is more prevalent in advanced cirrhosis.

Conclusion: MHE is frequent in patient with liver cirrhosis, manifested even in patient with child pugh A liver cirrhosis. Every attention should be given to detect Minimal Hepatic Encephalopathy in patient with cirrhosis of liver well before the development of overt Hepatic Encephalopathy.

Key Word: Number connection test (NCT), Serial dotting test (SDT), line tracing test (LTT).

Abbreviation Used: MHE: Minimal Hepatic Encephalopathy, HE: Hepatic Encephalopathy EEG: Electroencephalography, CP: Child Pugh, LFT: Liver function test.

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Background

Hepatic Encephalopathy (HE) is a neuropsychiatric syndrome in patients with liver disease and/or portosystemic shunting, which symptoms may vary from subtle memory or attention deficits to deep coma[1]. The aetiology of HE is a diminished hepatic clearance of toxins of intestinal origin in case of liver insufficiency and/or by the hepatic bypassing of these toxins in case of portosystemic shunting1. These toxins thus bypass the liver and enters the systemic circulation, causing the primary and secondary changes in brain neurochemistry that produce symptoms of hepatic encephalopathy. This metabolic disorder is characterized by reversibility, which suggest a lack of persistent structural lesion in the brain[1]. HE may therefore not only occur in patients with acute as well as chronic liver disease but also in patients with a portosystemic shunt without liver disease. These different aetiological aspects of HE are reflected in a recently proposed nomenclature that divides this neuropsychiatric syndrome into types A (associated with acute liver failure), B (associated with portosystemic shunting or bypass) and C (associated with liver cirrhosis)[2].

Minimal Hepatic Encephalopathy, the mildest form of hepatic encephalopathy is characterized by subtle

a. Dr. Md. Forhad Abedin, MBBS, FCPS(Int.Med), MD (hepatology), Resident Physician, Comilla Medical College Hospital, Comilla, Bangladesh

b. Dr. Md. Joynal Abedin, MBBS, BCS (Health), Assistant Registrar, Department of Medicine, Dinajpur Medical College Hospital, Dinajpur, Bangladesh.

c. Dr. Mamun Al Mahtab, Associate Professor, Department of Hepatology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.

d. Prof. Nooruddin Ahmad, Professor, Department of Hepatology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh.

Address of Correspondence: Dr. Mohammed Forhad Abedin, MBBS, FCPS(Medicine), MD(hepatology), Resident Physician,Comilla Medical College Hospital, Comilla, Bangladesh. Contacts: Email:-fabedin75@gmail.com. Mobile:+8801716741473

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motor and cognitive deficits and impairs health related quality of life[3]. This group of patient has normal mental and neurological status on standard clinical examination but exhibit a number of neuropsychiatric and neurophysiological defects[4].

According to the recommendation of world congress of Gastroenterology, minimal hepatic encephalopathy is a better term because the word subclinical may be mistaken as signifying lack of clinical importance[2]. Minimal hepatic encephalopathy is present in 25% to 80% of cirrhotic patient without overt hepatic encephalopathy[5]. Although named "minimal", minimal hepatic encephalopathy can have a far reaching impact on quality of life and progression to overt hepatic encephalopathy[6].

Cirrhotic patients with MHE more frequently develop episodes of overt HE than those without MHE[4]. Though the prevalence of minimal hepatic encephalopathy in cirrhotic patient is high but awareness regarding minimal hepatic encephalopathy is yet not satisfactory. This study is an attempt to evaluate the minimal hepatic encephalopathy in patient with cirrhosis of liver in an university hospital of Bangladesh.

Methodology:

It was a cross sectional, case control study done in Department of Hepatology, BSMMU, Dhaka from July 2012 to June 2014. Patient were selected by non probability convenience sampling from outpatient and inpatient department of hepatology, BSMMU, Dhaka. Total 150 patient of which 50 patient with cirrhosis as cases and remaining 100 healthy individual as controlled were included in the study. Cases were included having age greater than 20 years and less than 60 years, diagnosed to have cirrhosis of liver by history, clinical examination, laboratory findings and ultrasonography, not on medications causing cognitive defects like benzodiazepines and having normal mental status on clinical examination. Those patients were excluded who had overt hepatic encephalopathy, other psychiatric and neurological disease causing cognitive dysfunction, difficulties in performing psychometric tests such as those with bad vision, taking hepatotoxic drugs and patient with primary neoplasm and secondaries in liver recognized by Ultrasonography.

Control group were taken from age range between 20 to 60 years, capable of reading and writing, non alcoholics, do not have documented evidence of acute or chronic liver disease and not on medication causing cognitive defects like benzodiazepines. Prior to the commencement of the study, the research protocol was approved by the ethical institutional review board of BSMMU, Dhaka. The aims and objectives of the study along with its procedure, risk and benefits of the study was explained to the patient in easily understandable local language. Then informed consent was taken from each patient. Neuropsychological test was done firstly in control group. Hundred healthy people were selected according to inclusion criteria for control group. Then 3 psychometric test (number connection test, serial dotting test, line tracing test) was done on control group. Before doing the test, they were demonstrated about psychometric test. Paper & ball point pen was given to the person who was tested & observer was ready with stopwatch. When observer called start, person started the test. If there is any wrong by the person, observer corrected the procedure. Number needed to correct was not documented, but time taken by person was written in procedure sheet by the observer. These data was analyzed by SPSS 20 and from that calculation of normal cut off value for three psychometric test (by mean+2SD)was done. Then the psychometric test was done on cases for the diagnosis of minimal hepatic encephalopathy. Cirrhotic patient who were positive for two psychometric test among three, were enrolled as a case of minimal hepatic encephalopathy.

Results:

Among one hundred and fifty patient, 50 patients were diagnosed as a case of cirrhosis of liver by standard clinical biochemical and radiological examination and remaining100 patients were taken as control for the neuropsychiatric test. None of the patient had evidence of neurological and/or psychiatric abnormalities on global clinical examination. The demographic and clinical characteristics of the patient are summarized in table-I.

The case group comprise of 50 patient with mean age of 41.36 years, minimum age of 20 years and maximum of 60 years. In the control group of 100 cases the mean age was 27.65 years, minimum age of 20 years and ,maximum of 60 years. Among 50 cases, 35 were diagnosed by hepatologist 10 cases were

diagnosed by gastroenterologist and 5 by internal medicine specialist and other specialist. None of those cases were tasted for minimal hepatic encephalopathy by any psychometric tests before as shown in table-II.

In the control group of 100 cases the mean value for number connection test was 34.85±9.07, mean value for serial dotting test was 40.38±6.8seconds,mean value for line tracing test was 54.43±15.59 seconds. So normal cut off value for three psychometric test (by mean+2SD) was 52 seconds for Number Connection Test, 52 seconds for Serial Dotting Test and 84 seconds for Line Tracing Test. Values of three psychometric test among case and control with their p values are shown in table-III

In fifty cases mean value of number connection test was 75 seconds when compared to control it was 34 seconds. Among the cases 39(78%) patient scored above the cut off point of controls which was statistically significant

Table-I

Characteristics of the studied patients

Patient(n=50)	
Mean age, years(Range)	41.36±10.43(20-60)
Gender (Male/Female)	44/6
Inpatient /Out patient	22/28
Etiology of cirrhosis	
HBV	41
HCV	4
Cryptogenic	4
Alcoholic	1
Child Pugh Class (A/B/C)	16/24/10
Esophageal Varices (Grade 1/2/3)	16/17/13
Blood Amonia Level (µmol/L)	44.32±23.17

Table-II

Number of cases seen by specialists and their previous psychometric analysis status

Specialist	number of cases	previous psychometric test
Hepatologist	35	Not done
Gastroenterologist	10	Not done
Internal Medicine Specialist and other	5	Not done

Table-III

Values of three psychometric test among case and control with their p value

Test	Group	N(n)	Mean (Seconds)	SD	Cut off value (Mean+2SD) Seconds	P value
Number Connection Test	Control	100	34	9	52	
	Case(n)	50	75	25		<0.001
Serial Dotting Test	Control	100	40	6	52	
	Case(n)	50	71	21		<0.001
Line Tracing Test	Control	100	54	15	84	
	Case(n)	50	96	29		<0.001

with a p value <0.001. The mean value of SDT was 71 seconds when compared to control it was 40 seconds. Among the cases 36 (72%) patient scored above the cut off value of control which was statistically significant with a p value <0.001. Mean value of line tracing test was 96 seconds when compared to control it was 54 seconds. Among the cases 31(62%) scored above the cut off point of control which was statistically significant with a p value <0.001.

Among 50 cases, 33 scored beyond the cut off point of at least 2 psychometric test. So in this study the prevalence of minimal hepatic encephalopathy is about 66%. Frequency of psychometric test result among cases shown in figure-I. Prevalence of minimal hepatic encephalopathy increase in advanced cirrhosis. It is about 72.72% in Child Pugh B & C. Whereas in Child Pugh A it is 27% .It is shown in figure-II.

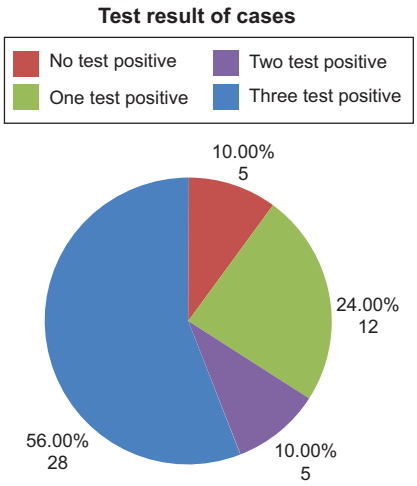

Fig.-1: *Frequency of psychometric test result among cases.*

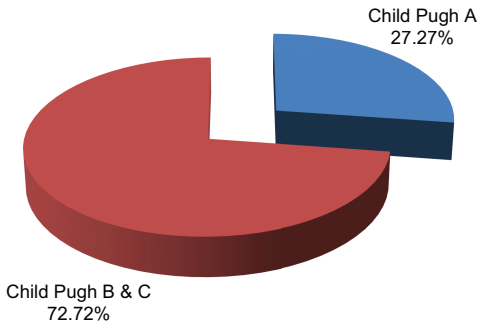

Fig.-2: *prevalence of Minimal Hepatic Encephalopathy in different Child Pugh Classes.*

Discussion:

The diagnosis of minimal hepatic encephalopathy is based on a careful neuropsychiatric evaluation. No single test is diagnostic for minimal hepatic encephalopathy. A standardized test battery including NCT A & B, The Line Tracing Test, Serial Dotting Test and the Digit Symbol Test is recommended.

However in one study it is shown that diagnosis of minimal hepatic encephalopathy can be done 96% sensitivity and 100% specificity[7], if at least 2 of the above mentioned test is beyond their cut off value . The sensitivity of the EEG and blood Ammonia level for the diagnosis of MHE is limited. In our study we have assessed 50 cases of cirrhosis patient by using Number Connection Test, Serial Dotting Test and Line Tracing Test. We also established a cut off value for this test by doing the test in 100 healthy individuals.

The mean age in the present study was 41.36 years for case group and 27.56 years for the control groups. The majority of our patient were males. They constitute for about 88% and 86% in cases and control group respectively. However in the previous study done by quero and others[8] the mean age was 49 years with range from 27 to 77 years. Mean age in the study of 179 patients by Groenweg and his colleague[9] was 50 years with 113 males and 66 females.

Prevalence of minimal hepatic encephalopathy among cirrhotic patient ranges from 20% to 84 % [4]. In our study the prevalence of minimal hepatic encephalopathy is 66% which is concordant with previous studies [8]. Some author consider it as an epidemic pathology[10]. This wide range in minimal hepatic encephalopathy prevalence is because of difference in definition, lack of standardized diagnostic criteria, difference in diagnostic method, the clinico pathological co morbid spectrum and socio demographic variables.

Like many other factors advanced liver disease is also responsible for the increase prevalence of minimal hepatic encephalopathy. In different study it was shown that prevalence of minimal hepatic encephalopathy is less than 15% in Child Pugh A class and it is more than 50% in Child Pugh B//C class[11]. In our study prevalence MHE in Child Pugh A class is 27% and it was about 72% in Child Pugh B & C which is concordant with other studies.

MHE may affect multiple aspect of brain function such as perception, memory, attention, mental speed[12] etc. Neuropsychological test (NCT, SDT, LTT) designed to recognize those brain dysfunction[13]. Normal Cut off point of this paper pencil test obtained first from healthy control. There are available normal cut off value for German Italian and Spanish population which is significantly different from each other[14]. So it is utmost important to set a normal cut off value of those psychometric test before using it as tools for diagnosis of minimal hepatic encephalopathy in our context. In this study normal value for Number Connection Test up to 52 seconds, Serial Dotting Test is up to 52 seconds and Line Tracing Test is up to 84 seconds.

Conclusion

Minimal Hepatic Encephalopathy is frequent in patient with liver cirrhosis manifested even in patient with Child A liver function. Its severity increase as liver function deteriorates, being most severe with Child C liver function. The wide prevalence of minimal hepatic encephalopathy is likely to impact adversely on the quality of life of cirrhotic patient. So every attention should be given to detect Minimal Hepatic Encephalopathy in patient with cirrhosis of liver who yet not manifested as a case of overt hepatic encephalopathy.

Conflict of Interest

The authors have none to declare

References:

1 Souheil A Z et al. Metabolic consequences of cirrhosis often is reversible. Post graduate Medicine 2001;109(2):521-6.

2 Ferenci P et al. Hepatic encephalopathy –definition , nomenclature, diagnosis and quantification: final report of the working party at the 11th world congress of Gastroenterology, Vienna, 1998, Hepatology. 2002 Mar;35(3):716-21

3 Das A et al. Prevalence and natural history of subclinical hepatic encephalopathy in cirrhosis. J Gastroenterol hepatol 2001; 16:531-35.

4 Praveen Sharma Minimal hepatic encephalopathy JAPI November 20009-Vol -57.

5 Dhiman et al. figure connection test : A universal test for assessment of mental state. J Gastroenterol Hepatol 10:14-23,1995.

6 Hartman I J et al. the prognostic significance of subclinical hepatic encephalopathy. Am J Gastroenterol 2000; 95:2029-34.

7 Luis Eduardo, Zamora Nava, Aldo Torre Delgadillo. Minimal hepatic encephalopathy. Annals of Hepatology 2001;10 suppl 2:50-55.

8 Quero J C et al, The diagnosis of subclinical hepatic encephalopathy in patient with cirrhosis using neuropsychological test and automated electro-encephalogram analusis. Hepatology 1996;24:556-60.

9 Groeneweg et al. Screening of Subclinical hepatic encephalopathy. J heaptol 2000; 32: 748-753

10 Bajaj J et al. Minimal hepatic encephalopathy matters in daily life. World J Gastroenterol 2008;14:3609–15.

11 Kircheis G et al. Critical Flicker frequency for quantification of low grade hepatic encephalopathy. Hepatology 2002; 35: 357-66.

12 Cordoba J, Cabrera J, Lataif L, Penev P, Zee P, Blei AT. High prevalence of sleep disturbance in cirrhosis. Hepatology 1998;27:339–345.

13 Weissenborn K, Ennen JC, Ru ¨ckert N, Hecker H. Neuropsychological characterization of hepatic encephalopathy. J Hepatol 2001;34: 768–773.

14 Randolph et al. Neuropsychological assessment of hepatic encephalopathy: ISHEN practice guidelines. Liver International 2009;29(5):629-35.

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Comparison of Growth in Children with Cyanotic and Acyanotic Congenital Heart Disease in a Tertiary Care Hospital

F CHOWDHURY[a], M HOQUE[b], M M ALI[c], M A HOSSAIN[d]

Summary:

Background: *Congenital heart disease (CHD) is the commonest of all congenital lesions and is the most common type of heart diseases among children. Anthropometric evaluation is very important for early recognition of growth failure in children with cyanotic and acyanotic congenital heart diseases.*

Methods: *This comparative cross sectional study was undertaken with the objective to compare the growth of children with cyanotic and acyanotic congenital heart disease using anthropometric measurement in Department of Paediatrics, Sylhet MAG Osmani Medical College Hospital from March, 2014 to September, 2014. Sixty children aged 6 months to 60 months with CHD, were included in this study, where 30 children with cyanotic and 30 children with acyanotic CHD, confirmed by Echocardiogram.*

Results: *All the children (100%) with cyanotic congenital heart disease were underweight (Weight for age Z score). Among them, 23.33% had moderate and 76.67% had severe underweight. In children with acyanotic congenital heart disease, 93.33% had underweight. Among them, 20% had moderate and 73.33% had severe underweight. The p-value was 0.35008. In cyanotic congenital heart disease, 96.67% children had stunting. Among them, 13.33% had moderate and 83.33% had severe stunting. In acyanotic congenital heart disease, 43.33% children had stunting. Among them, 33.33% had moderate and 10% had severe stunting. There was significant statistical deference in between the two groups, (p-value was <0.0001). In cyanotic congenital heart disease, 43.33% children had wasting. Among them, 30% had moderate and 13.33% had severe wasting. In acyanotic congenital heart disease, 76.67% children had wasting. Among them, 30% had moderate and 46.67% had severe wasting. There was significant deference in the groups (p value was 0.0077).*

Conclusion: *Growth failure was common in children with both cyanotic and acyanotic congenital heart disease. There was no significant difference in weight for age Z score (WAZ) of patients with cyanotic and acyanotic CHD but stunting was significantly higher in patients with cyanotic CHD and wasting was significantly higher in patients with acyanotic CHD.*

Key words: *Congenital heart disease (CHD), cyanotic congenital heart disease, acyanotic congenital heart disease, TOF (Tetralogy of Fallot), VSD (Ventricular septal defect), underweight, stunting, wasting, WAZ (Weight for Age Z score).*

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Introduction:

Congenital heart diseases (CHD) are structural problems that arise from abnormal formation of the heart or major blood vessels.[1] It is the commonest of all congenital lesions and is the most common type of heart diseases among children.[2] The incidence of congenital heart disease is approximately 8 per 1000 live birth with a higher rate in stillbirth, spontaneous abortion and prematurity. And this incidence has remained constant worldwide.[3] A hospital based study in a tertiary care hospital of Bangladesh found the incidence of CHD was 25/1000 live births, that was higher in preterms as compared to full term.[4]

Growth retardation is a common health problem associated with congenital heart disease in children. Even children born with an appropriate birth weight for gestational age soon fall off their birth percentiles for weight and or/ height.[5] Risk factors for poor growth in CHD are multifactorial and may include the increased metabolic demands of congestive heart failure,

a. Dr. Fahmida Chowdhury, Registrar, Department of Paediatrics, Sylhet M A G Osmani Medical College, Sylhet
b. Dr. Mujibul Hoque, Department of Paediatrics, Sylhet M A G Osmani Medical College, Sylhet
c. Prof. Dr. Md. Manajjir Ali, Professor and Head, Department of Paediatrics, Sylhet M A G Osmani Medical College, Sylhet
d. Dr. Md. Anisul Hossain, Medical Officer, Goawainghat Upazila Health Complex, Gowainghat, Sylhet.

Address of Correspondence: Dr. Fahmida Chowdhury, Registrar, Department of Paediatrics, Sylhet M A G Osmani Medical College, Sylhet, 1st floor, Shuvechcha-67, Housing Estate, Ambar khana, Sylhet. Mobile no.01717497104, e-mail: hi_fahmida@yahoo.com

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insufficient nutrient intake, the physiologic impact of the primary cardiac defect, and associated genetic and non cardiac disease.[6] It is important to keep this in mind as at present most of the CHD can be corrected if diagnosed early and timely intervention is provided. This will result in normalization of their growth early due to decreased caloric requirement, better absorption, reduction in lower respiratory tract infections, etc.[7] In developing country, prevalence of pre-operative growth delay in children with CHD was up to 45 %.[8] Infants with CHD and growth impairment typically show caloric deprivation and a reduction in adipose stores[9]. Anthropometric evaluations are very important for early identification of the patients with high risk for malnutrition. For this reason, it is necessary to measure at least weight and height of the newly hospitalized patients, and to calculate the required anthropometric values.[10] The growth patterns of children with cyanotic and acyanotic congenital heart diseases are not well documented to us due to lack of adequate study. There are some studies in other countries but to the best of our knowledge, no such data about growth patterns of children with cyanotic and acyanotic congenital heart diseases are available in our country. This study was done to report and compare the growth patterns of patients with cyanotic and acyanotic congenital heart diseases.

Materials and Methods:

This comparative cross sectional study was done at department of Paediatrics, Sylhet M A G Osmani Medical College Hospital, (SOMCH), Sylhet during March 2014 to September 2014 on all patients with Echocardiographically proven cyanotic and acyanotic congenital heart disease aged 6 to 60 months, who admitted into Department of Paediatrics and satisfied the inclusion & exclusion criteria. Children with any chronic illness (i.e. TB, malabsorption syndrome, etc.), children with other congenital anomalies, seriously ill child and unwillingness to participate in the study were excluded. Each patient interviewed after taking informed consent from the parents about the purpose of the study. Detailed history was taken meticulously by using structured questionnaire and was assessed thoroughly by using clinical variables. Chest X-ray and echocardiography were done. After enrollment, weight of each case was measured in empty stomach at morning by Beam scale, Hanging scale and Stadiometer according to the age, in metric system. If age of cases were <2 years, then length was measured by Infantometer and if age was >2 years, height was measured by Stadiometer in metric system. Then weight and length/height was plotted in WHO growth chart and growth pattern assessed by using Z score of weight for age, length/height for age and weight for length/height and comparison of growth pattern between the children of cyanotic and acyanotic congenital heart disease was done. Collected data were checked and coded manually and analyzed using computer based software, SPSS version 21.

Results:

Mean age (± standard deviation) of patients with cyanotic CHD was 28.88 (±15.12) and acyanotic CHD was 24.41(±14.91) months. The p-value was 0.4823, which was not significant in between groups. In cyanotic CHD, 66.67% patients were male and 33.33% patients were female whereas 53.33% patients of acyanotic CHD were male and 47.67% patients were female. The p-value was 0.2918, which was not significant in between the two groups. Most of the patients of cyanotic and acyanotic CHD belonged to middle class socioeconomic status with p value 0.5979, which was also not significant in between the two groups (Table I).

Commonest type of cyanotic congenital heart disease was TOF (63.33%) and then TGA (13.33%) and TAPVC (13.33%) (Table II). Commonest type of acyanotic congenital heart disease was VSD (53.33%) and then PDA (20%) (Table III). In cyanotic congenital heart disease 100% children had underweight. Among them, 23.33% had moderate and 76.67% had severe underweight. In acyanotic CHD, 93.33% children had underweight, where 20% had moderate and 73.33% had severe underweight. The p-value was 0.35008, which showed no significant differences in between the groups (Table IV). In cyanotic congenital heart disease, 96.66% children had stunting. Among them, 13.33% had moderate and 83.33% had severe stunting. In acyanotic congenital heart disease 43.33% children had stunting. Among them, 33.33% had moderate and 10% had severe stunting. The p-value was <0.0001, which was highly significant in between the groups (Table V). In cyanotic congenital heart disease, 43.33% children had wasting. Among them, 30% had moderate and 13.33% had severe wasting. In acyanotic CHD, 76.67% children had wasting, among them, 30% had moderate and 46.67% had severe wasting. The p-value was 0.0077, which was highly significant in between the groups (Table VI).

Table-I

Baseline characteristics

Baseline characteristics	Cyanotic CHD	Acyanotic CHD	Significance(p value)
Mean Age ± SD	28.88±15.12	24.41±14.91	0.4823
Sex	0.2918		
Male	20 (66.67%)	16 (53.33%)	
Female	10 (33.33%)	14(47.67%)	
Socioeconomic status	0.5979		
Poor	12(40%)	13(43.34%)	
Middle class	18(60%)	17(56.76%)	

*chi-square test was done

Table-II

Distribution according to type of Cyanotic CHD

Type of Cyanotic CHD	Frequency	Percent
TOF	19	63.33
TGA	4	13.33
TAPVC	4	13.33
TA	3	10
Total	30	100

Table-III

Distribution according to type of Acyanotic CHD

Type of Acyanotic CHD	Frequency	Percent
VSD	16	53.33
PDA	6	20
ASD	4	13.33
TR	1	3.33
CoA	1	3.33
PS	1	3.33
AS	1	3.33
Total	30	100

Table-IV

WAZ (Weight for age Z score) of CHD patients

WAZ	Cyanotic CHD (n=30)		Acyanotic CHD (n=30)		Significance (p value)
	Frequency	Percent	Frequency	Percent	
Well Nourished (+2 to -2)	0	0	2	6.67	0.35008
Moderate Underweight (-2 to-3)	7	23.33	6	20	
Severe Underweight (<-3)	23	76.67	22	73.33	
Total	30	100	30	100	

*chi-square test was done

Table-V

HAZ (Height/Length for age Z score) of CHD patients

HAZ	Cyanotic CHD (n=30)		Acyanotic CHD (n=30)		Significance (p value)
	Frequency	Percent	Frequency	Percent	
Well Nourished (+2 to -2)	1	3.33	17	56.67	<0.0001
Moderate Stunting (-2 to -3)	4	13.33	10	33.33	
Severe Stunting (<-3)	25	83.33	3	10	
Total	30	100	30	100	

*chi-square test was done

Table-VI

WHZ (Weight for Height/Length Z score) of CHD patients

Wasting (WHZ)	Cyanotic CHD (n=30)		Acyanotic CHD (n=30)		Significance (p value)
	Frequency	Percent	Frequency	Percent	
Well nourished (+2 to -2)	17	56.67	7	23.33	0.0077
Moderate wasting (-2 to -3)	9	30	9	30	
Severe wasting (<-3)	4	13.33	14	46.67	
Total	30	100	30	100	

*chi-square test was done

Discussion:

Most of the patients with cyanotic and acyanotic CHD belonged to 13-36 months age group. Hoque et al[11] found in their study most of the CHD patient's age group was 29 days to 12 months. Varan et al[7] found mean age of patients with cyanotic CHD was 17.9 months and 27.4 months in patients with acyanotic CHD. These finding are consistent with present study.

In the current study, 20 (66.67%) patients of cyanotic CHD were male and 10 (33.33%) patients were female and 16 (53.33%) patients of acyanotic CHD were male; whereas 14 (47.67%) patients were female. Overall male female ratio of CHD was 1.5:1. This finding was similar with Sharmin et al,[4] Ibrahim et al,[12] and Hoque et al,[11] where male female ratio was 1.3:1,1.2:1 and 1.7:1 respectively.

In the present study, the commonest type of cyanotic congenital heart disease was tetralogy of Fallot (63.33%), on the other hand; ventricular septal defect (53.33%) was the commonest among acyanotic congenital heart disease. This correlated with studies of Hussain et al, [13] Mollah et al [14] and Hoque et al.[11] But this differs from Rahman et al,[15] and Begum et al.[16] They found atrial septal defect as the commonest acyanotic lesion. This difference in observation might be due to including many adult patients by Rahman et al[15] and only preterm babies by Begum et al[16] in their studies.

In this study, 100% children with cyanotic congenital heart disease had underweight (Weight for age). Among them, 23.33% had moderate (-2 to -3 Z) and 76.67% had severe (<-3 Z) underweight. In acyanotic congenital heart disease, 93.33% children had underweight. Among them, 20% had moderate and 73.33% had severe underweight. These results showed no significant differences in between the two groups. Zaman et al[17] showed 87% had underweight in cyanotic lesion, whereas 42.42% children had moderate and

18.18% children had severe underweight. In acyanotic lesion, they found in his study 89% children had underweight, among them 55.22% children had moderate and 23.88% children had severe underweight, which also showed no significant differences in between the two groups. This result correlated with the current study. Carrie et al[6] also found results consistent with the present study. But Varan et al[7] found 23% children with cyanotic congenital heart disease had underweight, among them, 13% had moderate and 10% had severe underweight. They found 31% children with acyanotic congenital heart disease had underweight, among them, 25% had moderate and 6% had severe underweight and there were no significant differences between cyanotic and acyanotic groups. But overall their study found fewer children had underweight which might be due to regional variation.

The current study showed, 96.67% children with cyanotic congenital heart disease had stunting (length/height for age). Among them, 13.33% had moderate (-2 to -3 Z) and 83.33% had severe (<-3 Z) stunting. In acyanotic congenital heart disease, 43.33% children had stunting, whereas, 33.33% had moderate and 10% had severe stunting. This result showed highly significant difference in between the two groups, i.e., cyanotic group was significantly stunted than acyanotic group. These results were consistent with the study of Sjarif et al[18] and Carrie et al.[6] Sjarif et al[18] found 90% children with cyanotic congenital heart disease had stunting. Among them, 54.5% had moderate and 36.4% had severe stunting. In acyanotic congenital heart disease, they found 79.4% children had stunting, whereas, 49.3% had moderate and 30.1% had severe stunting. But Zaman found 66.66% children had stunting in cyanotic lesion and 62.68% had stunting in acyanotic lesion.[17] That study found, 30.3% children with cyanotic congenital heart disease had moderate stunting and 36.36% had severe stunting and in acyanotic congenital heart disease, 23.88% children had moderate stunting and 38.8% had severe stunting, which showed no significant difference in between cyanotic and acyanotic groups.[17] The exact cause of stunting in cyanotic congenital heart disease is not well explained yet. This may be due to fact that chronic cyanosis causes chronic malnutrition.

The present study showed, 43.33% children with cyanotic congenital heart disease had wasting (Weight for length/height). Among them, 30% had moderate (-2 to -3 Z) and 13.33% had severe (<-3 Z) wasting. Whereas, 76.67% children with acyanotic congenital heart disease had wasting. Among them, 30% had moderate and 46.67% had severe wasting. This result showed highly significant difference in between two groups, i.e., acyanotic group was significantly wasted than cyanotic group. Sjarif et al[18] and Carrie et al[6] showed almost similar finding regard this. Sjarif et al[18] found 63.6% children with cyanotic congenital heart disease had wasting. Among them, 40.9% had moderate and 22.7% had severe wasting. In acyanotic congenital heart disease, they found 76.4% children had wasting, whereas, 54.2% had moderate and 22.2% had severe wasting. But Zaman found 33.33% children had wasting in cyanotic lesion and 43% had wasting in acyanotic lesion. Where, 18.18% children with cyanotic congenital heart disease had moderate wasting and 15.15% had severe wasting and in acyanotic congenital heart disease, 20% children had moderate wasting and 23% had severe wasting, which showed no significant difference in between the two groups.[17] The cuases of wasting in acyanotic congenital heart disease is also not clear. Some complications of acyanotic congenital heart diseases may cause acute malnutrition which may manifest as wasting.

Conclusions:

Growth failure was common in children with both cyanotic and acyanotic congenital heart disease. There was no significant difference in WAZ of patients with cyanotic and acyanotic CHD but stunting was significantly higher in patients with cyanotic CHD and wasting was significantly higher in patients with acyanotic CHD. Early recognition and intervention of growth failure can prevent the process of stunting of cyanotic CHD and wasting of acyanotic CHD.

References:

1. American Heart Association. Statistical Fact Sheet 2013. Update. Congenital Cardiovascular Defects. Available at: (www.heart.org), access on 2014 September 05.
2. Schoen FJ, Mitchell RN. The Heart. In: Cortan RS, Kumar V, Robins SL, editors. Robins and Cortans Pathologic Basis of Disease. 8th ed. London: Saunders Elsevier; 2010. p.308-10.
3. Bernier PL, Stefanescu A, Samoukovic G, Tchervenkov CI. The challenge of congenital heart disease worldwide: epidemiologic and demographic facts. Semin Thorac Cardiovasc Surg Pediatr Card Surg Annu 2010;13: 26–34.

4. Sharmin LS, Haque MA, Bari MI, Ali MA. Pattern and Clinical Profile of Congenital Heart Disease in A Teaching Hospital. TAJ 2008; 21(2): 58-62.

5. Staebel OD. Malnutrition in Belgian Children with Congenital Heart Disease on admission to Hospital. J Clin Nurs 2000; 9: 784-91.

6. Carrie D, Ashley N, Aaron P, Meryl S. Growth in Children with Congenital Heart Disease. Pediatrics 2013; 131(1): 236-42.

7. Varan B, Tokel K, Yilmaz G. Malnutrition and growth failure in cyanotic and acyanotic congenital heart disease with and without pulmonary hypertension. Arch Dis Child 1999; 81 (1): 49-52.

8. Vaidyanathan B, Roth SJ, Rao SG, Gauvreau K,hivaprakashi K, Kumar RK. Outcome of ventricular septal defect repair in a developing country. J Pediatr 2002; 140: 736-41.

9. Krieger I. Growth Failure and Congenital Heart Disease. Energy and Nitrogen balance in Infants. Am J Dis Child. 1970;120(6): 497-502.

10. Ferreira HS, Franca AOS. Evolution of nutritional status in hospitalized children. Journal de Pediatra 2002; 78:491-6.

11. Hoque M, Hussain MM, Ahmed ATR, Uddin MS. Pattern of Congenital Heart Disease in Children Admitted into Tertiary Care Hospitals of Sylhet : A Multicenter Study. Bangladesh J Child Health 2014; 38 (1): 15-8.

12. Ibrahim S A, Abdelrahman M H, Elshazali O H. Pattern and Diagnosis of Congenital Heart Disease in Patients attending Ahmed Gasim Cardiac Centre. Sudan JMS.2012;7(4):249-54.

13. Hussain M, Hossain M, Amin SK, Molla MR. Pattern of congenital heart disease in Dhaka Shishu Hospital. D S (Child) H J 1992; 8:35-46.

14. Mollah MAH, Begum NA, Islam MN, Mahmud RS, Haq MA, Nahar N, Rashid MA. Clinical profile of congenital heart disease (CHD): An Analysis of 218 Cases. Bangladesh heart J 2002; 17: 62-7.

15. Rahman S, Ahmed MN, Rahmatullah KHI, Alam MS. The Incidence of Congenital Heart Diseases Diagnosed by Non-Invasive Technique- Ten Years Study in Bangladesh. D S (Child) H J 1992; 8: 5-15.

16. Begum NNF, Ahmed QS. Pattern of Heart disease among neonates and their outcome: one year experience in non-invasive cardiac laboratory of Combined Military Hospital, Dhaka. Bangladesh J child health 2001; 25: 48-52.

17. Zaman WM. A study on nutritional status of children with congenital heart disease using anthropometric measurement [Dissertation]. Dhaka: BCPS; 2011.

18. Sjarif SL, Damayanti R, Anggriawan ST, Putra MM. Anthropometric profiles of children with congenital heart disease. Med J Indones 2011; 20:40-5.

REVIEW ARTICLE

Helicobacter Pylori Infection And Gastric Cancer: Is It Our National Problem?

MM RAHMAN[a], S ALAM[b], AMK IQBAL[c], MM HOSSAIN[d], AMK SARKER[e], M ISLAM[f]

Summary:

Gastric cancer is a leading cause of cancer death worldwide. In Bangladesh it ranks a leading position among the cancers patients. A large body of evidence supports a causal role of Helicobacter pylori in the majority of gastric malignancies. Scientists throughout the world explored and reached to the understanding about the pathogenesis of their relationship, but much remains to be learned. Moreover, because of the high prevalence of infection, the lack of definitive trials, and the challenges of H. pylori treatment, there remains a debate regarding the consensus on the role of routine screening and treatment of this infection to prevent cancer. This article reviews the current knowledge on H. pylori and its role for gastric cancer, present status of Bangladesh and a recommendation for reduction of the infectivity among the common population.

Key words: H pylori, Infection, Gastric cancer.

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Introduction:

Despite many preventive measures and screening steps in many parts of the world, gastric Cancer(GC) is still now a leading cause of cancer-related mortality , causing 9.7% of all cancer-related deaths around the world.[1]Almost one million new cases of stomach cancer were estimated to have occurred in 2012 (952,000 cases, 6.8% of the total), making it the fifth most common malignancy in the world, after cancers of the lung, breast, colorectum and prostate.[2] More than 70% of cases (677,000 cases) occur in developing countries (456,000 in men, 221,000 in women), and half the worlds' total occurs in Eastern Asia (mainly in China.[2] Though Bangladesh is lacking a population based statistics or national cancer registry for cancers, there are very few hospital based statistics. According to the reports from the national guideline on gastric cancer management it is ranking as the fifth most common cancer and third most common among the males. From the unpublished data across the country from different medical institutions it has been estimated that GC possesses second position after lung cancer in males.[3]

Helicobacter pylori (H pylori) infection is also considered to be the main risk factor of gastric cancer development among all the environmental factors, namely gastric carcinoma and gastric mucosa-associated lymphoid tissue lymphoma.[4] This paper reviews the characteristics of H. pylori and the consequences of the infection linking with gastric cancer, its status in Bangladeshi patients and rationality of making a national programme for eradication of H. pylori in the community.

Stomach cancer and its epidemiology

Stomach cancer prevails about twice as high in men as in women and vary widely across countries. In general, incidence rates are highest in Eastern Asia (particularly in Korea, Mongolia, Japan, and China), Central and Eastern Europe, and South America and lowest in Northern America and most parts of Africa. Regional variations in part reflect differences in dietary patterns, food storage, and the availability of fresh produce, as well as the prevalence of Helicobacter pylori infection. Chronic infection with H. pylori is the strongest

a. Prof. M Mizanur Rahman, Former Professor Surgical Oncology, National Institute of Cancer Research and Hospital, Mohakhali, Dhaka.

b. Dr. Shahjadul Alam, Assistant Professor Surgical Oncology, National Institute of Cancer Research and Hospital, Mohakhali, Dhaka

c. Dr. Abu Mohammad Khaled Iqbal, Assistant Registrar Casualty Surgery, Comilla Medical College, Comilla.

d. Dr. Md. Monoar Hossain, Assistant Professor Surgical Oncology, Khulna Medical College, Khulna.

e. Dr. Abu Mohammad Kawser Sarker, Assistant Professor Surgery, Aichi Medical College, Uttara, Dhaka

f. Dr. Monjurul Islam, Assistant Registrar Surgical Oncology, National Institute of Cancer Research and Hospital, Mohakhali, Dhaka

Address of Correspondence: Prof M Mizanur Rahman, House-7/6, Block B, Lalmatia, Dhaka. Email: mizannicrh@gmail.com

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identified risk factor for stomach cancer, with about 90% of new cases of noncardia gastric cancer worldwide attributed to this bacteria.[5]

A steady decline in stomach cancer incidence and mortality rates has been observed in the developed countries in Northern America and Europe since the middle of the 20th century. Similar decreasing trends have been noted in more recent years in areas with historically high rates, including several countries in Asia (Japan, China, and Korea), Latin America (Colombia and Ecuador), and Europe (Ukraine).Factors that have contributed to these declines are thought to include the increased availability of fresh fruits and vegetables, decreased reliance on salt preserved foods, and reduction in chronic H. pylori infection due to improved sanitation and antibiotics.[6]

Helicobacter pylori

H. pylori is a Gram-negative, spiral-shaped bacterium that is characterized by its many unipolar flagella, which give it corkscrew-like motility, and its unique production of urease. Among bacteria, it finds a niche in both the antral and fundic mucosa of the stomach under the mucus gel. The presence of infection is universally associated with chronic and acute inflammation and, more variably, with other gastric lesions, including lymphoid follicles, atrophic gastritis and intestinal metaplasia. Treatment with antimicrobial agents causes inflammation to regress over time.[7] With relapse of infection, the gastritis is again observed .[8]

H. pylori is typically acquired during childhood and causes lifelong infection thereafter.[9] Although previously almost universal in humans, currently 'only' half of the world's population is infected with H. pylori. Transmission is largely from person to person via the faecal–oral or the gastric–oral route within families, particularly in settings of poor sanitation and hygiene[10] The prevalence of infection varies worldwide, with continued hyper-endemicity in developing countries but a markedly lower prevalence in developed countries.[11] H. pylori is now rare in native-born and middle- or upper-class children of Western Europe,[12] North America,[13] Oceania[14] and Japan.[15,16]

Epidemiological Links between Gastric Cancer and H. pylori:

It has been 30 years since the discovery of *Helicobacter pylori* (*H. pylori*) in 1983 by Australian physicians Robert Warren and Berry Marshal.[17] In view of the various epidemiological studies worldwide, the International Agency of Cancer classified *H. pylori* as a Class '! carcinogen for gastric cancer in 1994.[18] Since then the bacterium is thought to be one of the causative factors in the development of gastric cancer. *H. pylori* is a gastric pathogen that colonizes approximately 50%-60% of the world's population. Infection with *H. pylori* causes chronic inflammation and significantly increases the risk of developing duodenal and gastric ulcer disease and gastric cancer. Studies in Asian countries such as Thailand, India, Bangladesh, Pakistan, Iran, Saudi Arabian countries, Israel and Malaysia, have reported a high frequency of *H. pylori* infection co-existing with a low incidence of gastric cancer.[19,20]

Subsequent to its discovery in the early 1980s, over 1000 studies have been conducted on H. pylori and its association with cancer, including observational studies (ecological, case–control and cohort), clinical trials of H. pylori eradication, pathological studies and animal models. The results have been overwhelmingly in favour of a link between infection and malignancy. Among the many observational studies in humans, case–control studies indicate the lowest risk for cancer (1.8-fold increase).[21] It is now understood that these studies underestimate the true risk due to loss of H. pylori as the mucosa undergoes malignant transformation.

A number of case–control studies indicate higher relative risks in meta-analyses.[22] However, the most compelling observational evidence of an association between H. pylori infection and gastric cancer comes from longitudinal cohort studies. In a large prospective trial conducted in Japan, 36 out of 1246 infected individuals developed gastric cancer compared to none of 280 uninfected participants. They finally concluded that persons with *H. pylori* infection and nonulcer dyspepsia, gastric ulcers, or gastric hyperplastic polyps are also at risk, but those with duodenal ulcers are not.[23] A prospective study of 1225 Taiwanese patients confirmed this finding that all gastric malignancies, including adenocarcinoma and lymphoma, developed in H. pylori-infected patients. The finding implies that H. pylori is a necessary cause of most gastric malignancies. Multivariate analysis showed in their study that intestinal metaplasia was the only independent factor predicting subsequent development

of gastric malignancy in H. pylori-infected subjects with an odds ratio of 4.5 (95% CI 1.1-19.1).[24]

Not all H. pylori are alike, however, and the epidemiological story is complex. Individuals with antibodies to H. pylori's CagA protein (a marker for the more inflammatory and virulent strain bearing a pathogenicity island of genes) have a particularly high risk of cancer. A meta-analysis of studies shows that CagA-positive strains increase the risk of noncardia gastric cancer two-fold compared to CagA-negative strains. [25] Moreover, gastric cancer, similar to H. pylori, is heterogeneous, with two histological types predominating: the intestinal-type and the diffuse type. Although H. pylori has been linked to both histological types, CagA appears to enhance the risk of the intestinal type that arises in the setting of inflammation, atrophic gastritis and intestinal metaplasia, but not the risk of the diffuse type that appears to stem from e-cadherin mutations.[26]

Based on the observational and experiment studies, the attributable risk of gastric cancer in the population has been estimated to be 75% .[27] If this is accurate, H. pylori would be responsible for as many as 5.5% of all cancers, making it the leading infectious cause of cancer worldwide and second only to smoking as a defined cause of malignancy.[16]

H pylori and Mechanisms of Gastric Carcinogenesis:

Gastric adenocarcinoma is a heterogeneous cancer. First, it is necessary to distinguish the tumours arising from the gastric proximal stomach (cardia), as most of them are not linked to H.pylori infection from those found in the distal part of the stomach. Among tumours from the distal stomach, on the basis of histology, it is usual to differentiate two types of cancer lesions: the intestinal type and the diffuse type according to the Lauren classification.[28] Intestinal type cancer is the most frequent. It corresponds to a slow evolution of the gastric mucosa which becomes atrophic; then intestinal metaplasia appears, followed by dysplasia and ultimately in situ gastric carcinoma and metastatic carcinoma . This is the so-called Correa cascade, which was described before H. pylori was discovered and appears late in life .[29] The other histologic type of gastric carcinoma is the diffuse type, which does not show these different steps and usually occurs early in life. Furthermore, mutations in the E-cadherin gene (CDH1) are found in about 30% of the cases. The expression of this molecule is then inhibited at the adherent cellular junctions, leading to invasive tumours. Besides this histologic classification, a molecular classification has recently been proposed.[28]

Literature is showing that mechanisms of H. pylori-induced carcinogenesis are in the phase of understanding, inflammation is the most commonly cited factor in the carcinogenic process. Inflammation is thought to induce cancer by increasing production of free radicals[30], increasing apoptotic and necrotic epithelial cell death and augmenting cell proliferation .[31] To compound these pro-carcinogenic processes, H. pylori has been noted to reduce DNA repair in vivo and in vitro. The importance of inflammation as a risk factor is supplemented by three complementary observations: first, that the bacterial strains that induce the most inflammation are most closely linked to malignancy[32]; second, that pro-inflammatory host cytokine polymorphisms increase cancer risk, and third, that nonsteroidal anti-inflammatory agents appear to decrease the risk of cancer.[33]

Most recently, much attention has been given to the relationship between H. pylori, stem cells and cancer. Some have proposed that H. pylori preferentially damages parietal cells, thereby altering the maturation process of epithelial stem cells.[34] Others report that inflammation related to H. pylori recruits peripheral- or bone-marrow derived stem cells to the gastric mucosa, which then transform into the malignant clone. The strongest evidence of this comes from experiments performed by Houghton et al.[35] who identified bone-marrow derived stem cells as the cells of malignant origin in C57BL/6 mice. By contrast, Giannakis et al[36] reported identifying H. pylori inside gastric stem cells. They further observed that an isolate from a cancer patient had closer affinity to gastric stem cells, causing more profound regulation of cell function, than did an isolate from the same patient 4 years before the cancer diagnosis.[16]

It is well proven that cancer is fundamentally a result of genetic instability. A small proportion of gastric cancers are familial and related to inherited genetic abnormalities that involve alterations in tumour suppressor genes, proto-oncogenes, gatekeeper genes, enzymes, growth factors and membrane or nuclear

receptor.[37] Studies are evidencing that chronic *H. pylori* infection causes lifelong acute and chronic gastric inflammation which can result in DNA damage and genetic instability.[38] Recently, it has been recognized that the *H. pylori* organism can also cause genetic instability, including double-stranded DNA breaks and can produce gene activation and silencing via epigenetic pathways.[38] The pathogenesis of *H. pylori* -related genetic instability is complex and as yet incompletely understood with both inflammation-induced reactive oxygen species and reactive nitrogen species playing important roles.[39] Although *H. pylori* induces lifelong gastric mucosal inflammation, gastric cancer is not a preordained outcome. The clinical manifestations of the infection vary regionally, with important host, *H. pylori* strain, and environmental factors all interacting to determine the outcome for a particular patient and region. Since *H. pylori* is a necessary cause of gastric cancer, a high incidence of gastric cancer requires a high prevalence of *H. pylori* . However, even among high *H. pylori* prevalence societies such as China, there are strong geographic differences in the incidence of gastric cancer.[40]

H. pylori infection status in Bangladesh:
Bangladesh is a South Asian developing country, where the rate of *H. pylori* infection is also high. In their serological study, Ahmad et al in 1997 reported that the prevalence of *H. pylori* in Bangladesh was 92%.[41] Mahalanabis et al[42] in a study of 13C-urea breath test also reported that the prevalence of *H. pylori* was 63% in infants aged 1–3 months, 33% in 10–l5-month-old children, 84% in 6–9 years old. Moreover, the overall *H. pylori* prevalence in other Asian countries including, India (79% by ELISA), Pakistan (84% by PCR), and Japan (41% by measuring urinary levels of anti-*H. pylori* antibody) was also reported high.12–14 In Europe (,40%) and the United States (40%), a significantly lower prevalence rate of *H. pylori* was observed.[43,44] High *H. pylori* infection rates in developing countries compared to the developed world may be the consequence of poor socioeconomic conditions and unhygienic life styles.[45]

Until now, some studies have tried to show the prevalence of *H. pylori* infection in Bangladesh by serological methods, urea breath test, or CLO test. But there has not been less study to perform *H. pylori*-specific PCR directly on extracted DNA from gastric biopsies and CLO test together to determine *H. pylori* infection in our country. In one study in Bangladesh, for the first time PCR using *H. pylori*-specific 16S rRNA primers along with CLO test in endoscopic biopsies to determine the incidence of *H. pylori* infection in was used. They found that among 111 patients, 60 (54.05%) were positive by the CLO test and 54 (48.65%) were positive by PCR.[46]

Gastric biopsies from 111 patients from gastroscopic biopsy at a hospital in Chittagong from July 2015 to November 2015 were collected. Total genomic DNA was extracted from the gastric biopsies by the phenol/ chloroform DNA extraction method.Molecular detection of *H. pylori* was then performed on extracted DNA from biopsies by PCR using primers to amplify a 109 product for the *H. pylori* 16S rRNA region. Among the biopsied samples, all the 74 cases being *H. pylori* positive for any of the two tests were considered for assessing the association between *H. pylori* infection and clinical presentations. It was observed that all the cases of duodenal ulcer had evidence of *H. pylori* infection, while patients with gastric ulcer had *H. pylori* in 75% of cases and the correlation between them was also proven to be statistically significant (P= 0.05). Interestingly, dyspeptic patients with normal endoscopic findings had *H. pylori* in 87.5% of cases and had a significant association (P =0.05) with *H. pylori* positive as well.[46]

In another study among the 181 subjects, 166 (92%) had H. pylori specific antibodies and 15 (8%) were seronegative. No significant difference ($p<0.90$) in seroprevalence rates was observed among different age groups.[41]

Recently in a case control study of 114 cases against 520 controls of the community it was shown that

significantly more patients in the case group (86.8%) were found to be seropositive for H. pylori antigen in contrast to the control group (67.5%). All of the cases in the present study were in advanced stage of gastric cancer. Controls were endoscopically negative for any pathological lesion. It was noted that undifferentiated gastric carcinoma had slightly more association with H. pylori infection. Younger patients(<40 years of age) H. pylori infection had been found to be at higher relative risk for GC than older patients.[46]

Association of H pylori infection and genetic mutation in gastric cancer patients in Bangladesh:
We could finally explore the status of p53 alteration which was remarkably present in our patients and had

strong association with H pylori infection examined in an study done in national institute of cancer research and hospital, Mohakhali,,Dhaka. Unpublished data revealed after gene analysis that among the H pylori infected cases 80% have alteration of p53 in the tested gene in the current series of 71 gene analysis, despite of using only the 5 and 6 exons. Chi square and regression analysis shows that they have strong and significant association. Over 86% Patient of gastric cancer infected with H pylori had mutant p53 gene. Multigene analysis showed that over 88% of the H pylori infected patients had gene mutation.

In Bangladesh, gastric cancer incidence is in rising trend. Regarding H pylori infection, on the other hand different studies directs that in the last 20 years infection is in down trend in the globe. Overall study is showing that in Bangladesh H. pylori is found in >80% of GC cases. To date, existing findings indicate that GC is the biological translation of carrying an infectious disease, which is interestingly preventive with anti-H. pylori regimen. Therefore, as an inevitable consequence, identification of H. pylori colonized in people with high risk of GC is the main direction of the future research. It is postulated that if H. pylori can be removed from the population, it has been estimated that <"75% of GC would be eliminated.[48]

Eradication:

Effect of H. pylori eradication on cancer incidence
The effect of H. pylori eradication on reducing gastric cancer incidence is related to the risk existing at the time of eradication therapy. The major benefits for treatment of those at little or no cancer risk at the time of eradication include removal from the reservoir of infection responsible for spread within society, prevention of development of diseases caused by H. pylori such as peptic ulcer disease and prevention of progression of gastritis with its associated risk of gastric cancer. Early studies of H. pylori eradication in gastric cancer used mixed populations with varying degrees of cancer risk and were of relatively short duration.[49]

A large-scale cohort study from Taiwan followed 80,000 patients with peptic ulcer for 10 years after H. pylori eradication therapy. The patients were assigned to an early eradication group(patients underwent H. pylori eradication therapy at the time of diagnosis) or a late eradication group (patients underwent H. pylori eradication therapy 1 year after diagnosis). The incidence of gastric cancer was markedly lower in the early eradication group than in the late eradication group suggesting that, while the effect of H. pylori eradication therapy in reducing the incidence of gastric cancer is obvious, the earlier the eradication the better. Mass eradication of H. pylori was started in Taiwan in 2004 and initially included 4121 subjects. Compared to the 5 year period before H.pylori therapy, the effectiveness of H. pylori eradication therapy in reducing the incidence of gastric cancer was estimated to be 25% (rate ratio 0.753, 95% confidence interval (CI) 0.372–1.525) and the reduction in peptic ulcer disease 67.4% (95% CI 52.2–77.8).[50]

So finally they demonstrated that mass eradication of H pylori infection was associated with a significant reduction in gastric atrophy within a relatively short study period, in parallel with an increase in gastro oesophageal reflux. Whether a meaningful reduction in gastric cancer can be achieved following the Correa pathway should be verified in a further long-term follow up study in this region, which has a high prevalence of H pylori infection and a high incidence of gastric cancer.[51]

In December 2013, a Working Group Meeting was hosted in Lyon, France by the International Agency for Research on Cancer (IARC) to review the accumulated evidence that supported the use of mass eradication of H. pylori as a strategy to prevent gastric cancer. On the basis of the favourable results from the randomized con-trolled trials (RCTs) and observational studies, the expert working group confirmed that this strategy was effective; a recommendation has been made to encourage health-care agencies to include such a strategy in national cancer control programs. In January 2014, a global consensus meeting was held in Kyoto, Japan to evaluate the management of H. pylori-related gastritis, a precursor to gastric cancer. Similarly, consensus has been reached in the conclusion that eradication of H. pylori can prevent gastric cancer and the recommendation that all carriers of H. pylori should be treated to eradicate this pathogen.[52]

Taking consideration the limited data in Bangladesh it is to taken into account that in Bangladesh H pylori is also an important risk factor or a causative agent for gastric

cancer. So it is the high time to think that national level or large scale eradication of H pylori is needed to combat the future incidences of gastric cancer.

Conclusion:

From the hundreds of studies including Bangladesh it has been seen that H Pylori is the leading causative agent for Gastric cancer, there are also documents to have genetic links in the process of carcinogenesis. In Bangladesh though very few studies are carried out in the last two decades including a case control study, all studies have evidence to have association of H pylori with gastric cancer. Internationality it is seen that there are some studies to carry out successful eradication therapy which resulted reduced incidences of the cancer. So it is the high time in Bangladesh to undertake the schemes at the national level for large scale eradication against the H pylori which might play a role for the reduced incidences of the deadly disease like gastric cancer.

References:

1. Ferro A, Peleteiro B, Malvezzi M, Bosetti C, Bertuccio P, Levi F,Negri E, La Vecchia C, Lunet N.Worldwide trends in gastric cancer mortality (1980-2011), with predictions to 2015, and incidence by subtype. Eur J Cancer 2014; 50: 1330-1344
2. www.http://globocan.iarc.fr/old/FactSheets/cancers/stomach-new.asp accessed on 12.08.2017
3. Gastric Cancer Management. National Guideline of of Bangladesh. 2014
4. International Agency for Research on Cancer. Schistosomes, liver flukes and Helicobacter pylori. IARC Monographs on the Evaluation of Carconogenic Risks to Humans 61. Lyon, France: IARC; 1994. 177–220. http://monographs.iarc.fr/ENG/Monographs/vol61/index.php.
5. Plummer M, Franceschi S, Vignat J, Forman D, de Martel C. Global burden of gastric cancer attributable to pylori. Int J Cancer 2015; 136:487-490.
6. Parkin DM. The global health burden of infection-associated cancers in the year 2002. Int J Cancer 2006; 118:3030-3044.
7. Ohkusa T, Fujiki K, Takashimizu I et al. Improvement in atrophic gastritis and intestinal metaplasia in patients in whom Helicobacter pylori was eradicated. Ann Intern Med 2001; 134: 380–386.
8. Patchett S, Beattie S, Leen E, Keane C, O'Morain C. Helicobacter pylori and duodenal ulcer recurrence. Am J Gastroenterol 1992; 87: 24–27.
9. Rowland M, Daly L, Vaughan M, Higgins A, Bourke B, Drumm B. Age-specific incidence of Helicobacter pylori. Gastroenterology 2006; 130: 65–72; quiz 211.
10. Perry S, De La Luz Sanchez M, Shufang Y et al. Gastroenteritis and transmission of Helicobacter pylori infection in households. Emerg Infect Dis 2006;12: 1701–1708.
11. Brown LM. Helicobacter pylori: epidemiology and routes of transmission.Epidemiol Rev 2000; 22: 283–297.
12. Mourad-Baars PE, Verspaget HW, Mertens BJ, Mearin ML. Low prevalence of Helicobacter pylori infection in young children in the Netherlands. Eur J Gastroenterol Hepatol 2007; 19: 213–216.
13. Segal I, Otley A, Issenman R et al. Low prevalence of Helicobacter pylori infection in Canadian children: a cross-sectional analysis. Can J Gastroenterol 2008; 22: 485–489.
14. Hardikar W, Grimwood K. Prevalence of Helicobacter pylori infection in asymptomatic children. J Paediatr Child Health 1995; 31: 537–541.
15. Okuda M, Miyashiro E, Booka M, Tsuji T, Nakazawa T. Helicobacter pylori colonization in the first 3 years of life in Japanese children. Helicobacter 2007;12: 324–327.
16. V. Herrera1 and J. Parsonnet..Helicobacter pylori and gastric adenocarcinoma.Clin Microb and Infect. 2009;15: 971-76.
17. Marshall BJ, Warren JR. Unidentified curved bacilli in the stomach of patients with gastritis and peptic ulceration. Lancet 1984;1:1311–1315.
18. Graham DY. Helicobacter pylori infection in the pathogenesis of duodenal ulcer and gastric cancer: a model. Gastroenterology 1997;113:1983–1991.
19. Malfertheiner P, Megraud F, O'Morain CA, et al., European Helicobacter Study Group. Management of elicobacter pylori infection–the Maastricht IV/Florence Consensus Report. Gut 2012;61:646–664.
20. Bor-Shyang S, Ming-Shiang W, Cheng-Tang C, Jing-Chuan L, Deng-Chyang W, Jyh-Ming L et al. Consensus on the clinical management, screening-to-treat, and surveillance of *Helicobacter pylori* infection to improve gastric cancer control on a nationwide scale. Helicobacter. 2017; 22:e12368.https://doi.org/10.1111/hel.12368
21. Huang J-Q, Sridhar S, Chen Y, Hunt RH. Meta-analysis of the relationship between Helicobacter pylori seropositivity and gastric cancer. Gastroenterology 1998; 114: 1169–1179.
22. Helicobacter, Cancer Collaborative Group. Gastric cancer and Helicobacter pylori: a combined analysis of 12 case control studies nested within prospective cohorts. Gut 2001; 49: 347–353.
23. Uemura N, Okamoto S, Yamamoto S et al. Helicobacter pylori infection and the development of gastric cancer. N Engl J Med 2001; 345:784–789.
24. Hsu PI, Lai KH, Hsu PN et al. Helicobacter pylori infection and the risk of gastric malignancy. Am J Gastroenterol 2007; 102: 725–730.

25. Huang JQ, Zheng GF, Sumanac K, Irvine EJ, Hunt RH. Meta-analysis of the relationship between cagA seropositivity and gastric cancer. Gastroenterology 2003; 125: 1636–1644.

26. Shibata A, Parsonnet J, Longacre TA et al. CagA status of Helicobacter pylori infection and p53 gene mutations in gastric adenocarcinoma. Carcinogenesis 2002; 23: 419–424.

27. Parkin DM. The global health burden of infection-associated cancers in the year 2002. Int J Cancer 2006; 118: 3030–3044.

28. F. Mégraud, E. Bessède and C. Varon.Helicobacter pylori infection and gastric carcinoma. Clin Microbiol Infect 2015; 21: 984–990

29. Correa P, Haenszel W, Cuello C, Tannenbaum S, Archer M. A model for gastric cancer epidemiology. Lancet 1975;2(7924): 58–60.

30. Hocker M, Rosenberg I, Xavier R et al. Oxidative stress activates the human histidine decarboxylase promoter in ags gastric cancer cells. J Biol Chem 1998; 273: 23046–23054.

31. Brenes F, Ruiz B, Correa P et al. Helicobacter pylori causes hyperproliferation of the gastric epithelium: pre- and post-eradication indices of proliferating cell nuclear antigen. Am J Gastroenterol 1993; 88: 1870–1875.

32. Yamaoka Y, Kato M, Asaka M. Geographic differences in gastric cancer incidence can be explained by differences between Helicobacter pylori strains. Intern Med 2008; 47: 1077–1083.

33. Cuzick J, Otto F, Baron JA et al. Aspirin and non-steroidal anti-inflammatory drugs for cancer prevention: an international consensus statement.Lancet Oncol 2009; 10: 501–507.

34. Correa P, Houghton J. Carcinogenesis of Helicobacter pylori. Gastroenterology 2007; 133: 659–672

35. Houghton J, Stoicov C, Nomura S et al. Gastric cancer originating from bone marrow-derived cells. Science 2004;306:1568–1571.

36. Giannakis M, Chen SL, Karam SM, Engstrand L, Gordon JI. Helicobacter pylori evolution during progression from chronic atrophic gastritis to gastric cancer and its impact on gastric stem cells. Proc Natl Acad Sci USA 2008;105: 4358–4363.

37. Lynch HT, Grady W, Suriano G, Huntsman D: Gastric cancer: new genetic developments. J Surg Oncol 2005; 90: 114–133; discussion 133.

38. Ernst PB, Gold BD: The disease spectrum of Helicobacter pylori : the immunopathogenesis of gastroduodenal ulcer and gastric cancer. Annu Rev Microbiol 2000; 54: 615–640.

39. Kuper H, Adami HO, Trichopoulos D: Infections as a major preventable cause of human cancer. J Intern Med 2000; 248: 171–183.

40. Wei Zhang a Hong Lu a David Y. Graham. An Update on Helicobacter pylori as the Cause of Gastric Cancer. Gastrointest Tumors 2014;1:155–165. DOI: 10.1159/000365310

41. Ahmad MM, Rahman M, Rumi AK, Islam S, Huq F, Chowdhury MF, Jinnah F, Morshed MG, Hassan MS, Khan AK, Hasan M.Prevalence of Helicobacter pylori in asymptomatic population—a pilot serological study in Bangladesh. J Epidemiol. 1997 Dec;7(4):251-4.

42. Mahalanabis D, Rahman MM, Sarker SA, et al. Helicobacter pylori infection in the young in Bangladesh: prevalence, socioeconomic and nutritional aspects. Int J Epidemiol 1996;25:894–8.

43. Kamangar F, Dawsey SM, Blaser MJ. Opposing risks of gastric cardia and noncardia gastric adenocarcinomas associated with Helicobacter pylori seropositivity. J Natl Cancer Inst 2006;98:1445–52.

44. Helicobacter and Cancer Collaborative Group. Gastric cancer and Helicobacter pylori: a combined analysis of 12 case control studies nested within prospective cohorts. Gut 2001;49:347–53.

45. Kato M, Asaka M, Shimizu Y, et al. Relationship between Helicobacter pylori infection and the prevalence, site and histological type of gastric cancer. Aliment Pharmacol Ther 2004;20:85–9.

46. Habib AM, Md, Alam MJ,Rudra B,Quader MA and Al-Forkan M. Analysis of Helicobacter pylori Prevalence in Chittagong, Bangladesh, Based on PCR and CLO Test. Microbiology Insights 2016:9 47–50 doi:10.4137/MBI.S39858.

47. Sarker KW , Md.Kabir MJ,A.K.M.BhuyianAKM M,Md. Shahjadul Alam Chowdhury FR,Ahad MA, Rahman MA, Rahman MM. H. pylori infection and gastric cancer in Bangladesh: a case-control study.International Journal of Surgery Oncology (2017) 2:e44

48. Lee Y-C, Chiang T, Liou JM, et al. Mass eradication of Helicobacter pylori to prevent gastric cancer: theoretical and practical considerations. Gut and Liver 2016;10:12–26.

49. Akiko Shiotania, Putao Cenb, David Y. Grahamc Eradication of gastric cancer is now both possible and practical.Seminars in Cancer Biology 2013; 23:492– 501.

50. Maekita T, Nakazawa K, Mihara M, Nakajima T, Yanaoka K, Iguchi M, et al.High levels of aberrant DNA methylation in Helicobacter pylori-infected gastricmucosae and its possible association with gastric cancer risk. Clinical Cancer Research 2006;12:989–95.

51. Yi-Chia L, Hsiu-Hsi TC, Han-Mo C, Chia-Tung S,Hung C,Tzeng-Ying L,Ming-Shiang W, Jaw-Town L.The benefit of mass eradication of Helicobacter pylori infection: a community-based study of gastric cancer prevention.Gut 2013;62: 676–82. doi:10.1136/gutjnl-2012-302240

52. Yi-Chia L, Tsung-Hsien C, Jyh-Ming L, Hsiu-Hsi C, Ming-Shiang W, and David Y G. Mass Eradication of Helicobacter pylori to Prevent Gastric Cancer: Theoretical and Practical Considerations. Gut and Liver 2016;10: 12-26.

Single Stage Resection of Renal Cell Carcinoma with Right Atrial Extension– A Case Report

SA NAHIAN[a], S BISWAS[b], R HASSAN[c], MZ HASAN[d]

Summary:

Renal cell carcinoma (RCC) is the commonest primary tumor of the kidney which may invade through the renal vein into the inferior vena cava (IVC), and then it can extend intraluminally with subsequent tumor-thrombus formation. Here we report a case involving excision of a primary RCC with tumor-thrombus involving IVC up to right atrium with the use of extracorporeal circulation.

Single stage surgical procedure was performed in collaboration with a urological team aiming complete resection of primary tumor, para-aortic lymphadenectomy and removal of IVC thrombus extending to right atrium with the help of cardiopulmonary bypass. After arresting heart, RA was opened and the mass was removed through RA from IVC and hepatic vein level. Abdominal IVC was opened and the entire residual mass was removed from below also small amount of thrombus removed from left renal vein.

Postoperative venous doppler showed no residual thrombus in venous system. Histopathology report confirmed papillary renal cell carcinoma. The patient was discharged from hospital in the 12th post-operative day without any complication.

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Introduction:

Renal cell carcinoma (RCC) is the commonest primary tumor of the kidney. RCC may invade through the renal vein into the inferior vena cava (IVC), and then it can extend intraluminally with subsequent tumor-thrombus formation, which occurring in 5%–15% of all cases while the tumor may extend up to the right cardiac chambers in 1% of cases [1].

According to Sweeney et al[2] there are 4 stages of cavo-atrial tumor-thrombus extension: in type I the intravascular tumor has occupied the renal vein but not reached the IVC, in type II the IVC is involved up to the level of the hepatic veins, while in types III and IV the supradiafragmatic IVC and the right cardiac chamber are involved. In type I and type II radical nephrectomy with excision of the tumor may be done without extracorporeal circulation but cases of type III and IV requires the use of extracorporeal circulation.

In the absence of local infiltration or metastatic disease intra vascular extension does not affect the prognosis adversely, provided complete resection is achieved[1]. Here we report a case involving excision of a primary RCC with tumor-thrombus involving IVC up to right atrium (type IV) with the use of extracorporeal circulation.

Case report:

A 48 years old hypertensive female presented with 2 months old history of generalized weakness, loss of appetite, weight loss and abdominal discomfort. On physical examination, patient was anemic, icteric with mild tachycardia. In her laboratory examination, anemia, elevated level of serum bilirubin and liver enzymes (ALT, AST, Alk Phos), raised serum LDH, features of coagulopathy (raised APTT, INR, FDP, D-dimer) were found. Abdominal ultrasonography (USG) showed right renal mass, dilated IVC with echogenic thrombus in right renal vein and IVC extending up to the heart. Contrast CT scan of the whole abdomen and chest showed right

1. Dr. Syed Al-Nahian, Specialist Cardiac Surgeon, Department of Cardiac Surgery, United Hospital Limited, Gulshan, Dhaka.
2. Dr. Sonjoy Biswas, Specialist Cardiac Surgeon, Department of Cardiac Surgery, United Hospital Limited, Gulshan, Dhaka.
3. Dr. Rezaul Hassan, Consultant Cardiac Surgeon, Department of Cardiac Surgery, United Hospital Limited, Gulshan, Dhaka.
4. Dr. M Zahid Hasan,Consultant, Department of Urology, United Hospital Limited, Gulshan, Dhaka.

Address of Correspondence: Dr.Sonjoy Biswas, Specialist Cardiac Surgeon, Department of Cardiac Surgery, United Hospital Limited, Dhaka, Mobile: 01713062204

e-mail- sanjoy.tapoo@gmail.com

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kidney is replaced by a heterogenous density soft tissue mass with extension in right renal vein, IVC, proximal part of left renal vein, confluence of hepatic vein and up to the right atrium (RA) (Fig-1).

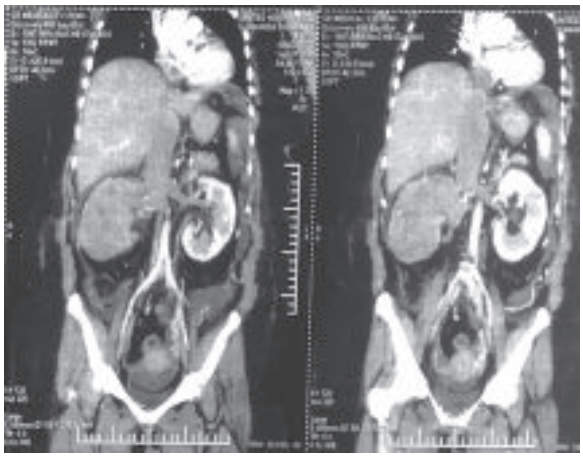

Fig.-1: *CT scan showing tumor thrombus (arrow) extending to IVC up to RA*

There were no hepatic lesion and no para aortic lymphadenopathy. There were no lesion found in intrathoracic great vessels and lungs.

One stage surgical procedure was planned in collaboration with a urological team aiming complete resection of primary tumor, para-aortic lymphadenectomy (if present) and removal of IVC thrombus extending to RA with the help of cardiopulmonary bypass. The right kidney was mobilized by sharp and blunt dissection through a rooftop incision. IVC felt firm with tumor thrombus within. Right nephrectomy was performed. IVC was mobilized gently and taped. Cardiopulmonary bypass (CPB) was established by aortic cannula (24 Fr), venous cannulas were placed in the superior vena cava directly (24 Fr) and right femoral vein (22 Fr). Under moderate hypothermia and low flow, the ascending aorta was cross-clamped and cold blood cardioplegic solution was administered for myocardial protection antegradely. After arresting heart RA was opened and the mass was seen just reaching the IVC-RA junction (Fig-2).

The tumor thrombus was removed through RA from IVC and hepatic vein level. Abdominal IVC was opened and the entire residual mass was removed from below also small amount of thrombus removed from left renal vein. After IVC and RA were closed, the patient was gradually weaned from bypass and cannulas were removed. Total bypass time was 155 minutes and total cross clamp time was 85 minutes.

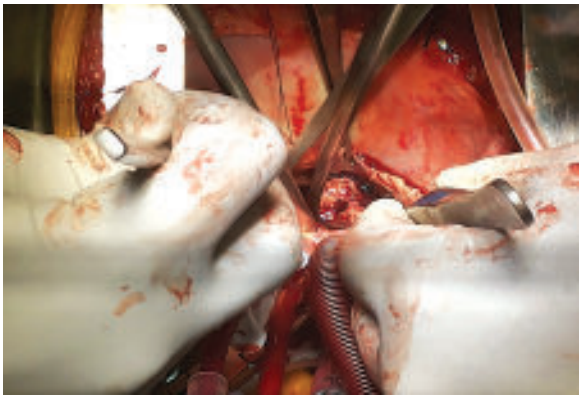

Fig.-2: *Showing tumor mass (arrow) in the IVC- RA junction*

Postoperative venous Doppler showed no residual thrombus in venous system. The specimen (Fig- 3) showed involvement of the perinephric fat as well as ureteric lumen. Histopathology report confirmed papillary renal cell carcinoma of the right kidney with renal capsule infiltration having TNM stage-T3b Nx, Mx. Patient did not have any complications such as pneumonia, wound infection, deep venous thrombosis rather improvement of hepatic dysfunction in the immediate post-operative period. The patient was discharged from hospital in the 12th post-operative day. FDG based PET scan done 9 weeks after surgery which showed hyper metabolic spot only in 6th segment of liver, IVC and left renal vein. She was further planned for targeted therapy with Pazopanib as her follow up treatment.

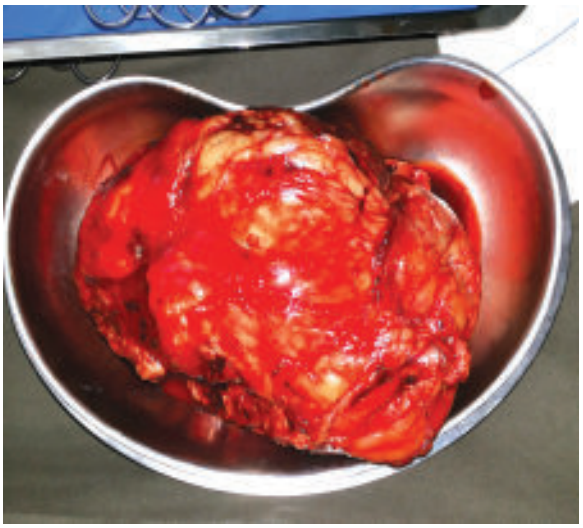

Fig.-3: *Showing resected specimen of right kidney*

Discussion:

In RCC, nephrectomy and vena caval thrombectomy that extended into the IVC was first described by, Berg et al in 1913. Presence of intra vascular extension of RCC up to IVC and RA sounds a relative hopeless situation but the current available data indicates a different scenario. Presence of perinephric infiltration of the tumor with disruption of renal capsule, local lymph node involvement and distant metastasis all have a profound influence on disease-free and overall survival. However, the intravascular tumor invasion to whatever degree is not associated with an adverse prognosis, provided complete resection (R0) is achieved [1]. Radical nephrectomy with venacaval thrombectomy has operative mortality rates ranging from 2.7% to 13% and an expected 5 year survival ranging from 30% to 72%[3]. Ioannis and coworkers[4] reported that prognosis (5 year survival is 50%–68%) is very good for a stage IIIa tumor (with no lymph or distal metastases). However, incomplete tumor resection is associated with poor prognosis (5 year survival: 10%–17%). In 1989, Skinner and coworkers et al also reported that tumor-thrombus, regardless of the degree of extension, if without metastasized local nodes or perinephric fat involvement, has a 5 year survival rate similar to that for a tumor that remains inside the renal capsule. In our patient, complete removal of the tumor was done successfully, though there was tumor cell involvement of the perinephric fat, there was no involvement of local lymph nodes and no gross evidence of distant metastasis found. Moreover, RCC is usually not responsive to conventional chemotherapy or radiotherapy, as a result surgery is the most effective method to eradicate this tumor as early as possible.

The application of CPB here aids in control of blood loss, decreases chances of distal embolism, provides adequate clean exposure to achieve total retrieval tumor thrombus from- IVC, part of hepatic vein and right atrium. Noguchi K et al [5] reported the use of CPB in combination with hypothermic circulatory arrest (HCA) for complete tumor- thrombus excision. In another report Raghuram et al[6] used CPB with moderate hypothermia and low flow for removal of tumor thrombus. In our case we also used CPB with low flow and could achieve adequate clearance of the tumor thrombus without any complication. Commonly the tumor thrombus of RCC does not invade the IVC as a result it can be easily peeled off the IVC wall[7]. Nevertheless preoperative or intraoperative transesophageal echocardiography (TEE) can be helpful to provide accurate information regarding adherence of the thrombus with the IVC or hepatic vein.

Conclusion:

The aggressive one stage surgery should be the choice of treatment for RCC with intravascular extension and can be carried out safely with the help of cardiopulmonary bypass and a combined team effort.

References:

1. Chiappini B, Savini C, Marinelli G, Suarez SM, Di Eusanio M, Fiorani V, et al. Cavoatrial tumor thrombus: single-stage surgical approach with profound hypothermia and circulatory arrest, including a review of the literature. J Thorac Cardiovasc Surg 2002; 124: 684-688.
2. Sweeney P, Wood CG, Pisters LL, Tanaka H. Surgical management of renal cell carcinoma associated with complex inferior vena caval thrombi. Urol Oncol 2003; 21: 327-333.
3. Dedeilias P, Koletsis E, Rousakis AG, Kouerinis I, Zaragkas S, Grigorakis A, et al. Deep hypothermia and circulatory arrest in the surgical management of renal tumors with cavoatrial extension. J Card Surg 2009; 24: 617-623.
4. Ioannis V, Panagiotis S, Anastasios A, Michael B, Anastasios S, Anastasios T, et al. Tumor extending through inferior vena cava into the right atrium. A late recurrence of renal cell carcinoma. Int J Cardiovasc Imaging 2003; 19: 179-182.
5. Noguchi K, Hori D, Nomura Y, Tanaka H. Renal cell carcinoma with tumor-thrombus extension into the right ventricle. Ann Vasc Surg 2012; 5, No.3: 376-380.
6. Raghuram RA, Kumar S, John VE, Raghunathan R, Balamurugan K. One stage surgical treatment of renal cell carcinoma with extension upto right atrium – A case report. IJTCVS 2007; 23: 153-155.
7. Jibiki M, Iwai T, Inoue Y, Sugano N, Kihara K, Hyochi N, et al. Surgical strategy for treating renal cell carcinoma with thrombus extending into the inferior vena cava. J Vasc Surg. 2004;39(4): 829–835.

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Emphysematous Pyelonephritis Complicating an Undetected Diabetic Female: A Case Report

MA RAHIM[a], P MITRA[b], S ZAMAN[c], T SAMAD[a], KN UDDIN[d]

Summary:

A case of emphysematous pyelonephritis is reported here. A middle aged Bangladeshi lady presented with fever and left loin pain. She had tachycardia, dehydration and left renal angle tenderness. Investigations revealed diabetes mellitus, left renal stone and left sided emphysematous pyelonephritis complicated by acute kidney injury. She required nephrectomy along with antibiotics. Emphysematous pyelonephritis almost exclusively occurs in diabetic patients and rarely emphysematous pyelonephritis may unmask undetected diabetes as in the present case. Renal stone is also recognized risk factor for emphysematous pyelonephritis.

Key words: diabetes mellitus, emphysematous pyelonephritis, nephrectomy, renal stone.

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Introduction:

Emphysematous pyelonephritis is an uncommon and severe form of necrotizing infection of renal parenchyma and collecting system characterized by gas formation. Patients with diabetes mellitus are the usual sufferers and rarely an episode of emphysematous pyelonephritis may unmask previously undiagnosed diabetes.[1] Here we report a case of class IV emphysematous pyelonephritis[2] occurring in a middle aged Bangladeshi lady.

Case Report:

A 46-year-old lady, previously not known to be diabetic, presented with 4-days history of fever, left flank pain and vomiting. She was anaemic, dehydrated, febrile (temperature 103^0F), tachycardic (pulse 108/min) but had normal blood pressure (115/75 mm Hg). Systemic examination revealed left renal angle tenderness. Other examination findings were unremarkable.

Her random blood glucose level during admission was 21.3 m.mol/L. Bed side urine showed glucose +++ and traces of albumin. She had neutrophil leukocytosis (total white cells 19,400/cmm of blood with 91% neutrophils) with mild reduction in haemoglobin (Hb 9.8 gm/dL) and normal platelets (1,98,000/cmm of blood). Erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) were raised (ESR 67 mm in 1st hour and CRP 64 mg/L). Urine routine examination showed plenty of pus cells/high power field (HPF) and red cells 1-2/HPF. Urine culture revealed significant (colony count $>1X10^5$/ml) growth of extended-spectrum beta-lactamase (ESBL) positive *Escherichia coli*. Blood culture did not show any growth. Serum creatinine was 1.9 mg/dL and glycated haemoglobin (HbA1c) was 8.1%. Her antibiotic was changed from ceftazidime to meropenem (1 gm every 12 hours intravenously) after receiving urine culture report.

Ultrasonogram findings were consistent with left sided emphysematous pyelonephritis with left renal stone. Non-contrast computed tomography (CT) scan revealed similar findings (Figure 1). As air extended beyond perinephric area (class IV emphysematous pyelonephritis)[2], left nephrectomy was done. Histopathology of the resected tissue revealed acute on chronic pyelonephritis with perinephric abscess. Her post-operative period was uneventful and she was discharged on 10th post-operative day with a normal serum creatinine level.

She is on our regular follow-up and on last follow-up visit after two and half years of nephrectomy, she is having a normal renal function (serum creatinine 1.1 mg/dL) and good glycaemic control with metformin 500 mg twice daily (fasting blood glucose 6.4 m.mol/L and HbA1c 6.9%).

a. Dr. Muhammad Abdur Rahim, Tabassum Samad, Assistant Professor, Nephrology, BIRDEM General Hospital, Dhaka, Bangladesh.
b. Dr. Palash Mitra, Assistant Registrar, Nephrology, BIRDEM General Hospital, Dhaka, Bangladesh.
c. Dr. Shahana Zaman, Junior Consultant, Cardiology, NICVD, Dhaka, Bangladesh.
d. Prof. Khwaja Nazim Uddin, Professor, Internal Medicine, BIRDEM General Hospital, Dhaka, Bangladesh.

Address of Correspondence: Dr. Muhammad Abdur Rahim, Assistant Professor, Nephrology, BIRDEM General Hospital, Dhaka, Bangladesh. Mobile: Email: muradrahim23@yahoo.com

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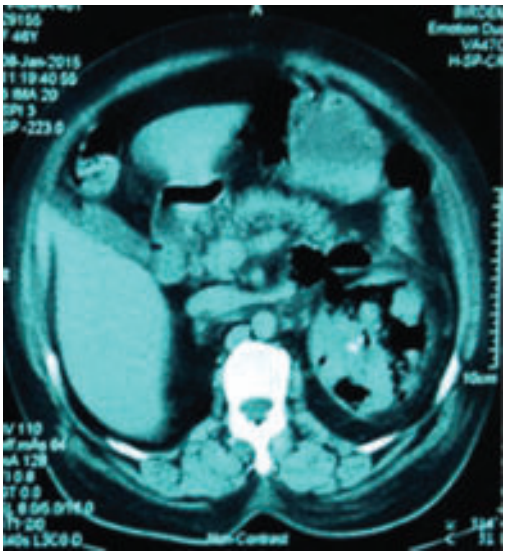

Fig.1: *Non-contrast computed tomography scan showing class IV emphysematous pyelonephritis involving left kidney along with left renal stone.*

Discussion:

Emphysematous pyelonephritis almost exclusively occurs among patients with diabetes mellitus.[3-5] Other risk factors include renal stones, genito-urinary obstruction, chronic kidney disease, post-transplantation status etc.[2,4] Fermentation of glucose by *Enterobacteriaceae* is the source of gas formation in emphysematous pyelonephritis. Depending up on the extension of gas in kidney(s) and perinephric areas, Huang and Tseng have classified emphysematous pyelonephritis in 4 classes.[2]

Clinical presentation of emphysematous pyelonephritis includes fever with chills and rigor, loin pain and vomiting. Patients may present with pneumaturia and rarely patients may remain asymptomatic.[5] Occasionally, an episode of emphysematous pyelonephritis may help in diagnosis of previously undetected diabetes mellitus[1] as was true in our case and such cases sometimes may require nephrectomy.[6] Neutrophil leukocytosis and high inflammatory markers are common.[3] Urine culture may reveal the organism and often patients may have septicaemia.

Treatment consists of resuscitation along with intravenous antibiotics with or without surgery.[2,3] Class III and more radiological classes require surgery.[2] The therapeutic trends are in change and more conservative approach are followed now-a-days.[7] Lu Y *et al.* have described predictors of failure in conservative management of emphysematous pyelonephritis.[8] Our patient required surgery because of class IV disease and kidney stone. She recovered with combined medical and surgical treatment and remained in good health and under regular follow-up.

Conclusion:

Emphysematous pyelonephritis is an uncommon and severe infection mostly occurring among diabetic patients. Any patient with emphysematous pyelonephritis should be investigated for diabetes, if not previously diagnosed one.

References:

1. Rafailidis V, Karadimou V, Liouliakis C, Kougioumtzoglou D. Emphysematous pyelonephritis: a case report. Hippokratia 2013;17(4):373-375.
2. Huang JJ, Tseng CC. Emphysematous pyelonephritis: clinicoradiological classification, management, prognosis and pathogenesis. Arch Intern Med 2000;160:797-805.
3. Rahim MA, Ananna MA, Samad T, Chowdhury TA, HaqueWMM, Iqbal S. Emphysematous Pyelonephritis in a 32-Year-Old Diabetic Female. J Enam Med Col 2015; 5(2):122-124.
4. Ubee SS, McGlynn L, Fordham M. Emphysematous pyelonephritis. BJU Int 2011;107(9):1474-1478.
5. Samad T, Rahim MA, Ananna MA, Chowdhury TA, Huq WMM, Iqbal S. Emphysematous pyelonephritis: retrospective analysis of 15 cases in a single center. Nephrology Dialysis Transplantation 2015; 30(suppl_3): iii420-iii421.
6. Nasr AA, Kishk AG, Sadek EM, Parayil SM. A Case Report of Emphysematous Pyelonephritis as a First Presentation of Diabetes Mellitus. Iran Red Cres Med J 2013; 15(12):e10384.
7. Sokhal AK, Kumar M, Purkait B, Jhanwar A, Singh K, Bansal A, et al. Emphysematous pyelonephritis: Changing trend of clinical spectrum, pathogenesis, management and outcome. Turk J Urol 2017;43(2):202-209.
8. Lu Y, Chiang B, Pong Y, Huang K, Hsueh P, Huang C, et al. Predictors of failure of conservative treatment among patients with emphysematous pyelonephritis. BMC Infectious Diseases 2014;14:418.

Extra nodal Lymphoma(Thyroid Lymphoma)- FNAC Diagnosis

M MOMIN

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A 62 year old male pateient presented with abdominal mass ,jaundice and swelling in front of neck and right axilla.ON FNAC from thyroid and axilla show monotonous population of cells suggestive of lymphoma. Further histological examination of excise axillary lymph nodeconfirmed Non-Hodgkins lymphoma Bcell type. Patient treated with chemotherpy and after cycle three all lymph node with throid swelling subsides.

Figure: A; Thyroid swelling(red arrow) & Right axillary swelling (grey arrow) B; FNAC Thyroid show monotonous round cells C; FNAC Axillary node show nmonotonous round cells.

A 62 -year old male came to surgery outpatient department of Yashoda hospital, Hyderabad, India, in May 2015 with history of yellowish discoloration for 15 days,swelling in front neck,loss of apetite and loss of weight. Out side investigations show jaundice and ultrasound abdomen suggestive of pancreatic mass with significant IHBR dilation. At presentation, Clinically he had fever ,icterus and swelling in front of neck,moves with deglutition & right axillary lymph node noted (Fig 1 A).CT scan of chest and abdomen showed Thyromegaly with Retrosternal extension, right Axillary lymphadenopathy, pancreatic mass lesion with dilated IHBR and prominent main pancreatic duct. Para-aortic, Retroperitoneal, mesenteric lymphnodes .

Fine needle aspiration cytology (FNAC) from thyroid and right axillary lymph node done which showed monotonous population of lymphocytes with two to three times larger than mature lymphocytes and fine chromatin (Fig 1B & C) favour lymphoproliferative disorder lymphoma.

Right axillary lymph node biopsy with IHC study showed High grade non-hodgkin lymphoma B cell type. Chemotherapy (CHOP) &Radiation Oncologist was consulted and patient was started on Palliative RT to neck in view of critical compression of trachea. Patient tolerated chemotherapy & radiotherapy well and after third cycle patient thyroid swelling completely subsided. His LFT come down to with in normal range. Presently patient in follow up with no recurrence of thyroid and axillary lymph node.

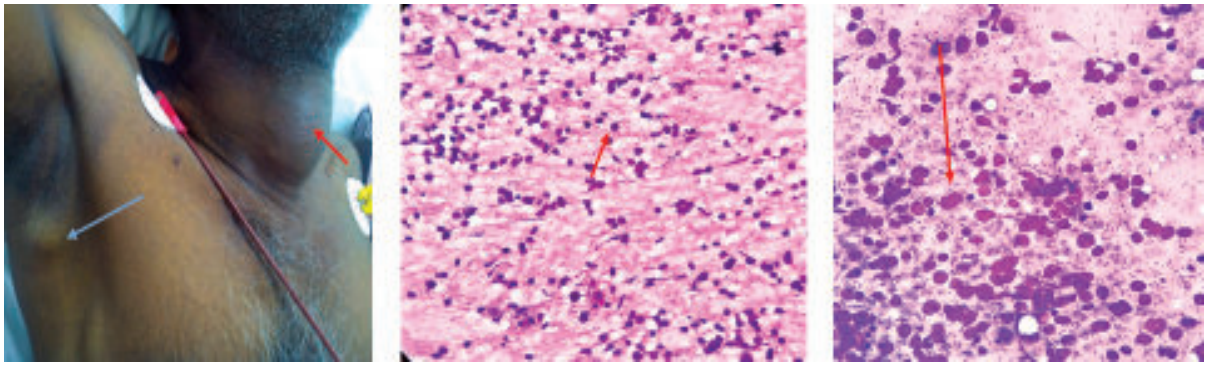

Fig.: *A. Thyroid swelling(red arrow) & Right axillary swelling (grey arrow); B. FNAC Thyroid show monotonous round cells; C. FNAC Axillary node show nmonotonous round cells.*

Dr. Majed Momin, Consultant Pathologist, Dept. of Laboratory Medicine, Yashoda Hospitals, Malakpet, Nalgonda Cross road, Hyderabad-500036, email: majedmomin9@gmail.com

COLLEGE NEWS

(J Bangladesh Coll Phys Surg 2018; 36: 83-89)

College of Examinations news: Results of FCPS Part-I, Part-II and MCPS examination held in January are given bellow:

2169 candidates appeared in FCPS Part-I, examination held in January, 2018 of which 212 candidates came out successful.

Subject wise results are as follows:

Result of FCPS Part-I Examination (January, 2018)

SL. No.	Subject	January-18		
		Total Candidate	Total Passed	Percentage
1.	Anaesthesiology	141	38	26.95
2.	Biochemistry	5	1	20.00
3.	Dentistry	100	2	2.00
4.	Dermatology & venereology	47	0	0.00
5.	Haematology	6	4	66.67
6.	Histopathology	12	7	58.33
7.	Medicine	640	62	9.69
8.	Microbiology	9	1	11.11
9.	Obst. & gynae	382	19	4.97
10.	Ophthalmology	76	1	1.92
11.	Otolaryngology	52	1	1.92
12.	Paediatrics	203	24	11.82
13.	Physical medicine & rehabilitation	20	4	20.00
14.	Psychiatry	14	7	50.00
15.	Radiology & imaging	33	2	6.06
16.	Radiotherapy	21	1	4.76
17.	Surgery	408	38	9.31
	Total	2169	212	9.77

The following candidates satisfied the Board of Examiners and are declared to have passed the FCPS - II Examinations held in January, 2018 subject to confirmation by the council of Bangladesh College of Physicians and Surgeons

Roll No.	Name	Subject	From where graduated
110020	Mahfuzul Islam Chowdhury	Anaesthesiology	Comilla Medical College, Comilla
110026	Saiful Mahmud Tusher	Anaesthesiology	Sher-E-Bangla Medical College, Barisal
110027	Ariful Haque	Anaesthesiology	M. Abdur Rahim Medical College, Dinajpur
150005	Zakia Khan	Conservative Dentistry and Endodontics	Dhaka Dental College, Dhaka
160017	Sharmin Jahan	Dermatology and Venereology	Sir Salimullah Medical College, Dhaka
190002	Aminul Islam	Gastroenterology	Rajshahi Medical College, Rajshahi
200005	Md Moshiur Rahman	Haematology	Chittagong Medical College, Chittagong
220003	Md Ishtyaq Ahmed	Histopathology	Armed Forces Medical College, Dhaka
240004	Md. Raisul Islam Sejan	Medicine	MAG Osmani Medical College, Sylhet

Roll No.	Name	Subject	From where graduated
240009	Md. Musfiqur Rahman	Medicine	Dhaka Medical College, Dhaka
240029	Mahbuba Yesmin	Medicine	Dhaka Medical College, Dhaka
240061	Ponkaj Kanti Datta	Medicine	Dhaka Medical College, Dhaka
240069	Mizanur Rahman	Medicine	Dhaka Medical College, Dhaka
240105	Munira Afroz Siddika	Medicine	Dhaka Medical College, Dhaka
240178	Kazi Sami Saleh Abdullah	Medicine	MAG Osmani Medical College, Sylhet
240255	Mohammed Ruhul Kabir	Medicine	Sir Salimullah Medical College, Dhaka
240265	Sultan Mahamud Sumon	Medicine	Mymensingh Medical College, Mymensingh
240290	Mohammad Shamsuddoha Sarker Shanchay	Medicine	Mymensingh Medical College, Mymensingh
240293	Ayet Ullah	Medicine	MAG Osmani Medical College, Sylhet
240296	Muhammad Razaul Karim	Medicine	Rajshahi Medical College, Rajshahi
240318	Mohammad Nazmul Karim	Medicine	Sir Salimullah Medical College, Dhaka
240340	A.S.M. Rizwan	Medicine	Shaheed Ziaur Rahman Medical College, Bogra
240354	Md. Mohiuddin Khan	Medicine	Mymensingh Medical College, Mymensingh
240378	Farhana Afrooz	Medicine	Sir Salimullah Medical College, Dhaka
240379	Sonia Mahjabin	Medicine	Mymensingh Medical College, Mymensingh
240399	Rama Sree Dhar	Medicine	Rangpur Medical College, Rangpur
240429	Md. Abdul Kadir Gani	Medicine	Sir Salimullah Medical College, Dhaka
240431	Suman Chandra Banik	Medicine	Sir Salimullah Medical College, Dhaka
240460	Kazi Md. Rubayet Anwar	Medicine	Sir Salimullah Medical College, Dhaka
240467	Md. Mamunur Rashid	Medicine	Sir Salimullah Medical College, Dhaka
240522	Istiak Ahmad	Medicine	MAG Osmani Medical College, Sylhet
240530	Md. Rafiquzzaman	Medicine	Chittagong Medical College, Chittagong
240559	Samina Shams	Medicine	Dhaka Medical College, Dhaka
240564	Jishu Das	Medicine	Dhaka Medical College, Dhaka
240565	Aysha Begum	Medicine	Dhaka Medical College, Dhaka
240575	Md. Sohel Rana	Medicine	Dhaka Medical College, Dhaka
240607	Md. Mehedi Hassan	Medicine	MAG Osmani Medical College, Sylhet
240617	Masrura Jabin	Medicine	Armed Forces Medical College, Dhaka
240619	Arup Kumar Roy	Medicine	Chittagong Medical College, Chittagong
240622	Md. Suman Kabir	Medicine	Dhaka Medical College, Dhaka
270001	Md Maqsudur Rasul	Nephrology	Sher-E-Bangla Medical College, Barisal
280001	Kazi Jannat Ara	Neurology	Mymensingh Medical College, Mymensingh
300013	Nilima Jafrin	Obstetrics & Gynaecology	MAG Osmani Medical College, Sylhet
300028	Shahanaz Parvin	Obstetrics & Gynaecology	Armed Forces Medical College, Dhaka
300075	Samira Areen	Obstetrics & Gynaecology	Mymensingh Medical College, Mymensingh
300079	Nur-Un-Naher Nazme	Obstetrics & Gynaecology	Shaheed Ziaur Rahman Medical College, Bogra
300087	Nasrin Akter	Obstetrics & Gynaecology	Sher-E-Bangla Medical College, Barisal
300112	Maya Rani Das	Obstetrics & Gynaecology	Sir Salimullah Medical College, Dhaka
300119	Md. Mahmood Hasan	Obstetrics & Gynaecology	Sher-E-Bangla Medical College, Barisal
300135	Syeda Huma Rahman	Obstetrics & Gynaecology	Chittagong Medical College, Chittagong
300137	Eshrat Jahan	Obstetrics & Gynaecology	MAG Osmani Medical College, Sylhet
300146	Indrani Nag	Obstetrics & Gynaecology	Rangpur Medical College, Rangpur
300201	Sharmin Tarek	Obstetrics & Gynaecology	Mymensingh Medical College, Mymensingh
300207	Dipu Das	Obstetrics & Gynaecology	Jalalabad Ragib-Rabeya Medical College, Sylhet

Roll No.	Name	Subject	From where graduated
300217	Rabea Khatun	Obstetrics & Gynaecology	Shaheed Mansur Ali Medical College, Dhaka
300219	Nazia Sultana Daisy	Obstetrics & Gynaecology	Mymensingh Medical College, Mymensingh
300229	Naheed Fatema	Obstetrics & Gynaecology	Dhaka Medical College, Dhaka
300247	Gazi Mahfuza	Obstetrics & Gynaecology	Mymensingh Medical College, Mymensingh
300249	Sulekha Bhattacharjee	Obstetrics & Gynaecology	Chittagong Medical College, Chittagong
300264	Fahmida Hasnat	Obstetrics & Gynaecology	Sir Salimullah Medical College, Dhaka
300326	Tahura Akter	Obstetrics & Gynaecology	Sher-E-Bangla Medical College, Barisal
300334	Natia Rahnuma	Obstetrics & Gynaecology	MAG Osmani Medical College, Sylhet
300340	Farhana Israt Jahan	Obstetrics & Gynaecology	Rajshahi Medical College, Rajshahi
300358	Sadia Fatema	Obstetrics & Gynaecology	Rajshahi Medical College, Rajshahi
300370	Jenin Mostari	Obstetrics & Gynaecology	Rangpur Medical College, Rangpur
300374	Masuma Khan	Obstetrics & Gynaecology	Dhaka Medical College, Dhaka
300376	Md. Faishal	Obstetrics & Gynaecology	Sher-E-Bangla Medical College, Barisal
300383	Nazmin Sultana	Obstetrics & Gynaecology	Faridpur Medical College, Faridpur
300390	Shafinaz Mehzabin	Obstetrics & Gynaecology	Dhaka Medical College, Dhaka
300402	Nebadita Saha	Obstetrics & Gynaecology	Sir Salimullah Medical College, Dhaka
300417	Rina Nasrin	Obstetrics & Gynaecology	Sir Salimullah Medical College, Dhaka
300421	Anasuya Ray	Obstetrics & Gynaecology	Sir Salimullah Medical College, Dhaka
300465	Most. Ummey Salma	Obstetrics & Gynaecology	Rangpur Medical College, Rangpur
300475	Farjana Akhter	Obstetrics & Gynaecology	Sher-E-Bangla Medical College, Barisal
300497	Farhana Yesmin Rumpa	Obstetrics & Gynaecology	Sir Salimullah Medical College, Dhaka
300499	Munmun Islam	Obstetrics & Gynaecology	Dhaka Medical College, Dhaka
300502	Some Rose Pervin	Obstetrics & Gynaecology	Rajshahi Medical College, Rajshahi
300505	Khadiza Begum	Obstetrics & Gynaecology	Sir Salimullah Medical College, Dhaka
300506	Sharmin Farjana	Obstetrics & Gynaecology	Dhaka Medical College, Dhaka
300524	Reshma Akter	Obstetrics & Gynaecology	Dhaka Medical College, Dhaka
300536	Arifa Akhter	Obstetrics & Gynaecology	Dhaka Medical College, Dhaka
300554	Sharmin Nahar	Obstetrics & Gynaecology	Dhaka Medical College, Dhaka
300574	Marina Yeasmin	Obstetrics & Gynaecology	Mymensingh Medical College, Mymensingh
300576	Sadia Shahrin	Obstetrics & Gynaecology	MAG Osmani Medical College, Sylhet
310011	Mohammad Aminul Islam	Ophthalmology	MAG Osmani Medical College, Sylhet
310012	Md. Abdur Rashid	Ophthalmology	Khulna Medical College, Khulna
310015	Ayesha Akter Shelley	Ophthalmology	MAG Osmani Medical College, Sylhet
310016	S. Faisal Ahmed	Ophthalmology	Dhaka Medical College, Dhaka
310017	Sifat - E - Bashar	Ophthalmology	Sher-E-Bangla Medical College, Barisal
310018	Mohammad Mahbubul Hasan	Ophthalmology	Mymensingh Medical College, Mymensingh
310019	Md. Asaduzzaman	Ophthalmology	Ibrahim Medical College, Dhaka
310021	Shaila Sharmin	Ophthalmology	Comilla Medical College, Comilla
310024	Mahfuja Khanam Luna	Ophthalmology	Mymensingh Medical College, Mymensingh
310025	Shahrina Mahfooz Raka	Ophthalmology	Ibrahim Medical College, Dhaka
310027	Mohammad Hussain Raihan	Ophthalmology	MAG Osmani Medical College, Sylhet
310028	Al Mahmud Lemon	Ophthalmology	Rajshahi Medical College, Rajshahi
310029	Sanjay Kumar Sarker	Ophthalmology	Dhaka Medical College, Dhaka
320004	Mohammed Morshed Alam	Oral and Maxillofacial Surgery	Rajshahi Medical College, Rajshahi
320005	Ansar Uddin Ahmed	Oral and Maxillofacial Surgery	University Dental College, Dhaka
320011	Md. Isat-E- Rabban	Oral and Maxillofacial Surgery	Dhaka Dental College, Dhaka
320017	Farhana Zaman	Oral and Maxillofacial Surgery	Dhaka Dental College, Dhaka

Roll No.	Name	Subject	From where graduated
320020	K. M. Ahsan Kabir	Oral and Maxillofacial Surgery	Dhaka Dental College, Dhaka
320024	Mohammad Rezaul Karim Ripon	Oral and Maxillofacial Surgery	Dhaka Dental College, Dhaka
320028	A.F.M. Shakilur Rahman	Oral and Maxillofacial Surgery	Rajshahi Medical College, Rajshahi
330001	Subodh Chandra Chakraborty	Orthodontics and Dentofacial Orthopaedics	City Dental College, Dhaka
330006	Md. Abu Taleb Golam Soroar	Orthodontics and Dentofacial Orthopaedics	Dhaka Dental College, Dhaka
330007	Monwarul Aziz	Orthodontics and Dentofacial Orthopaedics	Pioneer Dental College, Dhaka
330008	Lubna Akter	Orthodontics and Dentofacial Orthopaedics	Dhaka Dental College, Dhaka
330009	Tamanna Begum	Orthodontics and Dentofacial Orthopaedics	Dhaka Dental College, Dhaka
350002	Md. Mahbub Alam	Otolaryngology	Dhaka Medical College, Dhaka
350003	A. S. M. Sayem	Otolaryngology	Khulna Medical College, Khulna
350011	Anup Kumar Chowdhury	Otolaryngology	MAG Osmani Medical College, Sylhet
350019	Syed Ali Ahasan	Otolaryngology	Dhaka Medical College, Dhaka
350020	Mostafa Kamal Arefin	Otolaryngology	Dhaka Medical College, Dhaka
350021	Md. Momin Uddin	Otolaryngology	Sir Salimullah Medical College, Dhaka
350023	S. M. Faisal Zishan	Otolaryngology	Sir Salimullah Medical College, Dhaka
350024	Debabrota Roy	Otolaryngology	Chittagong Medical College, Chittagong
350027	Md. Monirul Alam	Otolaryngology	Dhaka Medical College, Dhaka
350028	Md. Ashraful Alam	Otolaryngology	Mymensingh Medical College, Mymensingh
350036	Md. Shahriar Islam	Otolaryngology	Dhaka Medical College, Dhaka
350037	Supran Biswas	Otolaryngology	MAG Osmani Medical College, Sylhet
350038	Md. Zahidul Islam	Otolaryngology	Shaheed Ziaur Rahman Medical College, Bogra
350039	Nasir Uddin	Otolaryngology	MAG Osmani Medical College, Sylhet
390014	Mohammad Khairul Alam	Paediatrics	MAG Osmani Medical College, Sylhet
390105	Sumala Ashraf	Paediatrics	Bangladesh Medical College, Dhaka
390132	Afroza Begom	Paediatrics	Mymensingh Medical College, Mymensingh
390143	Rokshana Ahmed	Paediatrics	MAG Osmani Medical College, Sylhet
390165	Bijoy Kumar Das	Paediatrics	Mymensingh Medical College, Mymensingh
390175	Nazmun Nahar (Shampa)	Paediatrics	Dhaka Medical College, Dhaka
390180	Jillur Rahman Siddiki	Paediatrics	Rangpur Medical College, Rangpur
390181	Farhana Akhter Faruque	Paediatrics	Rajshahi Medical College, Rajshahi
390196	Mir Hasan Md. Moslem	Paediatrics	Comilla Medical College, Comilla
390197	Tasnuva Khan	Paediatrics	Dhaka Medical College, Dhaka
390198	Joyashree Chakraborty	Paediatrics	Chittagong Medical College, Chittagong
390210	Laisha Yeasmin	Paediatrics	Dhaka Medical College, Dhaka
390215	Sara Bilkis	Paediatrics	Shaheed Ziaur Rahman Medical College, Bogra
390217	Laila Helaly	Paediatrics	Mymensingh Medical College, Mymensingh
390220	Shamima Sharmin Shova	Paediatrics	Chittagong Medical College, Chittagong
400003	A.B.M. Zafar Sadeque	Physical Medicine & Rehabilitation	Chittagong Medical College, Chittagong
400004	Md.Imam Shahriar	Physical Medicine & Rehabilitation	Faridpur Medical College, Faridpur
400005	Nadia Siddiquee	Physical Medicine & Rehabilitation	Community Based Medical College, Mymensingh
400009	Asim Kumer Das	Physical Medicine & Rehabilitation	Sir Salimullah Medical College, Dhaka
400010	Md. Mahfuzur Rahman	Physical Medicine & Rehabilitation	M. Abdur Rahim Medical College, Dinajpur
400012	Mohammad Abdul Hye	Physical Medicine & Rehabilitation	Rangpur Medical College, Rangpur
400013	Khandaker Md. Kamrul Islam	Physical Medicine & Rehabilitation	MAG Osmani Medical College, Sylhet
420001	S. M. Forhad Arefin	Prosthodontics	Sappro Dental College, Dhaka
420002	Md. Al-Amin Sarkar	Prosthodontics	Rangpur Dental College, Rangpur

Roll No.	Name	Subject	From where graduated
430001	Md. Shahidul Islam Khandoqar	Psychiatry	Sher-E-Bangla Medical College, Barisal
430003	A. K. M Najmul Hasan	Psychiatry	MAG Osmani Medical College, Sylhet
440001	Mohammad Moshiur Rahman	Pulmonology	Dhaka Medical College, Dhaka
450002	Shafayat Bin Mollah Mosharraf	Radiology & Imaging	Sir Salimullah Medical College, Dhaka
450003	Muhammad Shoyab	Radiology & Imaging	Sir Salimullah Medical College, Dhaka
450009	Rukhsana Parveen	Radiology & Imaging	Armed Forces Medical College, Dhaka
450010	Sadia Rahman	Radiology & Imaging	Chittagong Medical College, Chittagong
450011	Sharmin Akter	Radiology & Imaging	Chittagong Medical College, Chittagong
450012	Nikhileshwar Roy	Radiology & Imaging	Dhaka Medical College, Dhaka
460004	Tannima Adhikary	Radiotherapy	Sher-E-Bangla Medical College, Barisal
480187	Muhammad Abdur Rouf	Surgery	Rangpur Medical College, Rangpur
480188	Md. Shafiqul Islam	Surgery	Sir Salimullah Medical College, Dhaka
480192	Md. Nur Alam Mohim	Surgery	Mymensingh Medical College, Mymensingh
480193	Saber Aminur Rahman	Surgery	Bangladesh Medical College, Dhaka
480200	Mahnaz Tabassum Prova	Surgery	Dhaka Medical College, Dhaka
480203	Ghiyas Uddin Ariph	Surgery	MAG Osmani Medical College, Sylhet
480216	Farah Nobi	Surgery	Ibrahim Medical College, Dhaka
480218	Tasmina Hossain	Surgery	Ibrahim Medical College, Dhaka
480244	Rajib Shahriar	Surgery	M. Abdur Rahim Medical College, Dinajpur
480245	Nahid Rahman Zico	Surgery	Dhaka Medical College, Dhaka
480249	Hafizur Rashid Sazal	Surgery	Armed Forces Medical College, Dhaka
480270	Rokhsana Sarmin	Surgery	Dhaka Medical College, Dhaka
480271	Irma Alam	Surgery	Bangladesh Medical College, Dhaka
480273	Samia Shihab Uddin	Surgery	Bangladesh Medical College, Dhaka
480285	Md. Ashraful Islam	Surgery	Rangpur Medical College, Rangpur
500001	Md. Mohiur Rahman Khan	Urology	Kuban State Medical Institute, Krasnodar, Russia
500002	Mohammad Humayun Kabir Bhuiyun		Urology Rangpur Medical College, Rangpur
540001	Anjir Anwar	Preli - Paediatrics	Chittagong Medical College, Chittagong
540002	Sanjana Sanom	Preli - Paediatrics	Mymensingh Medical College, Mymensingh
130002	Mohammad Abul Kalam Azad Khan		Preli - Medicine MAG Osmani Medical College, Sylhet
440001	Muhammad Shakhawath Hossain	Preli - Medicine	Sir Salimullah Medical College, Dhaka
140002	Md. Moynul Islam	Preli - Surgery	Rangpur Medical College, Rangpur

The following candidates satisfied the Board of Examiners and are declared to have passed the MCPS Examinations held in January, 2018 subject to confirmation by the council of Bangladesh College of Physicians and Surgeons

Roll No.	Name	Subject	From where graduated
110003	Rifat Hasan	Anaesthesiology	Shaheed Mansur Ali Medical College, Dhaka
110005	Mohammad Jubair Ibnul	Anaesthesiology	Armed Forces Medical College, Dhaka
110007	Md. Abdul Moktadir	Anaesthesiology	Community Based Medical College, Mymensingh
110009	Asif-Ur-Rahman-Shaikat	Anaesthesiology	Sir Salimullah Medical College, Dhaka

Roll No.	Name	Subject	From where graduated
930003	Muhammad Ahsan Ibne Shahjahan	Dental Surgery	Rajshahi Medical College, Rajshahi
930004	Rukhshana Afroz Afrin	Dental Surgery	Dhaka Dental College, Dhaka
930005	Arefin Ashraf	Dental Surgery	Dhaka Dental College, Dhaka
930010	S M Mahfuzur Rahman	Dental Surgery	Dhaka Dental College, Dhaka
160006	Toioba Akter	Dermatology and Venereology	Dhaka Medical College, Dhaka
910001	Mst. Sanzida Jahan	Laboratory Medicine	Rajshahi Medical College, Rajshahi
910002	Nur-E-Zannat	Laboratory Medicine	Rajshahi Medical College, Rajshahi
910003	Farzana Shabnam	Laboratory Medicine	Sindh Medical College, Karachi, Pakistan
240050	Joybaer Anam Chowdhury	Medicine	Dhaka Medical College, Dhaka
240060	Md. Raiq Raihan Chowdhury	Medicine	Dhaka Medical College, Dhaka
240102	Partha Sarathi Sarker	Medicine	Dhaka Medical College, Dhaka
240131	S M Habibur Rahman Habib	Medicine	Sir Salimullah Medical College, Dhaka
240142	Md. Imran Hossain	Medicine	Sir Salimullah Medical College, Dhaka
240144	Md. Azharul Islam	Medicine	Khwaja Yunus Ali Medical College, Sirajgonj
240153	Sumiya Bent Kalam	Medicine	Sir Salimullah Medical College, Dhaka
240154	Sakib Aman	Medicine	Sir Salimullah Medical College, Dhaka
240162	Mohammad Anwarul Islam	Medicine	Mymensingh Medical College, Mymensingh
300011	Ranajit Biswas	Obstetrics & Gynaecology	MAG Osmani Medical College, Sylhet
300021	Rehana Mamtaz	Obstetrics & Gynaecology	Dhaka Medical College, Dhaka
300024	Bably Dey	Obstetrics & Gynaecology	Sir Salimullah Medical College, Dhaka
300035	Sharmila Sarker	Obstetrics & Gynaecology	Sir Salimullah Medical College, Dhaka
300036	Ayasha Siddika	Obstetrics & Gynaecology	Rangpur Medical College, Rangpur
300039	Sumaiya Nazmun	Obstetrics & Gynaecology	Mymensingh Medical College, Mymensingh
300040	Tania Akter	Obstetrics & Gynaecology	Sir Salimullah Medical College, Dhaka
300043	Tafazzula Tasnim	Obstetrics & Gynaecology	Sir Salimullah Medical College, Dhaka
300049	Farhana Rahman	Obstetrics & Gynaecology	Shaheed Ziaur Rahman Medical College, Bogra
300052	Nayer Islam	Obstetrics & Gynaecology	Chittagong Medical College, Chittagong
300054	Tahmina Dewan Ovy	Obstetrics & Gynaecology	Chittagong Medical College, Chittagong
300060	Zinat Habiba	Obstetrics & Gynaecology	Sir Salimullah Medical College, Dhaka
300061	Zerin Zindia Hossain	Obstetrics & Gynaecology	Sir Salimullah Medical College, Dhaka
300070	Tangina Chowdhury	Obstetrics & Gynaecology	Mymensingh Medical College, Mymensingh
300071	Nister-E-Afsana	Obstetrics & Gynaecology	Rajshahi Medical College, Rajshahi
300073	Dipannita Dhar	Obstetrics & Gynaecology	Sher-E-Bangla Medical College, Barisal
300074	Farjana Raihan	Obstetrics & Gynaecology	Sir Salimullah Medical College, Dhaka
300079	Sarmin Sultana Swarna	Obstetrics & Gynaecology	Sher-E-Bangla Medical College, Barisal
300081	Mst. Jhorna Khatun	Obstetrics & Gynaecology	Rangpur Medical College, Rangpur
300083	Syada Siddiqua	Obstetrics & Gynaecology	Sir Salimullah Medical College, Dhaka
300091	Farhanul Junnat	Obstetrics & Gynaecology	Rajshahi Medical College, Rajshahi
300094	Sharmin Akter	Obstetrics & Gynaecology	Khulna Medical College, Khulna
300108	Sultana Rajia	Obstetrics & Gynaecology	Rangpur Medical College, Rangpur
300112	Ananya Rani	Obstetrics & Gynaecology	Khulna Medical College, Khulna
310010	Abdullah Al Masud	Ophthalmology	Rajshahi Medical College, Rajshahi
310013	Md. Murad Hasan	Ophthalmology	Rajshahi Medical College, Rajshahi
310016	Suborna Sultana	Ophthalmology	Comilla Medical College, Comilla
350005	Abdulla Al Mamun	Otolaryngology	Sher-E-Bangla Medical College, Barisal
390002	Mashura Musharraf	Paediatrics	Rangpur Medical College, Rangpur

Roll No.	Name	Subject	From where graduated
390013	Farhana Rahman	Paediatrics	Sir Salimullah Medical College, Dhaka
390014	Jakia Sultana	Paediatrics	Shaheed Ziaur Rahman Medical College, Bogra
390017	Tahmina Khandkar	Paediatrics	Mymensingh Medical College, Mymensingh
390027	Farzana Kabir	Paediatrics	Dhaka Medical College, Dhaka
430004	Ranjan Kumar Sen	Psychiatry	Shaheed Ziaur Rahman Medical College, Bogra
430007	Md. Mufazzal Hossen	Psychiatry	Shaheed Ziaur Rahman Medical College, Bogra
450002	Kakoli Chowdhury	Radiology & Imaging	Chittagong Medical College, Chittagong
450003	Luna Ahmed	Radiology & Imaging	MAG Osmani Medical College, Sylhet
450005	Md. Zahirul Islam	Radiology & Imaging	Sir Salimullah Medical College, Dhaka
460001	Nazmun Naher Shanta	Radiotherapy	Bangladesh Medical College, Dhaka
480018	Muhammad Asaduzzaman	Surgery	Dhaka Medical College, Dhaka
480020	Afeda Taher	Surgery	Mymensingh Medical College, Mymensingh
480024	Md. Al-Amin Chowdhury	Surgery	Comilla Medical College, Comilla
480043	Sonia Rahman	Surgery	Holy Family Red Crescent Medical College, Dhaka
480050	Krishna Kumar Das	Surgery	Khulna Medical College, Khulna

FROM THE DESK OF EDITOR in CHIEF

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Greetings for pohela Baishakh. I hope this year will bring more achievements among all the members of BCPS family.

On behalf of journal committee my special thanks to all the fellows who are contributing a lot to maintain the quality of the journal. Your continuous support help us to publish the journal in time.

My earnest request to all the members of the family to submit more quality articles to uphold the dignity of our journal. This is specially required to get international recognition of the journal.

Prof. Dr. Ferdousi Islam