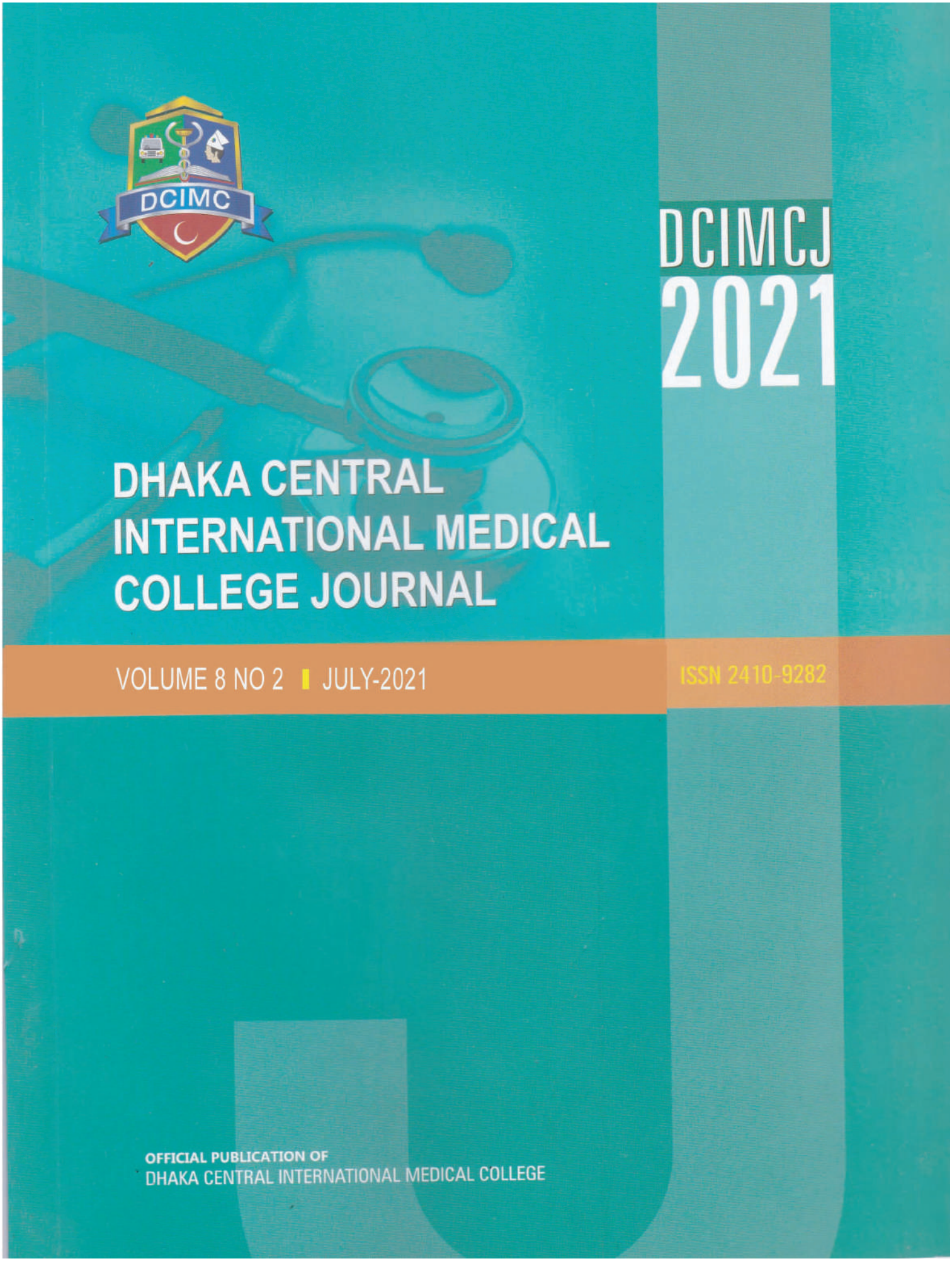

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From the Desk of Editor-in-Chief

We are delighted to inform that the Volume 8, Number 2 of the Dhaka Central International Medical College Journal (DCIMCJ) is going to be published very soon. In this issue we have added a new section, Medical Quiz: Images. We are grateful to Almighty Allah. We are sending the complimentary copies of the journal to the libraries of most of the medical college and other medical institutions in Bangladesh. Already our journal has been approved by Bangladesh Medical & Dental Council (BMDC). We invite the doctors of medical colleges and institutes to submit their research articles to the journal committee for publication. We accept both hard & soft copies of the articles. We go through the papers and if necessary, communicate the authors. We also thank all the authors for giving us opportunity to publish their research papers in this journal. We have tried our best to avoid erroneous information. We like to add here that DCIMC Journal and its editorial board accept no liability for any inaccurate and misleading information, opinion and statements. It is the responsibility of the individual author (s). We have mentioned the instruction for the authors in this issue. We request the contributing authors to follow the instructions for their manuscripts. We appreciate our chairman, editors, members and advisors for their encouragement and also appreciate the contributors and reviewers for their participation. Last of all we welcome valuable suggestion, opinion, advice and constructive criticisms for improvement of the quality of the journal.

Prof. Bidhu Bhushan Das
Editor-in- Chief

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

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

Article types:

Five types of manuscripts may be submitted:

Editorials:

It will be preferably written invited only and usually covers a single topic of contemporary interest.

Original articles:

These should describe new and carefully confirmed findings, and experimental procedures should be given in sufficient detail for others to verify the work. The length of a full paper should be the minimum required to describe and interpret the work clearly.

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

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

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

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

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

Condition for submission of manuscripts:

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

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- Ethical aspect of the study will be very carefully considered at the time of assessment of the manuscript.
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Preparation of manuscript Criteria:
Information provided in the manuscript is important and likely to be of interest to an international readership.

Preparation:

1. Manuscript should be written in English and typed on one side of A4 (29 x 21cm) size white paper.
2. Margin should be 5 cm for the header and 2.5 cm for the remainder.
3. Style should be that of modified Vancouver.
4. Each of the following section should begin separate page :
    - Title page
    - Summary/abstract
    - Text
    - Acknowledgement
    - References
    - Tables and legends

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

I. A. 1.a. General Principles:

- The text of observational and experimental articles is usually (but not necessarily) divided into the following section: Introduction, Methods, Results, and Discussion. This so-called "IMRAD" structure is a direct reflection of the process of scientific discovery.

- Long articles may need subheadings within some sections (especially Results and Discussion) to clarify their content. Other types of articles, such as case reports, reviews, and editorials, probably need to be formatted differently.
- Electronic formats have created opportunities for adding details or whole sections, layering information, cross linking of extracting portions of the articles.
- Authors need to work closely with editors in developing or using such new publication formats and should submit supplementary electronic material for peer review.
- Double-spacing all portions of the manuscript- including the title page, abstract, text, acknowledgments, references, individual tables, and legends- and generous margins make it possible for editors and reviewers to edit the textline by line and add coments and queries directly on the paper copy.
- If manuscripts are submitted electronically, the files should be double-spaced to facilitate reviewing and editing.
- Authors should number on right upper corner of all of the pages of the manuscript consecutively, beginning with the title page, to facilitate the editorial process.

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

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

I. A. 2. Title page:

1. Article title. Concise title is easier to read than long, convoluted ones. Titles that are too short may, however, lack important information, such as study design (which is particularly important in identifying type of trials). Authors should include all information in the title that will make electronic retrieval of the article both sensitive and specific.
2. Authors' names and institutions.
3. The name of the department(s) and institution(s) to which the work should be attributed.
4. Disclaimers, if any.
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7. Source(s) of support in the form of grants, equipment, drugs, or all of these.
8. A short running head or foot line, of no more than 40 characters (including litters and spaces). Running heads are published and also used within the editorial office for filing and locating manuscript.
9. The number of figures and tables. It is difficult for editorials staff and reviewers to determine whether the figures and tables that should have accompanied a manuscript were actually included unless the numbers of figures and tables are noted on the title page.

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

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

I. A. 4. Abstract:

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

I. A. 5. Introduction:

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

I. A. 6. Methods:

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

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

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

I. A. 6. b. Technical information:

- Identify the methods, apparatus (give the manufacturer's name and address in parentheses), and procedures insufficient detail to allow others to reproduce the results. Give references to established methods, including statistical methods (see below); provide references and brief description for methods that have been published but are not well-known; describe new or substantially modified methods, give the reasons for using them, and evaluate their limitations. Identify precisely all drugs and chemicals used, including generic name(s), dose(s), and route(s) of administration.
- Authors submitting review article should include a section describing the methods used for locatin, selection, extracting, and synthesizing data. These methods should also be summarized in the abstract.

I. A. 6. c. Statistics:

- Describe statistical methods with enough detail to enable a knowledgeable reader with access to the original data to verify the reported results. When possible, quantify findings and present them with appropriate indicators of measurement error or uncertainty (such as confidence intervals).

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

- Define statistical terms, abbreviations, and most symbols.

- Specify the computer software used.

I. A. 7. Result:

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

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

- When data are summarized in the Results section, give numeric results not only as derivatives (for example, percentages) but also as the absolute numbers from which the derivatives were calculated, and specify the statistical methods used to analyze them.

- Restrict tables and figures to those needed to explain the argument of the paper and to assess supporting data. Use graphs as an alternative to tables with many entries; do not duplicate data in graphs and tables.

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

I.A.8. Discussion:

- Emphasize the new and important aspects of the study and the conclusions that follow then in the context of the totality of the best available evidence.

- Do not repeat in detail data or other information given in the introduction or the result section.

- For experimental studies, it is useful to begin the discussion by briefly summarizing the main findings, then explore possible mechanisms or explanations for these findings, compare and contrast the results with other relevant studies, state the limitations of the study, and explore the implications of the findings for future research and for clinical practice.

- Link the conclusions with the goals of the study but avoid unqualified statements and conclusions not adequately supported by the data. In particular, avoid making statements on economic benefits and costs unless the manuscript includes the appropriate economic data and analyses. Avoid claiming priority or alluding to work that has not been complete. State new hypotheses when warranted, but label them clearly as such.

I. A 9. References:

I. A. 9. a. General considerations related to References:

- Although references to review articles can be an efficient way to guide readers to a body of literature, review articles do not always reflect original work accurately. Readers should therefore be provided with direct references to original research sources whenever possible.

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

- Avoid using abstracts as references. References to papers accepted but not yet published should be designated as "in press" or "forthcoming"; authors should obtain written permission to cite such papers as well as verification that they have been accepted for publication.

- Information from manuscripts submitted but not accepted should be cited in the text as "unpublished observations" with written permission from the source.

- Avoid citing a "personal communication" unless it provides essential information not available from a public source, in which case the name of the person and date of communication should be cited in parentheses in the text. For scientific articles, obtain written permission and confirmation of accuracy from the source of a personal communication. Some but not all journals check the accuracy of all references citations; thus, citation errors sometimes appear in the published version of articles. To minimize such errors, references should be verified using either an electronic bibliographic source such as Pub Med or print copies from original sources.

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

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

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

- Identify references in text, tables, and legends by Arabic numerals in superscript.

- References cited only in tables or figure legends should be numbered in accordance with the sequence established by the first identification in the text of the particular table or figure.

I. A. 10. Tables:

- Tables capture information concisely and display it efficiently.

- Use tables/figures that are relevant to study

- Try to limit the number of tables/figure

- Type or print each table with double-spacing on a separate sheet of paper. Number tables consecutively in the order of their first citation in the text and supply a brief title for each.

- Do not use internal horizontal or vertical lines. Give each column a short or an abbreviated heading. Authors should place explanatory matter in footnotes, not in the heading. Explain all nonstandard abbreviation in footnotes, and use the following symbols, in sequence:
  *, †, ‡, §, _, ¶, **, ††, ††, §§, _ _, ¶¶, etc.

- Identify statistical measures of variations, such as standard deviation and standard error of the mean.

- Be sure that each table is cited in the text. If you use data from another published or unpublished source, obtain permission and acknowledge that source fully.

I. A. 11. Illustrations (Figures):

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

- Authors should review the images of such files on a computer screen before submitting them to be sure they meet their own quality standards. For x-ray films, scans, and other diagnostic images, as well as pictures of pathology specimens or photomicrographs, send sharp, glossy, black-and-white or color photographic prints, usually 127 X 173 mm (5 X 7 inches)

- Letters, numbers, and symbols on figures should therefore be clear and consistent throughout, and large enough to remain legible when the figure is reduced for publication.

- Photographs of potentially identifiable people must be accompanied by written permission to use the photograph. Figures should be numbered consecutively according to the order in which they have been cited in the text.

- If a figure has been published previously, acknowledge the original source and submit written permission from the copyright holder to reproduce the figure. Permission is required irrespective of authorship or publisher except for documents in the public domain.

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- Authors should report laboratory information in both local and International System of Units (SI).

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I. A. 14. Abbreviations and symbols:

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- 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.

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

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

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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.

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Final checklists before you submit your revised article for the possible publication in the Journal of Dhaka Central International Medical Collage:

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2. Authorship and conflicts of interest form
3. Manuscript

- Sample of the above document is available in the following links: http://www.dcimc.com
- If you have submitted mentioned document (1, 2, 3) above, when you first submitted your article then you don't need to re-submit but if there is change in the authorship or related then you have to re-submit it.

General outline for article presentation and format:

- Double spacing
- Font size should be 12 in arial
- Margins 5 cm from above and 2.5 cm from rest sides.
- Title page contains all the desired information (vide supra)
- Running title provided (not more than 40 characters)
- Headings in title case (not ALL CAPITALS, not underline)
- References cited in superscript in the text without brackets after with/without comma (,) or full stop (.)
- References according to the journal's instructions─abide by the rules of Vancouver system.

Language and grammar:

- Uniformity in the language
- Abbreviations spelt out in full for the first time
- Numbers from 1 to 10 spelt out
- Numerals at the beginning of the sentence spelt out

Tables and figures:

- No repetition of data in tables/graphs and in text
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- Figure' privacy maintained (if not, written permission enclosed)
- Credit note for borrowed figures/tables provided
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- **Title**
  - Complete title of your article
  - Complete author information
  - Mention conflict or interest if any
- **Abstract**
  - Do not use subheadings in the abstract
  - Give full title of the manuscript in the Abstract page
  - Not more than 200 words for case reports and 250 words for original articles
  - Structured abstract (Including introduction, methods, results and discussion, conclusion) for case reports.
  - Key words provided – arrange them in alphabetical order (three – five)
- **Introduction:**
  - Word limit 150-200 words
  - Pertinent information only

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

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

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DCIMCJ

Editorial

DCIMCJ 2021 July;8(2):13-17

Ten Worst Pandemics in Human History

Begum R[1], Karim S[2]

Introduction:

There have been a lot of deadly infectious diseases throughout history, and illnesses like malaria, tuberculosis, influenza, and smallpox have killed hundreds upon thousands over time, ever since humanity's hunter-gatherer days.

But the shift to agriculture, towns, and cities, made it possible for these illnesses to spread far and wide and become epidemics. However, the very worst case for any disease is when it becomes a pandemic. Unfortunately, with trade and travel, there have been quite a few pandemics across human history.

It's difficult to know exactly how many pandemics have taken place throughout human history since they have been happening for as long as humans have existed as a species. In 2015, a team of researchers discovered a house in China that dates from 3,000 BC filled with the prehistoric remains of dozens of humans from all age groups, possibly killed by a pandemic. For much of human history, such mass death could easily have spelled doom for entire communities.

An epidemic is when a disease rapidly spreads to a large number of people inside a country (or any other given area) in just a short period of time.

A pandemic is when it spreads beyond just a country's borders. It usually affects people on multiple continents or even worldwide, and a much larger number of people are infected.

However, any communicable diseases that recur yearly or seasonally (like winter colds or seasonal flu) aren't counted as pandemics. Nonetheless, the history of pandemics in the world is one that is long and deadly.

1. Dr. Rahana Begum, Associate Professor, Department of Community Medicine, Dhaka Central International Medical College.

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

Here are 10 of the worst pandemics in human history:

Scientists and medical researchers have for years have differed over the exact definition of a pandemic (is it a pandemic, or an epidemic), but one thing everyone agrees on is that the word describes the widespread occurrence of disease, in excess of what might normally be expected in a geographical region. Cholera, bubonic plague, smallpox, and influenza are some of the most brutal killers in human history. And outbreaks of these diseases across international borders, are properly defined as pandemic, especially smallpox, which throughout history, has killed between 300-500 million people in its 12,000 year existence.

Covid-19 (The Novel Corona virus):

Beginning in December 2019, in the region of Wuhan, China, a new ("novel") coronavirus began appearing in human beings. It has been named Covid-19, a shortened form of "coronavirus disease of 2019." This new virus spreads incredibly quickly between people, due to its newness – no one on earth has an immunity to Covid-19, because no one had Covid-19 until 2019. While it was initially seen to be an epidemic in China, the virus spread worldwide within months. The WHO declared Covid-19 a pandemic in March, and by the end of that month, the world saw more than a half-million people infected and nearly 30,000 deaths. At the time of writing, COVID-19 has killed over 6.5 million people worldwide .This number is still increasing as the pandemic rages on. The infection rate in the US and other nations was still spiking.

With the coronavirus pandemic, people all over the world have become more aware of the best practices during a pandemic, from careful hand-washing to social distancing.

Countries across the world declared mandatory stay-at-home measures, closing schools, businesses, and public places. Dozens of companies and many more independent researchers began working on tests, treatments, and vaccines. The push for the human race to survive the pandemic became the primary concern in the world.

The outcome of the Covid-19 pandemic is impossible to predict, at the time of this writing. But we can learn from pandemics in history to determine our best courses. These are our teachers – the Spanish flu, the AIDS pandemic, and more.

HIV/AIDS Pandemic (At its peak, 2005-2012):
Death Toll: 36 million
Cause: HIV/AIDS

First identified in Democratic Republic of the Congo in 1976, HIV/AIDS has truly proven itself as a global pandemic, killing more than 36 million people since 1981. Currently there are 31 and million people living with HIV, the vast majority of those are in Sub-Saharan Africa, where 5% of the population is infected, roughly 21 million people. As awareness has grown, new treatments have been developed that make HIV far more manageable, and many of those infected go on to lead productive lives. Between 2005 and 2012 the annual global deaths from HIV/AIDS dropped from 2.2 million to 1.6 million.

Flu pandemic (1968):

Death Toll: 1 million
Cause: Influenza

A category 2 Flu pandemic sometimes referred to as "the Hong Kong Flu," the 1968 flu pandemic was caused by the H3N2 strain of the Influenza A virus, a genetic offshoot of the H2N2 subtype. From the first reported case on July 13, 1968 in Hong Kong, it took only 17 days before outbreaks of the virus were reported in Singapore and Vietnam, and within three months had spread to The Philippines, India, Australia, Europe, and the United States. While the 1968 pandemic had a comparatively low mortality rate (.5%) it still resulted in the deaths of more than a million people, including 500,000 residents of Hong Kong, approximately 15% of its population at the time.

Asian flu (1956-1958):

Death Toll: 2 million
Cause: Influenza

Asian Flu was a pandemic outbreak of Influenza A of the H2N2 subtype, that originated in China in 1956 and lasted until 1958. In its two-year spree, Asian Flu traveled from the Chinese province of Guizhou to Singapore, Hong Kong, and the United States. Estimates for the death toll of the Asian Flu vary depending on the source, but the World Health Organization places the final tally at approximately 2 million deaths, 69,800 of those in the US alone.

Flu pandemic (1918)

Death Toll: 20 -50 million
Cause: Influenza

Between 1918 and 1920 a disturbingly deadly outbreak of influenza tore across the globe, infecting over a third of the world's population and ending the lives of 20 – 50 million people. Of the 500 million people infected in the 1918 pandemic, the mortality rate was estimated at 10% to 20%, with up to 25 million deaths in the first 25 weeks alone. What separated the 1918 flu pandemic from other influenza outbreaks was the victims; where influenza had always previously only killed juveniles and the elderly or already weakened patients, it had begun striking down hardy and completely healthy young adults, while leaving children and those with weaker immune systems still alive.

Sixth cholera pandemic (1910-1911):

Death Toll: 800,000+
Cause: Cholera

Like its five previous incarnations, the Sixth Cholera Pandemic originated in India where it killed over 800,000, before spreading to the Middle East, North Africa, Eastern Europe and Russia. The Sixth Cholera Pandemic was also the source of the last American outbreak of Cholera (1910–1911). American health authorities, having learned from the past, quickly sought to isolate the infected, and in the end only 11 deaths occurred in the U.S. By 1923 Cholera cases had been cut down dramatically, although it was still a constant in India.

Flu pandemic (1889-1890):
Death Toll: 1 million
Cause: Influenza
Originally the "Asiatic Flu" or "Russian Flu" as it was called, this strain was thought to be an outbreak of the Influenza A virus subtype H2N2, though recent discoveries have instead found the cause to be the Influenza A virus subtype H3N8. The first cases were observed in May 1889 in three separate and distant locations, Bukhara in Central Asia (Turkestan), Athabasca in northwestern Canada, and Greenland. Rapid population growth of the 19th century, specifically in urban areas, only helped the flu spread, and before long the outbreak had spread across the globe. Though it was the first true epidemic in the era of bacteriology and much was learned from it. In the end, the 1889-1890 Flu Pandemic claimed the lives of over a million individuals.

Third cholera pandemic (1852–1860):
Death Toll: 1 million
Cause: Cholera
Generally considered the most deadly of the seven cholera pandemics, the third major outbreak of Cholera in the 19th century lasted from 1852 to 1860. Like the first and second pandemics, the Third Cholera Pandemic originated in India, spreading from the Ganges River Delta before tearing through Asia, Europe, North America and Africa and ending the lives of over a million people. British physician John Snow, while working in a poor area of London, tracked cases of cholera and eventually succeeded in identifying contaminated water as the means of transmission for the disease. Unfortunately the same year as his discovery (1854) went down as the worst year of the pandemic, in which 23,000 people died in Great Britain.

The Black Death (1346-1353):
Death Toll: 75 – 200 million
Cause: Bubonic Plague
From 1346 to 1353 an outbreak of the Plague ravaged Europe, Africa, and Asia, with an estimated death toll between 75 and 200 million people.
Thought to have originated in Asia, the Plague most likely jumped continents via the fleas living on the rats that so frequently lived aboard merchant ships. Ports being major urban centers at the time, were the perfect breeding ground for the rats and fleas, and thus the insidious bacterium flourished, devastating three continents in its wake.

Plague of justinian (541-542):
Death Toll: 25 million
Cause: Bubonic Plague
Thought to have killed perhaps half the population of Europe, the Plague of Justinian was an outbreak of the bubonic plague that afflicted the Byzantine Empire and Mediterranean port cities, killing up to 25 million people in its year long reign of terror. Generally regarded as the first recorded incident of the Bubonic Plague, the Plague of Justinian left its mark on the world, killing up to a quarter of the population of the Eastern Mediterranean and devastating the city of Constantinople, where at its height it was killing an estimated 5,000 people per day and eventually resulting in the deaths of 40% of the city's population.

Antonine plague (165 Ad):
Death Toll: 5 million
Cause: Unknown
Also known as the Plague of Galen, the Antonine Plague was an ancient pandemic that affected Asia Minor, Egypt, Greece, and Italy and is thought to have been either Smallpox or Measles, though the true cause is still unknown. This unknown disease was brought back to Rome by soldiers returning from Mesopotamia around 165AD; unknowingly, they had spread a disease which would end up killing over 5 million people and decimating the Roman army.

Conclusion:
Lessons We Learn from Past Pandemic, Coronavirus pandemics are normal historically speaking. In fact, most of the pandemics in the 20th and 21st centuries, have either been caused by an influenza virus or a coronavirus. So we really can learn some important lessons from these past pandemics.

No. 1: Names matter
No. 2: Social distancing works
No. 3: Sometimes the strongest are hit the hardest
No. 4: Inoculation works
No. 5: Don't blame the sick

Thankfully, advances in epidemiology and medicine mean that pandemics can often be better controlled as long as proper precautions are taken. Yet despite these advances, we are placing ourselves at risk due to the ways that farmed animals are housed and treated and slaughterhouses are run. Close proximity to unhealthy animals increases the likelihood of **spillover diseases**. And **deforestation globally, primarily driven by animal agriculture, is another source of spillover diseases** from nonhuman animals to humans. Animal health and welfare are intrinsically tied to public health and the prevention of future pandemics. Throughout history, animals have had a hand in spreading disease whether they be fleas, rats, farmed animals, or wildlife. To prevent future pandemics we must take the crucial steps of increasing animal welfare in every area, ending the confinement of large numbers of animals, and preserving habitat for wild animals wherever possible.

In closing, pandemics continue to be a tremendous threat to human populations, worldwide. Although protective measures exist to combat the world's various diseases, containment of outbreaks is not always possible; leaving many to face the prospect of infection. With the mutation of viruses and bacteria (along with their growing resistance to antiviral and antibiotic remedies) on the rise, outbreaks, epidemics, and pandemics will continue to be a major issue for humans in the years and decades that lie ahead.

What measures exist to combat viruses and bacteria in the future? What will future governments do to protect individuals against the threat of pandemics? Finally, and perhaps most importantly, what scientific (and medical) resources will be needed to quell the spread of deadly diseases in the years that lie ahead? **Only time will tell.**

Sources:

1. https://www.godigit.com/health-insurance/ diseases/ worst-pandemics-in-history.
2. https://ffacoalition.org/articles/worst-pandemics-in-history/ 15th February 2022.
3. http://news.discovery.com/human/health/10-worst-epidemics-130917.htm.
4. http://www.cbc.ca/news/technology/cholera-s-seven-pandemics-1.758504.
5. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3867475/
6. http://content.time.com/time/specials/packages/completelist/0,29569,2027479,00.html.
7. http://www.infoplease.com/cig/dangerous-diseases-epidemics/bubonic-plague.html.
8. http://www.who.int/csr/resources/publications/surveillance/plague.pdf.
9. http://healthvermont.gov/prevent/Plague.aspx http://www.loyno.edu/~history/journal/1996-7/Smith.html.
10. http://www.nytimes.com/2010/11/01/health/01plague.html?_r=0.
11. http://news.bbc.co.uk/2/hi/health/4381924.stm.
12. http://www.loyno.edu/~history/journal/1996-7/Smith.html.
13. http://www.infoplease.com/cig/dangerous diseases- epidemics/smallpox-12000-years-terror.html.
14. http://www.who.int/mediacentre/factsheets/fs360/en/index.html.
15. http://www.avert.org/worldstats.htm.

16. http://www.cdc.gov/hiv/statistics/basics/

17. http://www.history.com/topics/1918-flu-pandemic.

18. http://www.infoplease.com/cig/dangerous-diseases-epidemics/smallpox-12000-years-terror.html.

19. http://www.who.int/bulletin/volumes/89/7/11-088815/en/.

20. Madrigal, Alexis. "1889 Pandemic Didn't Need Planes to Circle Globe in 4 Months." Wired. Conde Nast, April 26, 2010.

21. "1918 Pandemic (H1N1 Virus)." CDC. Centers for Disease Control and Prevention, March 20, 2019.

22. http://news.discovery.com/human/health/10-worst-epidemics-130917.htm.

23. http://www.cbc.ca/news/technology/cholera-s-seven-pandemics-1.758504.

24. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3867475/

Original Article

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Pattern of Glucose Tolerance among Patients with Peripheral Spondyloarthritis

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Abstract:

Background & Objectives: Peripheral spondyloarthritis is a variant of spondyloarthritis which usually has a chronic course.There is an increased risk of cardiovascular diseases among patients with chronic inflammatory diseases in general. Coexisting diabetes mellitus can potentially add to the risk. The objective of this study was to determine the frequency of glucose intolerance in patients with spondyloarthritis, Materials & Methods: The study was conducted among 35 participants with peripheral spondyloarthritis who visited the Department of Rheumatology, Enam Medical College & Hospital, Savar, Dhaka, Bangladesh from September, 2018 to January, 2020. The participants underwent either oral glucose tolerance test or estimation of HbA1C. Results: The mean age of participants was 43.96 years. The majority (80%) of them were young to muddle-aged (≤40 years). 22.9% of the participants were prediabetic. Diabetes mellitus was found to be present in 37.1% of the participants. There was no significant difference between the study population and the general population in terms of frequency of prediabetes. But the frequency of diabetes in the study population was higher than that in the general population. There was no significant difference between males and females with regard to the frequencies of prediabetes and DM. Moreover, there was no significant difference in the frequencies of prediabetes and DM between young and middle-aged to elderly population. Conclusion: Considering the greater burden of DM among patients with peripheral spondyloarthritis across all age groups, routine screening for DM may be indicated in these individuals.

Keywords: Peripheral spondyloarthritis, prediabetes, diabetes mellitus.

Introduction:

The spondyloarthritis (SpA) family consists of ankylosing spondylitis (AS), nonradiographic axial SpA (nr-axSpA), peripheral SpA, psoriatic arthritis, SpA associated with Crohn's disease and ulcerative colitis, reactive arthritis and juvenile-onset SpA. The smaller number of patients with predominantly peripheral manifestations of SpA (eg, arthritis, enthesitis, and dactylitis, rather than back and spine pain) who do not meet established classification criteria for AS, reactive arthritis, psoriatic arthritis, or SpA related to inflammatory bowel disorders can be considered as having peripheral SpA[1]. Only about 12 to 30 percent of SpA patients overall may exhibit predominantly peripheral SpA[2]. The point prevalence of spondyloarthritis in Bangladesh is 1.2%[3].

The reasons for the classification of SpA into categories are both historical and practical, but each category does not necessarily represent a discrete entity - the clinical, laboratory, and imaging findings can overlap. The diagnosis and management approaches for patients suspected of having any type of SpA are also similar in general[4, 5].

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The major clinical features which differentiate spondyloarthritis (SpA) from other forms of arthritis are the distribution and type of musculoskeletal manifestations and certain extra-articular features. Patients with axial SpA characteristically have chronic low back pain. Patients with either axial or peripheral SpA can exhibit peripheral musculoskeletal features, which include dactylitis (sausage digits), enthesitis (heel pain and/or swelling), and peripheral arthritis[1].

In addition to having articular and extra-articular features, ankylosing spondylitis increases the risk of ischaemic heart disease and stroke[6,7]. Similarly psoriatic arthritis increases the risk of preclinical atherosclerosis and overt cardiovascular disease[8, 9]. DM is more common among patients with psoriatic arthritis in comparison with the general population[10]. But no study has yet been conducted to assess DM as a comorbidity in patients with peripheral spondyloarthritis. Our study assessed the frequencies of both prediabetes and diabetes in patients with axial spondyloarthritis visiting a tertiary care hospital and compared the results with those in the general Bangladeshi population.

Materials & methods:

This study was conducted in the Department of Rheumatology of Enam Medical College & Hospital, Savar, Dhaka, Bangladesh from September 2018 to January 2020. 35 patients with peripheral spondyloarthritis were recruited and they underwent either oral glucose tolerance test (OGTT) or estimation of HbA1C. The relatively small sample size was due to a small proportion of individuals with spondyloarthritis as a whole having purely peripheral involvement. Diabetes mellitus and prediabetes were defined using criteria described in table 1 as per recommendations of World Health Organization (WHO) and American Diabetes Association (ADA)[11, 12]. Individuals satisfying any of the criteria for prediabetes or DM were classified into the respective category.

Table 1: Citeria for prediabetes & diabetes mellitus

Category	Fasting Plasma Glucose (mmol/L)	Plasma Glucose 2 Hours after 75g of Glucose (mmol/L)	HbA1 C(%)
Prediabetes	6.1-6.9	7.8-<11.1	5.7-6.4%
Diabetes Mellitus	≥7	≥11.1	≥6.5%

Result:

Ages of the participants ranged from 21 to 65 years. Mean age was 43.96 years. The participants were divided into three groups according to their ages: young (18-40 years), middle aged (>40-60 years) and elderly (>60 years). 80% of the participants were young to middle-aged. Figure 1 demonstrates the details of distribution of the participants across different age groups.

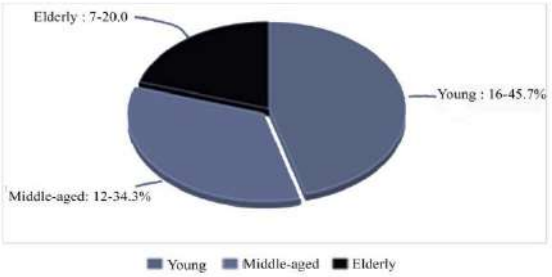

Figure 1: Distribution of the Participants across Different Age Groups

57.1% of the participants were males and 42.9% were females. So the majority of the respondents were males.

Figure 2: below shows the pattern of glucose tolerance among participants.

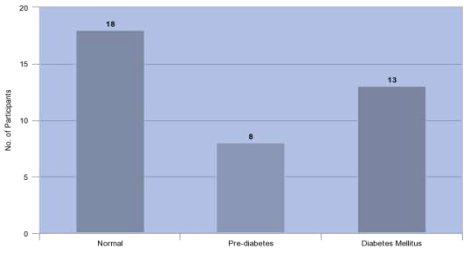

Figure 2: Pattern of Glucose Tolerance among Participants

There was no significant difference (p≈0.98) between the frequency of prediabetes in our study (22.86%) and the prevalence of prediabetes, which was about 23% according to a nationwide survey among 7541 Bangladeshi individuals[13]. On the other hand, the frequency of DM among patients with axial SpA in our study (37.1%) was significantly higher (p≈0.0001) than the national prevalence of DM, which is about 10%.

Table 2 shows gender wise distribution of participants across different patterns of glucose tolerance (normal/prediabetes/diabetes mellitus).

Table 2: Patterns of Glucose Tolerance among Males & Females

Sex	Pattern of Glucose Tolerance		
	Normal	Prediabetes	Diabetes Mellitus
Female	5	4	6
Male	9	4	7

20% of the males were prediabetic and 35% of the males were diabetic. Among the female participants, 26.67% had prediabetes and 40% had diabetes. There was no significant difference between males and females with respect to the frequency of prediabetes (p≈1.00) and DM (p≈0.7).

Table 3 shows the patterns of glucose tolerance across different age groups.

Table 3: Glucose Tolerance Patterns across Different Age Groups

Age Group	Pattern of Glucose Tolerance			Total
	Normal	Prediabetes	DM	
Young (18-40 years)	9 (56.25%)	3 (18.75%)	4 (25%)	16 (100%)
Middle-Aged to Elderly (>40 years)	5 (26.31%)	5 (26.31%)	9 (47.37 %)	19 (100%)

There was no significant difference between young-aged and middle-aged to elderly groups in terms of frequencies of prediabetes (p≈0.7) and diabetes (p≈0.29).

Discussion:

Diabetes is a major public health problem worldwide, especially in low-and-middle income countries, where more than 80% of people reside[14, 15]. According to the estimate of International Diabetes Federation (IDF), the global prevalence of diabetes among adults in 2013 was 8.3%, which is 382 million people living with diabetes and projected to increase beyond 592 million in less than 25years[14]. The IDF Diabetes Atlas5th edition projected that the prevalence of Bangladesh will rise to more than 50% by next 15 years and that will place Bangladesh as the 8th highest diabetic populous country in the world[15].

A nationwide survey (n=7541) among people in Bangladesh conducted in 2011 revealed that the prevalence of prediabetes was about 23% and that of diabetes was about 10%[13]. The frequency of prediabetes among peripheral SpA patients was similar to that in the general population, but the burden of diabetes was much higher. Although there has been no such study so far on patients with peripheral spondyloarthritis, similar findings were observed in patients with ankylosing spondylitis. For instance, Liao et al. demonstrated higher incidence of DM among patients with ankylosing spondylitis[16]. Another study conducted by Chen et al showed an increased risk of diabetes among patients with ankylosing spondylitis[17].

The majority of our participants were young to middle-aged as expected[18]. There was no difference between males and females with regard to the frequencies of prediabetes and DM as in the general population[13]. In contrast with the greater prevalence of prediabetes and DM in the middle-aged to elderly people from the general population, our study showed similar frequencies of prediabetes and DM across young and middle-aged to elderly groups[19, 20]. This may be indicative of an increased risk of developing prediabetes and diabetes in young patients with peripheral spondyloarthritis in comparison with the general young population.

EULAR recommends vaccination of individuals with autoimmune inflammatory rheumatic diseases (AIIRDs) including spondyloarthritis considering the increased risk of infections in these individuals resulting from an immunosuppressive effect of the underlying AIIRD and the use of immunomodulatory drugs to treat the AIIRD[21]. The risk of infections is also increased in patients with DM[22]. Moreover, both DM and chronic inflammatory diseases increase the risk of cardiovascular diseases[23,24]. As our study demonstrated increased frequency of DM among patients with axial SpA, we would like to recommend routine screening of individuals in this disorder for DM as an important measure to reduce the risk of infections and cardiovascular diseases.

Conclusion:

There is a greater frequency of DM in patients with peripheral spondyloarthritis compared with that in the general population. Routine screening for the presence of diabetes mellitus should be a part of evaluation of these individuals in the clinical settings.

References:

1. Yu DT, van Tubergen A. Overview of the clinical manifestations and classification of spondyloarthritis. UpToDate. Sieper J, Romain PL, ed. Maltham, MA: UpToDate Inc. Available from:https://www.uptodate.com/contents/search?search=Overview%20of%20the%20clinical%20manifestations%20and%20classification%20of%20spondyloarthritis&sp=0&searchType=PLAIN_TEXT&source=USER_INPUT&searchControl=TOP_PULLDOWN&searchOffset=1&autoComplete=false&language=&max=0&index=&autoCompleteTerm=&rawSentence= (Updated 7 September 2018, cited 17 December 2019).

2. Yu DT, van Tubergen A. Clinical manifestations and diagnosis of peripheral spondyloarthritis in adults. UpToDate. Sieper J, Romain PL, ed. Maltham, MA: UpToDate Inc. Available from: https://www.uptodate.com/contents/clinical-manifestations-and-diagnosis-of-peripheral-spondyloarthritis-in adults?search=Clinical%20manifestations%20and%20diagnosis%20of%20peripheral%20spondyloarthritis%20in%20adults&source=search_result&selectedTitle=1~22&usage_type=default&display_rank=1 ((Updated 7 March 2018, cited January 2020)

3. Ahmed S, Haq SA, Al-qadir AZ, Rahman MM, Paul S. Survey on prevalence of rheumatic disorders in Bangladeshi adults. Ann Rheum Dis. 2017;76(2): 1044-1045

4. Zeidler H, Amor B. The Assessment in Spondyloarthritis International Society (ASAS) classification criteria for peripheral spondyloarthritis and for spondyloarthritis in general: the spondyloarthritis concept in progress. Ann Rheum Dis 2011; 70:1.

5. Zeidler H, Calin A, Amor B. A historical perspective of the spondyloarthritis. Curr Opin Rheumatol 2011; 23:327.

6. Essers I, Stolwijk C, Boonen A, De Bruin ML, Bazelier MT, de Vries F, van Tubergen A. Ankylosing spondylitis and risk of ischaemic heart disease: a population-based cohort study. Ann Rheum Dis. 2016;75(1):203.

7. Mathieu S, Soubrier M. Cardiovascular events in ankylosing spondylitis: a 2018 meta-analysis. Annals of the Rheumatic Diseases. 2019;78(6): e57.

8. Tam LS, Shang Q, Li EK, Tomlinson B, Chu TT, Li M, Leung YY, Kwok LW, Wong KC, Li TK, Yu T. Subclinical carotid atherosclerosis in patients with psoriatic arthritis. Arthritis Care & Research: Official Journal of the American College of Rheumatology. 2008;59(9):1322-31.

9. Jamnitski A, Symmons D, Peters MJ, Sattar N, MciInnes I, Nurmohamed MT. Cardiovascular comorbidities in patients with psoriatic arthritis: a systematic review. Annals of the rheumatic diseases. 2013 Feb 1;72(2):211-6.

10. Eder L, Chandran V, Cook R, Gladman DD. The risk of developing diabetes mellitus in patients with psoriatic arthritis: a cohort study. The Journal of rheumatology.2017 Mar 1;44(3):286-91.

11. World Health Organization. International Diabetes Federation (2006) Definition and diagnosis of diabetes mellitus and intermediate hyperglycemia: report of a WHO/IDF consultation. IDF consultation. 2008.

12. American Diabetes Association. 2. Classification and diagnosis of diabetes: standards of medical care in diabetes—2019. Diabetes Care. 2019 Jan 1;42(Supplement 1): S13-28.

13. Akter S, Rahman MM, Abe SK, Sultana P. Prevalence of diabetes and prediabetes and their risk factors among Bangladeshi adults: a nationwide survey. Bulletin of the World Health Organization. 2014 Jan 10; 92:204-13A.

14. Aguiree F, Brown A, Cho N, Dahlquist G, Cho D, Dodd D. Whiting (2013) IDF Diabetes Atlas. IDF Diabetes Atlas, 6th Edition, International Diabetes Federation, Basel.2013;74-90.

15. Islam SM, Purnat TD, Phuong NT, Mwingira U, Schacht K, Fröschl G. Non-Communicable Diseases (NCDs) in developing countries: a symposium report. Globalization and health. 2014 Dec;10(1):81.

16. Liao K, Kuo Y, Lai S. Diabetes mellitus in ankylosing spondylitis. Annals of the Rheumatic Diseases Published Online First: 06 September 2019.

17. Chen HH, Yeh SY, Chen HY, Lin CL, Sung FC, Kao CH. Ankylosing spondylitis and other inflammatory spondyloarthritis increase the risk of developing type 2 diabetes in an Asian population. Rheumatology international. 2014 Feb 1;34(2):265-70.

18. Brent HL. Ankylosing spondylitis and undifferentiated spondyloarthropathy. Medscape. Diamond HS, ed. New York, NY: Medscape LLC. Available from: https:// emedicine. medscape. com/article/332945- overview#a1 (Updated 3 September 2019, cited January 2020)

19. Khardori R. Type 2 diabetes mellitus. Medscape. Griffing GT, ed. New York, NY: Medscape LLC. Available from: https://emedicine. medscape. com/article/117853- overview #a1 (Updated 4 December 2019, cited January 2020)

20. The Centre for Disease Control. National diabetes statistics report 2017. 2017. Available from: https://www.cdc.gov/ diabetes/data/ statistics- report/index.html (Cited January 2020)

21. Furer V, Rondaan C, Heijstek MW, Agmon-Levin N, van Assen S, Bijl M, Breedveld FC, D'Amelio R, Dougados M, Kapetanovic MC, van Laar JM. 2019 update of EULAR recommendations for vaccination in adult patients with autoimmune inflammatory rheumatic diseases. Annals of the rheumatic diseases. 2020 Jan 1;79(1):39-52.

22. Casqueiro J, Casqueiro J, Alves C. Infections in patients with diabetes mellitus: A review of pathogenesis. Indian journal of endocrinology and metabolism. 2012 Mar;16(Suppl1): S27.

23. Gregg EW, Li Y, Wang J, Rios Burrows N, Ali MK, Rolka D, Williams DE, Geiss L. Changes in diabetes-related complications in the United States, 1990–2010. New England Journal of Medicine. 2014 Apr 17;370(16):1514-23.

24. Hansen PR. Chronic inflammatory diseases and atherosclerotic cardiovascular disease: Innocent bystanders or partners in crime? Curr. Pharm. Des. 2018. 24(3): 281–290.

Original Article

DCIMCJ

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Clinical Study of Hearing Evaluation after Type-I Tympanoplasty by Underlay Technique

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Abstract:

Background: Type-I tympenoplsty is a surgical procedure for closure of tympanic membrane perforation and reconstructing the tympanic membrane. Objectives: This study was aimed to assess hearing outcome after type-I tympanoplasty by underlay technique using temporalis fascia graft. Materials and methods: This study was conducted in the department of otolaryngology and Head Neck Surgery, Dhaka Central International Medical College and ENT & Head Neck Cancer Hospital, Agargaon, from January 2018 to December 2018. 64 patients who underwent type-I tympanoplasty in this period were analyzed. Patients parameter's including age, sex, size and site of perforation were evaluated. Audiological evaluation was done preoperatively, 1 month and 3 months after tympanoplasty. Results: During the study period, 64 type-I tympanoplasty were performed using temporalis fascia as graft. Males were 29 (45.31%) and females were 35 (54.69%), 10 of them belongs to age group 15-20 years, highest 24 patients are in the age group of 21-30 yrs. 57 out of 64 patients had, intact and completely healed grafts of 3 months postoperatively (success rate of 89.06%). The hearing gain achieved was 22.37 dB and the air bone gap reduction was 11.92 dB. Conclusion: Type-I tympanoplasty is a safe surgical, procedure in achieving intact tympanic membrane. Therefore, underlay technique is, technically simple should be preferred but the ultimate decision about the technique to be employed depends on the surgeon's preference.

Keywords: Type-I Tympanoplasty, Chronic Suppurative Otitis media

Introduction:

Chronic suppurative otitis media is a long-standing infection of the middle ear cleft characterized by persistent or recurrent aural discharge, deafness and perforation of tympanic membrane. Small perforations usually heal spontaneously but when the edges of the perforation are covered by stratified squamous epithelium, the perforation becomes permanent and does not heal spontaneously[1].

Procedures such as grafting the tympanic membrane alone or in combination with ossiculoplasty (Tympanoplasty with ossicular chain reconstruction) comprise the varying subtypes of tympanoplasty[2,3].

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The rate is higher in developing countries. Poor socioeconomic condition, illiteracy, neglected Type 1 tympanoplasty is performed when there is tympanic membrane perforation without any ossicular damage. Type-1 tympanoplasty is also known as myringoplasty. Myringoplasty was introduced by Berthold in 1878 and was further developed by Wullstein in 1859. The underlay technique, described by Austin and Shea (1961) has become widely recognized as one of the most successful techniques. Hougle modified this technique by utilizing temporalis fascia[4-6].

Different materials have been used to construct the tympanic membrane, the most accepted of which is temporalis fascia autograft and almost always the most favorable graft for its immunologically compatibility[7,8]. Tragal cartilage and perichondrium are also being rapidly used but with slightly lower success rates. Temporalis fascia contains collagen and mucopolysaccharides[9]. These two components provide it with tensile strength and for this reason it does not get easily autolyzed even in the presence of infection.

The metabolic requirements of the fascia are also lower[10]. So it has a higher success rate over other grafting materials.

There are a wide range of techniques of tympanoplasty that are described in the literature and these include the underlay technique, overlay technique[11], "Gelfilm sandwich" technique[12], "Swinging Door" technique[13], tipple "C" technique[14], anterosuperior anchoring technique[15]. The two most common techniques for positioning the graft relative to the remnant of both the tympanic membrane and tympanic annulus are the "underlay" and the "overlay" techniques[16].

The underlay technique is most preferred because; compared with the overlay technique it gives a better access to middle ear and ossicles. While with regard to surgical approach, post-aural approach is more preferable than transcanal route because the grafting via ear canal through a speculum is regarded as more technically difficult[17].

The tympanic membrane perforation, mainly result from middle ear infections, trauma or iatrogenic causes[18] and hearing loss from tympanic membrane perforation is usually less than 45 dB and of conductive type. More severe hearing loss is usually associated with ossicular abnormalities[19].

Closure of perforation with hearing improvement and incidence of failures and complication are used as measure for evaluating the result. In our study, all type-I tympanoplasties were done by postauricular approach using temporalis fascia graft by underlay technique.

Through this study we aimed to assess the hearing outcome after type-I tympanoplasty, to assess the factor which influence the outcome and to evaluate the result of our study and to compare our data with similarly published study.

Materials and methods:

The present study was a retrospective, study conducted in the department of ENT & Head-neck surgery, Dhaka Central International Medical College and ENT & Head Neck Cancer Hospital, Agargaon, from January 2018 to December 2018.

Study design and patient population:

All patients of both sexes of age between 15-53 years of age were assessed pre-operatively by detailed history and clinical examination. The patients with tubo-tympanic disease and dry central perforations were selected. Patients with history of nasal allergy, other nasal disease, throat problem or any systemic diseases were appropriately treated before taking ear surgery. We excluded patients with sensorineural hearing loss, chronic suppurative otitis media with attico-antral type disease and those patients with disease causing disruption and damage to ossicular chain like middle ear atelectasis, middle ear tumors etc. The type, size and location of the perforation were recorded. Hearing, assessment was initially performed clinically by tuning fork test and then by pure tone audiometry. Ossicular chain integrity was speculated by pre-operative A-B gap on audiometry and then it was checked per operatively when the tympanum was opened. A detailed proforma was filled for each patient with regard to history, clinical examinations, investigation, surgical procedure, post-operative period and follow up visits. Audiological evaluation was done preoperatively, 1 month and 3 months after surgery. All cases were operated through post aural approach using temporalis fascia by underlay technique under local anaesthesia except a few apprehensive patients which were operated under general anaesthesia.

Statistical analysis:

Statistical analysis was done with the SPSS version 16 software (Statistical Package for Social Success. SPSS Inc. Chicago, Illiuoir, USA). Measurements were expressed as mean and standard deviation (SDI) for parametric data and as numbers and percentage for non-parametric data.

The paired test was used for comparison between pre and postoperative results within each group. The level of significance was set as P<0.05.

Results:

A total of 64 cases were included. The age range was from 15 to 53 and mean age 32.44 (17.66) year. (Fig-I). Among the 64 cases, 29 (45.31%) were male and 35 (54.69) years were female (Table-I).

The size, site of perforation are recorded in Table-II. Our study showed an overall success rate of 89.06% as far as the graft uptake was concerned i.e. out of 64 cases, in 57 cases the perforation was closed on examination of the interval of 3 months. When concerning about hearing improvement 50 (78.13%) cases out of 64 cases had hearing improvement (Table-V).

In the study anterior as well as posterior quadrant perforation yield similar results. Mean pre-operative air-conduction was 37.83±10.15 dB whereas mean post operative air conduction was 15.46±9.56 dB. Mean air bone gap pre-operatively was 23.45±7.55 dB and post operatively was 11.50±7.65dB (Table-VI). The air bone gap closure achieved is 0.0001 highly significant.

Fig-I: Distribution of cases according to age (10-64)

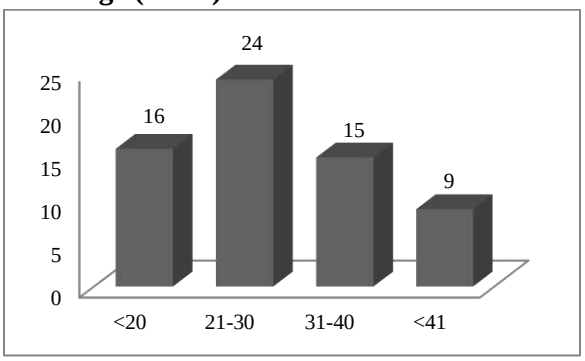

Table-I: Sex distribution of the patients

Sex	No. of patients	Percentage (%)
Male	29	45.31
Female	35	54.69

Table-II: Distribution of the perforation size & site

Size	No. of patients	Percentage (%)
Small	20	31.25
Medium	26	40.35
Subtotal	18	28.10

Site	No. of patients	Percentage (%)
Anterior Central	12	18.75
Posterior Central	13	20.31
Central malleolar	21	32.81
Subtotal	18	28.12

Table-III: Success data of graft uptake

Graft uptake	No. of patients	Percentage (%)
Uptake	57	89.06
Failure	07	10.94

Table-IV:

	No. of patients	Percentage (%)
Improvement	50	78.13
No Improvement	14	21.87

Table-V: Pre and postoperative mean hearing level

Hearing level	Preoperative dB	Preoperative dB	P value
Air conduction	37.83±10.15	15.46±9.36	0.0001
Air bone-gap	23.45±7.51	11.50±7.65	0.0001

Discussion:

Type-I Tympanoplasty or Myringoplasty is considered as a simple, easy to complete otologic surgery with good success rate both anatomically and functionally. However, failures do occur. The main objective of myringoplasty has traditionally been the closure of tympanic perforation to prevent chronic

infection to make the ear safe[20]. Consequently the second objective is to improve the hearing loss which resulted due to perforation of tympanic membrane. There are various techniques of myringoplasty with their own corresponding results. However still there is no consensus about the optimal technique which is often employed on the basis of surgeon's preference and skills.

In this prospective study, 64 patients were considered. They underwent myringoplasty by underlay technique with temporalis fascia graft after taking relevant history, clinical examination and investigations.

In our study of 64 cases, lowest and highest age of patients was 16 and 53 yrs respectively with a mean age of 32.44 years. According to available literature unless there is cholesteatoma or a bilateral tympanic membrane perforation with conductive hearing loss, tympanoplasty in children can be delayed until the age of 15 years, when eustachian tube function is usually better and a satisfactory outcome is more likely.

In this study 89.06% success rate observed in term of closure of perforation similar to those reported in literature by Joshi et. al.[21] and Mishra et. al.[22] The results of this study were better than Khan[23], who reported 77.5% graft success rate in 94 cases using underlay technique. These were also better than Fadl[24] who had 85.4% success with underlay technique series and 66.7% success in the overlay technique.

The results were comparable to Gupta[25] who had 86.6% success in his overlay technique series and Wang and Lia[26] who achieved on 82.1% and 85% take rate with the overlay and underlay technique respectively.

Lassaletta[27] noted that outcome of surgery are not related to age of operation, duration, size and location of perforation or condition of opposite ear.

This study shows the improvement in the hearing was achieved in 78.13% among the successfully operated cases. This percentage of hearing improvement is similar to Lee et. al. and Palva and Ransay stated that the improvement is similar to our study[28,29]. So there is no consensus over the prognostic factors of myringoplasty till now. Protocols vary from institution to institution and surgeon to surgeon. Therefore, there is a great need to such work which can help to set the uniform definitive criteria in predicting the optional outcomes of tympanoplasty.

Conclusion:

Type-I tympanoplasty is a procedure of simple repair of tympanic membrane to improve the quality of life of patients, avoiding infections and allowing them to swim. It is our belief that to achieve the best results a well-trained ear surgeon must be familiar with both underlay and overlay techniques which should be employed based on the site of perforation and the surgeon's preference.

References:

1. Khan NA, Repair of traumatic perforation of tympanic membranes by a new technique. Pak J Otolaryngol.1992;8:177-179.

2. Javed M, Khan S, Ullah H, Shah J. Onlay versus underlay myringoplasty, audiological results. Pak J Otolaryngol. 2000;16:59-60.

3. Vrabec JT, Deskin RW, Grady JJ. Meta-analysis of pediatric tympanoplasty. Arch Otolaryngol.1999;125(5):530-534. doi:10, 1001/archotol.125.5.530.

4. Ashfaq M, Aasim MU, Khan N. Myringoplasty: anatomical and functional results. Pak Armed Forces Med. J. 2004;54(2):155-158.

5. Kalsotra P, Gupta R, Gupta N, Kotwal S, Suri A, Kanotra S. Overlay versus underlay myringoplasty: A comparative study. Indian J Otol2014;20:183-8. 2008;1:627.

6. Wullstein H. Theory and practice of tympanoplasty. Laryngoscope 1956; 66:1076-93

7. Austin D.F. Shea J.J. Jr. A new system of tympanoplasty using vein graft.Laryngoscope 1961; 71: 596-611

8. Hough J.V. Tympanoplasty with interior fascial graft technique and ossicular reconstruction. Laryngoscope. 1970; 80:1385-1401.

9. Michael M.D. Homograft tympanic membrane in myringoplasty. Ann Oto. Rhino. Laryngol, 1972; 81: 194-202.

10. Sheehy JL. Tympanoplasty: outer surface grafting technique. In: Otologic surgery, Brackmann D. Shelton C, Arriaga M (Eds), WB Saunders, Philadelphia 1994, P.121

11. Kamath MP, Sreedharan S, Rao AR, Raj V, Raju K. Success of Myringoplasty: Our Experience. Indian J Otolaryngol Head Neck Surg 2013; 65(4):358–362.

12. Karlan MS. Gelatin film sandwich in tympanoplasty. Otolaryngol Head Neck Surg 2009;87:84-6

13. Schwaber MK. Postauricular undersurface tympanic membrane grafting: Some modifications of the "swinging door" technique. Otolaryngol Head Neck Surg 2006;95:182-7.

14. 14. Fernandes SV. Composite chondroperichondrial clip tympanoplasty: The triple "C" technique. Otolaryngol Head Neck Surg 2003;128:267-72

15. Hung T, Knight JR, Sankar V. Anterosuperior anchoring myringoplasty technique for anterior and subtotal perforations. Clin Otolaryngol Allied Sci 2004;29:210-4.

16. Gersdorff M, Gerard JM, Thill MP. Overlay versus underlay tympanoplasty. Comparative study of 122 cases, Revue de laryngology-otologie-rhinologie, 2002; 124(1):15-22

17. Jackson C.G, Kaylie D.M, Glasscock M.E., Stransnick B. Tympanoplasty- undersurface graft technique. 1n: Brackmann D.E., Shelton C, Moises A.A., editors Otologic Surgery. Third ed, Saunders; Philadelphia: 2010, PP. 149-152.

18. Sarker A.H., Ahmed Z., Patwary M., Islam P., Joarder R. Factor affecting surgical outcome of Myringoplasty. Bangladesh J Otorhinolaryngol. 2011; 17:82-87

19. Browning G.G. Chronnic Otitis media. In: Gleeson M., Browning G.G., Burton M.G., editors seventh ed. Vol 3. Hodder Arnold; London: 2008. PP. 3395-3445. (Scott-Brown's Otorhinolaryngology, Head and Neck Surgery).

20. Labatut Pesce T, Sierra Grañon C, Mora Rivas E, Cobeta Marco I. Primary myringoplasties. Results after a 2yearfollow-up period. Acta OtorhinolaringolEsp2009;60:79-83.

21. Rupesh Raj Joshi, Anil Kumar Jha, Anupama Shah Rijal, Anup Dhungana and Kundan Kumar Shrestha. Hearing evaluation after myringoplasty at Nepal Medical College and Teaching Hospital. Journal of Nobel Medical College 2013; Vol. 2, No.1 Issue 3 ;36-42.

22. Crovetto De La Torre M, Fiz Melsió L, Escobar Martínez A. Myringoplasty in chronic simple otitis media. Comparative analysis of underlay and overlay techniques. Acta OtorrinolaringolEsp2000;51:101-4.

23. Khan IZ, Khan MA. Tympanoplasty at combined military hospital Rawalpindi. Pak Armed Forces Med J 1995;45:33- 5.

24. Fadl FA. Outcome of type-1 tympanoplasty. Saudi Med J 2003;24:58-61.

25. Gupta SC. Myringoplasty with a single flap. Ear Nose Throat J. 2000;79: 946-8.

26. Wang WH, Lin YC. Minimally invasive inlay and underlay tympanoplasty. Am J Otolaryngol2008;29:363-6.

27. Lassaletta Atienza L, Villafruella Sanz MA, Ballesteros García A, Granell Navarro J, Alvarez Vicent JJ. Prognostic factors in pediatric myringoplasty: a review of 90 cases. Acta OtorrinolaringolEsp1999;50:1-5.

28. Lee p, Kelly G, Mills RP. Myringoplasty : does the size of perforation matter ? Clinical Otolaryngology and Allied Sciences. 2002; 27:331-4.

29. Mackinnon D. Relationship of preoperative Eustachian tube function to myringoplasty. Acta otolagygol (stock) 2000; 35: 100-106

Original Article

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Relation of Serum Prolactin in Patients with Psoriasis

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Abstract:

Background: Psoriasis is a chronic, immunologically based inflammatory, systemic disease that has many clinical forms. Psoriasis is a chronic immunologically based inflammatory disease of skin. Prolactin (PRL) neuropeptide produced by lactotroph cells in the anteri or pituitary gland and is well known for its lactogenic and mammotrophic effects. PRL has multiple immune-stimulatory effects and promotes autoimmunity. Objective: The aim of the study was to find out the relation of serum prolactin in patients with psoriasis. Methods: This cross sectional study was carried out in the Department of Biochemistry, Dhaka Medical College during the period of July 2016 to June 2017 after approval of Research Review Committee and Ethical Review Committee. A total number of 110 cases among them 55 diagnosed case of psoriasis (group A) and 55 healthy individuals (group B) of both sexes with age ranging from 18 to 60 years were selected according to selection criteria from outpatient Department of Dermatology and Venereology and by personal contact from same hospital premises respectively. Serum prolactin was measured by enzyme immunoassay method. Results: Mean ± SD of serum PRL (in ng/ml) level was significantly higher ($p < 0.001$) in psoriatic patients (23.95 ± 5.47) when compared to healthy controls (15.95 ± 2.19). Serum prolactin level showed significant positive correlation ($r = + 0.696$ with psoriasis. Conclusion: From the present study it is concluded that psoriasis is related with increased serum prolactin level. So estimated of this parameters may helpful to prevent the complication due to alteration of this parameters.

Keywords: Psoriasis, Prolactin hormone assay

Introduction:

Psoriasis is a chronic inflammatory T-cell mediated autoimmune disease that affects mainly skin, nails and joints. It is one of the most common inflammatory skin diseases[1,2]. It is characterized by epidermal hyperproliferation, abnormal keratinocyte differentiation, angiogenesis with blood vessel dilatation and excess Th-1 and Th-17 inflammation. It is a non-contagious skin disorder and caused mainly by anomalies of protein expression in skin cells, which can be abnormal keratinocyte differentiation, hyper proliferation of the keratinocyte and infiltration of inflammatory elements showing red, scaly, sharply demarcated, indurated plaques present particularly over extensor surfaces and scalp[3]. The prevalence of psoriasis varies approximately from 2% to 3% worldwide. The cause of psoriasis is unknown, and its pathogenesis is yet not fully understood[4]. Psoriasis has a complex genetic predisposition with a complex inheritance pattern plus an environmental component[5,6]. Both genetic and environmental factors play a role in expression of the disease. The factors which may trigger or aggravate psoriasis include streptococcal infections, stress and trauma to the skin (Koebner phenomenon), drugs (particularly lithium), alcohol, obesity, smoking and climate. Although psoriasis has a low attributable mortality, it can cause considerable morbidity due to associated systemic diseases[3].

Prolactin (PRL) is the pituitary hormone of lactation and reproduction. It is a neuropeptide secreted by the anterior pituitary gland and it has an important immune modulating properties.

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Serum prolactin levels were shown to be increased in psoriatic patients, to be correlated to severity and to decrease after treatment. Thereby, it supports the potential role of prolactin as a biological marker of psoriasis[7].

The epidermal keratinocytes express receptors for prolactin and the hormone has proliferative effects on keratinocytes epithelial cells and lymphocytes[8,9].

Prolactin may modulate the skin immune system and may be involved in the pathogenesis of psoriasis. Functional PRL receptors are detected on keratinocytes and PRL effectively increase the in vitro growth of keratinocytes in psoriasis. Prolactin acts as a neuroendocrine modulator for both skin epithelial growth and the skin immune system[10].

Prolactin exerts a variety of immune simulative effects which may promote the development of psoriasis. There is several experimental evidence regarding the effects of PRL on the cells of the immune system. Serum prolactin is produced by lymphocytes, promotes the proliferation of B and T lymphocytes, increase the synthesis of the cytokines IFN-γ and IL-2 in Th1 lymphocytes and suppress T lymphocyte apoptosis. Prolactin can inhibit glucocorticoid induced apoptosis of lymphocytes and is considered to be an immune stimulatory hormone which may antagonize the immune suppressive effects of corticosteroid on the immune system; both exogenous given to treat inflammatory diseases and endogenously produced as part of the stress response of the immune system. In cutaneous context, available insights into the immune regulatory function of serum prolactin may also be of relevance to psoriasis. Prolactin can increase expression of Th1 cytokines from lymphocytes and has been shown to influence chemokine expression, potentially promoting T cell infiltration into psoriatic skin. It can increase IL-17 induced CCL20 production recruiting Th17 cells, which are increasingly appreciated for their role in psoriasis[8].

Hyper prolactinemia was observed in several autoimmune diseases (Systemic lupus erythematosus, rheumatoid arthritis, Sjogren's syndrome,

Hashimoto's thyroiditis and multiple sclerosis[11]. With this background, this study was undertaken to find out the possible relation of serum prolactin with psoriasis.

This cross sectional study was conducted from July 2016 to June 2017. According to diagnostic criteria a total 55 diagnosed patients of psoriasis attending in the outpatient department of Dermatology and Venereology, Dhaka Medical College Hospital were selected as Group A. Counseling of the psoriasis patients were done and requested to attend the hospital with at least 8 hours fasting till collection of blood sample. Then same number of age and sex matched 55 apparently healthy individuals for comparing group as group B were selected from hospital premises by personal contacts among doctors, nurses, patients attendants and visitors. Counseling of the healthy individuals was also done and requested them to come with at least 8 hours fasting. After selection of the subjects, the objectives, natures, purpose and potential risk of all procedures used for the study were explained again in details and informed written consent were taken from both the patients and normal healthy individuals. Data were collected in a predesigned data collection sheet including particulars of the patients, history, physical and clinical examinations from all the subjects .All data were recorded in a predesigned data collection sheet. Continuous variables were expressed as mean ± SD and were compared between groups by unpaired students' 't' tests. Categorical variables were compared using chi-square tests and were presented as absolute or relative frequencies. Spearman's rank correlation coefficient (r) test was used to compare relationship between parameters. All p values were two-tailed with significance defined as $p < 0.05$ at the level of 95% confidence interval. All analysis was done using the SPSS version 21 package for windows.

Results:

This cross sectional study was aimed to evaluate the relation of serum prolactin in patients with psoriasis. For this purpose the baseline parameters were measured and biochemical parameters were estimated and statistical analysis was done according to data to prove the hypothesis. All data were processed to compute mean and standard deviation. Difference of mean between two groups were compared by unpaired Student's 't' test, chi-square test and determination of correlation between variables was done by Spearman's ranks correlation coefficient (r) test. For all statistical analysis $p < 0.05$ was considered as significant. Result were presented by tables and figures in the following few pages.

Table I: Age and gender distribution of study subjects (N = 110)

	Groups		p value
	Group A (n=55)	Group B (n=55)	
Age in years (Mean ± SD)	36.5 ± 9.7	39.2 ± 11.6	0.191[a]
Gender			
Male	19 (38.0)	26 (52.0)	0.175[b]
Female	36 (72.0)	29 (58.0)	

a = Unpaired students' 't' test was done to measure the level of significance.

b = Chi-square test was done to measure the level of significance.

Values within the parenthesis indicates in percentage.

Group A: Psoriasis patients.

Group B: Healthy individuals.

Level of significance at p value < 0.05

Table I: Shows age (mean ± SD) and gender distribution of the study subjects. There were no significant difference between groups in terms of age & gender.

Table II: Baseline parameters of study subjects (N= 110)

Parameter	Groups		p value
	Group A (n=55) (mean ± SD)	Group B (n=55) (mean ± SD)	
Systolic BP (mm of Hg)	116.91 ± 6.35	117.36 ± 8.10	0.744
Diastolic BP (mm of Hg)	72.45 ± 7.45	74.00 ± 7.03	0.266
BMI (kg/m²)	20.79 ± 1.09	20.11 ± 2.43	0.064
FBG (mmol/L)	5.18 ± 0.44	5.06 ± 0.41	0.152

Unpaired students t test was done to measure the level of significance.

Group A: Psoriasis patients.
Group B: Healthy individuals.
Level of significance at p value < 0.05

Table II: Shows mean ± SD of systolic BP, diastolic BP, BMI and FBG, there was no significant difference in SBP, DBP, BMI and FBG between two groups.

Table III: Serum prolactin status of study subjects (N=110)

Parameters	Group		p value
	Group A (n=55) (mean ± SD)	Group B (n=55) (mean ± SD)	
Serum prolactin (ng/ml): Total	23.95 ± 5.47	15.95 ± 2.19	< 0.001
Male	21.84 ± 4.72	16.11 ± 2.14	< 0.001
Female	25.06 ± 5.57	15.81 ± 2.26	< 0.001

Unpaired student's t test was done to measure the level of significance.

Group A: Psoriasis patients.
Group B: Healthy individuals.
Level of significance at p value < 0.05

Table III: Shows comparison of serum prolactin between group A and group B. Where serum prolactin was significantly higher in group A than group B. As well as serum prolactin level was significantly higher both in male and female in group A than group B.

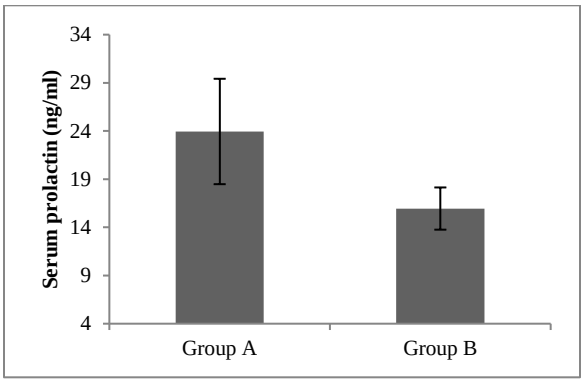

Figure 1: Simple Bar diagram showing serum prolactin status of study subjects in both groups.

Table IV: Distribution of study subjects (Group A) according to prolactin status (n=55)

	Hyperprolactinemia	Normal	p value
Male	12(63.2)	7 (36.8)	0.795
Female	24 (66.7)	12 (33.3)	

Chi-square test was done to measure the level of significance.

Group A: Psoriasis patients.

Values within the parenthesis indicates in percentage.
Level of significance at p value < 0.05

Table IV: Shows among 19 male psoriatic patients 12(63.2%) had hyperprolactinemia and among 36 female psoriatic patients 24(66.7%) had hyperprolactinemia. There was no significant difference in hyperprolactinemia between male and female.

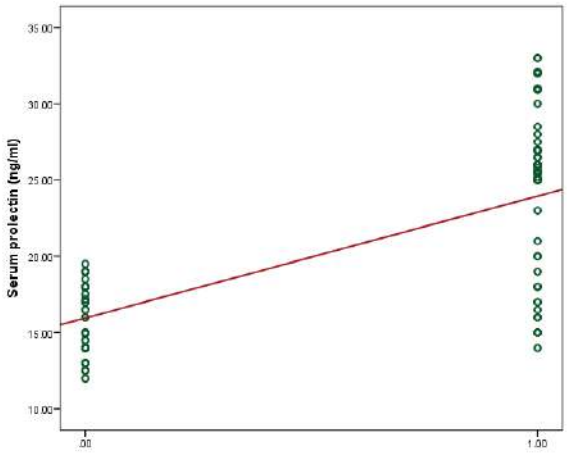

Figure 2: Scatter diagram showing correlation of serum PRL with psoriasis (r = +0.696, p = <0.001).

Discussion:

This cross sectional study was aimed to evaluate the relation of serum prolactin level in patients with psoriasis. In this study compared some baseline demographic, clinical and anthropometric characteristics of study subjects as well as their few laboratory features. There were no differences among groups in terms of these characteristics and features which reflected the homogeneity among the groups. In present study, mean± SD of serum prolactin level in group A and group B were 23.95 ± 5.47 ng/ml and 15.95 ± 2.19 ng/ml. Serum prolactin was found significantly higher (p <0.001) in group A when compared to group B. These results of the study were in agreement with the studies conducted earlier. Studies done by Abullah et al., Kanda et al., Dilme-Carreras et al., Farhad et al., Nadia et al., Mohammad et al., and Mamoun et al. observed highly significant increase of serum prolactin, in patients with psoriasis which was consistent with the present study[7,12,13,14,15,16,17]. There are some other studies have been done by Robati et al., and Maryam et al., no statistical significant difference was observed in the mean prolactin level between psoriasis patients and healthy controls (320 ± 179.38 vs. 318.18 ± 191.78 mlU/L respectively, p = 0.95). Which was inconsistent with the present study because demographic variables were not same and that study was case control study[18].

Distribution of the study subjects of Group A according to prolactin status shows 36 (65.5) out of 55 patients had hyperprolactinemia (serum prolactin level >19 ng/ml in men and > 25ng/ml in women), 12 (33.3%) were male and 24 (66.7%) were female. There was no significant difference in hyperprolactinemia between male and female. Study was done by Maryam et al. which showed no significant difference between two groups (p = 0.81) which was consistent with the present study[18]. In the present study, Spearman's rank correlation coefficient test was done to observe the relationship of serum prolactin level with psoriasis. It showed significant positive correlation between serum prolactin level with psoriasis (r = 0.696). Mohammad et al. Dilme-Carreras et al. Abdullah et al., Nadia et al., also found positive correlation between serum prolactin level with psoriasis which was in agreement with the present study[7, 12,15,16].

However this result does not agree with the result of Farhad et al. and Mamoun et al.. They observed positive correlation between serum prolactin level with psoriasis but it was insignificant because of small sample size[15,17].

Conclusion:

In the conclusion, the study demonstrates that hyperprolactinaemia is related with psoriasis. Therefore, it is advocated that regular screening of serum PRL level in psoriatic patients to reduce the risk of exacerbation of psoriasis and help to prevent the complication.

References:

1. Gelfand JM, Troxel AB, Lewis JD, Kurd SK, Shin D., Wang X. The risk of mortality in patients with psoriasis. Archives of Dermatology. 2007; 143(12):1493–1498.

2. Mehta NN, Azfar RS, Shin DB, Neimann AL, Troxel AB, Gelfand JM. Patients with severe psoriasis are at increased risk of cardiovascular mortality: Cohort study using the general practice research database. European Heart Journal, 2009; 31(8):1000–1006.

3. Griffiths CE, Barker JN. Pathogenesis and clinical features of psoriasis. The Lancet. 2007; 370:263–271.

4. Kerkhof PCM, Van-de. The evolution of the psoriatic lesion. British Journal of Dermatology. 2007; 157(1):4–15.

5. Schön MP, Boehncke W. Psoriasis. New England Journal of Medicine. 2005. 352(18):1899–1912.

6. Krueger JG, Bowcock A. Psoriasis pathophysiology current concepts of pathogenesis. Annals of the Rheumatic Diseases. 2005; 64(2):30-6.

7. Dilmé-Carreras E, Martin-Ezquerra G, Sánchez-Regaña M, Umbert-Millet P. Serum prolactin levels in psoriasis and correlation with cutaneous disease activity. Clinical and Experimental Dermatology. 2011; 36(1): 29–32.

8. Langan EA, Griffiths CEM, Paus R. Exploring the role of prolactin in psoriasis. Archives of Dermatological Research. 2012; 304(2):115–118.

9. Robati RM, Toossi P, Rahmati-Roodsari M. Association of psoriasis severity with serum prolactin, thyroid hormones, and cortisol before and after treatment. Scientific World journal. 2013;2013:921819.

10. Kato AM, Gheida SF, El-Bendary AS, Badawy AA, Fakharany RE. Serum level of prolactin in psoriatic patients. Egyptian Dermatology Online Journal. 2012; 8(2):1.

11. Roman II, Constantin AM, Marina ME, Orasan RI. The role of hormones in the pathogenesis of psoriasis vulgaris. Clujul Medical. 2015; 89(1):11-18.

12. Abdullah MK, Shereen FG, Amel SE, Adel AB, Rasha EE. Serum level of prolactin in psoriatic patients. Egyptian Dermatology online Journal. 2012; 8(2):1-12.

13. Kanda N, Hau CS, Tada Y, Watnabe S. (2013) Prolactin may promote the development of psoriasis. Journal of Clinical and Experimental Dermatology Research. 2013; 4:198.

14. Handjani F, Saki N, Ahrari I, Ebrahimi M, Khorrami MM, Nematollahi P. Serum prolactin level in psoriasis vulgaris. Iternational Scholary Research Notices Dermatology. 2014; 2014:586049.

15. Elsherif NA, El-Sherif AI, El-Dibany SA. Serum prolactin level in dermatological diseases. Journal of Dermatology and Dermatologic Surgery. 2015; 19:104-107.

16. Keen MA, Hassan I. Serum prolactin level in psoriasis and its association with disease activity. Indian Journal of Dermatology. 2014; 59(6):562-566.

17. Shalaby ME, Hassan, HM, Aref MI, Ebeid AD. Serum prolactin and immunoglobulin E levels in psoriasis vulgaris before and after NB-UVB therapy. Journal of Medical chemistry. 2015; 5(9):432-436.

18. Ghiasi M, Hallaji Z, Narimani SA. Serum prolactin level in psoriasis: Is it really higher then in healthy individual. Journal of Dermatology. 2014; 18:6-9.

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Original Article

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Risk Factors of Post ERCP Complications

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Abstract:

Background: Endoscopic retrograde cholangiopancreatography (ERCP) is the gold standard for the treatment of common bile duct stones (CBDS) and palliative decompression of malignant strictures. However, there are still concerns about procedure-related complications and patient discomfort. Objective: To evaluate the risk factors of post ERCP complications. Method: This prospective observational study was conducted at the Department of Gastroenterology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka. Ninety-five patients underwent ERCP were included in this study. Before and after ERCP, clinical, biochemical, and radiological examinations were performed as needed. Logistic regression was done to find the riskfactors of post ERCP complications. Result: In this study, mean age of 49.74 ± 14.07 years within the range of 18 – 80 years. Males (54.7%) were predominant than female (45.3%) and male female ratio was 1.21:1. Maximum patients had choledocholithiasis (58.9%) followed by proximal cholangiocarcinoma (13.7%), Ca-gallbladder with biliary infiltration (8.4%), Distal cholangiocarcinoma (6.3%), Chronic calcific pancreatitis and Periampullary carcinoma each (3.2%), Suspected SOD & Chronic pancreatitis each (2.1%) and Worm in CBD and benign biliary stricture each (1.1%). In this study overall post ERCP complication rate was 12.6%. Age, main pancreatic duct cannulation, number of attempt of cannulation, duration of procedure and bleeding during sphinecterotomy were the risk factors for significantly high Post-ERCP complications. Conclusion: From the study data it can be concluded that multiple attempts of cannulation with prolonged duration of procedure was the main risk factor of Post-ERCP complications.

Keywords: ERCP, post-ERCP complication, cannulation

Introduction:

Endoscopic retrograde cholangiopancreatography (ERCP) was first introduced by the surgeon, McCune and co-workers[1] as a diagnostic tool for evaluating diseases of the biliary tract and pancreas.

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Eventually, it became a therapeutic modality for various conditions in the same region, including benign and malignant diseases. Diagnostic approaches have changed over the past 40 years, with the introduction of new imaging modalities[2,3] modified surgical techniques[4] and improved anesthesia[5]. These changes have caused a shift in the role of ERCP in the algorithm for evaluating the biliary tract in routine clinical practice[6,7]. Although the ERCP procedure has evolved technically, it continues to be associated with potentially serious complications[8] and discomfort for patients[9]. ERCP is widely used for the treatment of a variety of pancreatico-biliary diseases.

However, it is considered a high risk procedure which accompanies some complications[10]. The overall ERCP-related complication rate reported in multiple large-scale studies and reviews has been highly variable. One systematic survey of prospective studies involving 16855 patients noted the total complication rate to be 6.9%[8].

Other large studies reported complication rates between 4% and 12%[11-13]. The most common complication is post-ERCP pancreatitis (PEP). Other complications include post-ERCP bleeding, infection, perforation and cardiopulmonary events[14]. These complications are associated with increased morbidity, mortality and healthcare costs [15,16].

It is possible to minimize the incidence and severity of post-ERCP complications by identifying high-risk populations. Therefore, it is important to identify risk factors for this complication. Several studies and reviews have identified several risk factors for post-ERCP pancreatitis[13,17].

ERCP related studies in Bangladesh are few. In this study, we aimed to evaluate the patterns and possible risk factors for post-ERCP complications.

Method:

It was a prospective observational study that took place in the In-patient Department of Gastroenterology at Bangabandhu Sheikh Mujib Medical University (BSMMU) in Dhaka from February to October 2017. This study included 95 patients who were scheduled for ERCP. Each patient provided written consent prior to enrollment. A thorough clinical history was taken, including age, gender, and relevant features such as the presence of clay colored stool, anorexia, weight loss, pruritus, fever, abdominal pain, and so on. Clinical examinations were performed to determine the presence of jaundice, scratch marks, an abdominal mass, and hepatomegaly. Serum bilirubin, SGPT, ALP, CA-19.9, prothombin time, albumin, serum amylase lipase, and an abdominal ultrasonogram were performed as biochemical tests.

The MRCP was performed to determine the level and possible cause of the obstruction. A CT scan of the abdomen was performed in a few cases. Endoscopy of the upper GI tract was performed to detect an ampullary lesion as well as to assess the feasibility of ERCP.

Anticoagulant and antiplatelet medications were all stopped 72 hours before the procedure. The procedure was fully explained to the patients.

The risks of the procedure were explained to the patients. Prior to ERCP, a prophylactic dose of third generation cephalosporine was routinely administered. To prevent sphincter of Oddi spasm, hyosine-N-butyl bromide was also given intravenously at the commencement of ERCP. The procedure was carried out under fluoroscopic supervision with patients under conscious sedation to help them relax and stay comfortable, or under general anaesthesia, depending on the anaesthesiologist's individual assessment of the patients. Sedation and analgesia were provided by midazolam and pethidine, respectively. Patients were placed on an x-ray table in the prone position while a duodenoscope was inserted down the esophagus, through the stomach, and into the duodenum. For contrast injection, a catheter was advanced past the sphincter of Oddi into the common bile duct (CBD). The pancreatic duct was cannulated selectively based on the ERCP indications and endoscopic or radiologic findings. The conventional sphincterotome was used to perform sphincterotomy selectively. Therapeutic procedures were carried out in accordance with the appropriate indication. Stone extraction was used to treat choledocholithiasis. Worm extraction was used to treat worms in the common bile duct. Biliary stenting was used as a palliative therapy in patients with malignant biliary obstruction. If ERCP is not feasible or fails or the stone is large (>1.5 cm) or there is a possibility of curative surgery in malignant biliary obstruction, the patient is referred to surgery. The consultant gastroenterologist checked on all patients after the procedure and again the next morning.

Patients were closely monitored for ERCP complications such as sedation-related complications, pancreatitis, cholangitis, bleeding, and perforation.

Total procedure duration, procedural complication, bleeding during procedure, and anesthetic complication were meticulously observed and noted.

During the procedure, the potential risk factors for complications were also noted. To identify the complication, a bedside clinical examination and relevant investigations such as CBC, serum amylase, lipase, and a plain X-ray of the abdomen in erect posture were performed.

For all statistical analyses, SPSS 12.0 was used. Numbers and percentages were used to represent categorical data. The mean and standard deviation of numerical data were presented. The Student's t-test was used to compare continuous variables, and the chi-square test was used to compare categorical variables. Univariate and multivariate logistic regression analyses were used to examine risk factors. A p value <0.05 was considered statistically significant.

Result and Observation:

Table I: Distribution of study subjects according to age (n=95)

	Number of patients (n)	Percentage (%)
Age (groups)		
≤50	56	58.9
>50	39	41.1
Mean ± SD (min-max)	49.74 ± 14.07 (18 – 80)	
Gender		
Male	52	54.7
Female	43	45.3

Table I shows distribution of study subjects according to age. Mean age of the patients was 49.74 ± 14.07 years within the range of 18 – 80 years.

Table II: Distribution of study subjects according to indication of ERCP (n=95)

Indications	Number of patients (n)	Percentage (%)
Choledocholithiasis	56	58.9
Proximal cholangiocarcinoma	13	13.7
Ca gallbladder with biliary infiltration	8	8.4
Distal cholangiocarcinoma	6	6.3
Periampullary carcinoma	3	3.2
Chronic calcific pancreatitis	3	3.2
Chronic pancreatitis	2	2.1
Suspected SOD	2	2.1
Biliary stricture	1	1.1
Worm in CBD	1	1.1

Table II shows distribution of study subjects according to indication. Maximum patients had choledocholithiasis (58.9%) followed by proximal cholangiocarcinoma (13.7%), Ca gallbladder with biliary infiltration (8.4%), Distal cholangiocarcinoma (6.3%), Chronic calcific pancreatitis & Periampullary carcinoma each (3.2%), Suspected SOD& Chronic pancreatitis each (2.1%) and Worm in CBD & Biliary stricture each (1.1%).

Table III: Distribution of study subjects according to therapeutic procedure performed (n=95)

Therapeutic procedures	Number of patients (n)	Percentage (%)
Stone extraction	49	51.6
Stenting in common bile duct	38	40
Only papillotomy done	7	7.4
Removal of worm	1	1.1

The therapeutic procedures of the study subjects are shown in Table III. Stone extraction was performed on 51.6% of patients, stenting in the common bile duct on 40% of patients, papillotomy was performed on 7.4% of patients, and worm removal was performed on 1.1% of patients.

Table IV: Distribution of study subjects according to complications (n=95)

Complication	Number of patients (n)	Percentage (%)
Pancreatitis	9	9.5
Bleeding	2	2.1
Chaolangitis	1	1.1
Total	12	12.63

Table V shows complications of the study subjects. Pancreatitis was observed in 9.47% patients, bleeding in 2.1% patients and cholangitis in 1.1% patients.

Table V: Risk factor of post ERCP complications (n=95)

	Complication		OR	p-value
	Present (n=12) n (%)	Absent (n=83) n (%)		
Age (years)				
>50	10 (83.3)	29 (34.9)	9.31	0.001
≤ 50	2 (16.7)	54 (65.1)		
Gender				
Male	8 (66.7)	44 (53.0)	1.77	0.374
Female	4 (33.3)	39 (47.0)		
Sphinecterotomy				
Done	9 (75.0)	58 (69.9)	1.29	0.716
Not done	3 (25.0)	25 (30.1)		
Main pancreatic duct cannulation				
Yes	8 (66.7)	25 (30.1)	4.64	0.013
No	4 (33.3)	58 (69.9)		
No. of attempt (cannulation)				
>5	8 (66.7)	1 (1.2)	164.0	<0.001
1 - 5	4 (33.3)	82 (98.8)		
Duration of procedure (minutes)				
30-60	10 (83.3)	20 (24.1)	15.75	<0.001
15-30	2 (16.7)	63 (75.9)		
Failed to remove common bile duct stone				
Yes	2 (16.7)	5 (6.0)	3.12	0.187
No	10 (83.3)	78 (94.0)		
Stent placement in malignant stricture				
Yes	4 (33.3)	20 (24.1)	1.57	0.491
No	8 (66.7)	63 (75.9)		
Bleeding during sphinecterotomy				
Yes	2 (16.7)	0 (0.0)		<0.001
No	10 (83.3)	83 (100.0)		

Chi-square test was done to measure the level of significance.
Table V shows risk factors of post ERCP. Age of the patients, MPD cannulation, number of attempts in cannulation and duration of procedure are the common risk found to be associated with various post ERCP complications.

Table VI: Multivariate analysis of risk factor of post ERCP complications (n=95)

	p value	OR	95%CI	
			Min	Max
Age (>50years)	0.364	2.533	0.340	18.846
Main pancreatic duct cannulation	0.809	0.761	0.083	6.981
Attempt of cannulation (>5 times)	0.001	79.944	5.579	1145.51
Duration of procedure (30-60 min)	0.139	5.359	0.580	49.528

Discussion:

ERCP is one of the most demanding and high risk procedures performed by gastrointestinal endoscopists[18,19]. It requires significant focused training and experience to maximize success and to minimize poor outcomes[17,20].

In this study mean age of 49.74 ± 14.07 years (age range of 18 – 80 years). More than half of the patients were above 70 years old.[12] Males (54.7%) were predominant than female (45.3%) and male female ratio was 1.21:1.

The overall complication rate in this study was 12.6%, which is almost identical to the studies done in Bangladesh by Alam et al[21]. (12.5%) and Islam et al.[22] (9.01%). In Glomsaker et al[12]. study's complications occurred in 11.6 %. In other studies, the complication rate was 11.2%[23] and 4.9%[24]. In a meta-analysis of 21 prospective studies, the incidence of PEP ranged from 3.5% to 18%[13,25].

Pancreatitis was seen in 9.4% patients, bleeding in 2.1% patients and cholangitis in 1.1% patients. Islam et al[23]. found pancreatitis 5.15%, Alam et al.[22] found 3.57% and Glomsaker et al.[12] found 3.1%. Cholangitis was observed 8.92% in the study of Alam et al.[22] and 3.6% in the study of Glomsaker et al.[12] and 1% or less in the study of Katsinelos et al.[26].

In this study, cholangitis was less due to adequate per and post procedure control of infection. Kapral et al.[11] found bleeding in 4.2% cases and Glomsaker et al.[12] found bleeding in 2.4% cases.

Age was significantly high among the patients with post ERCP complication. Masci et al.[23] and Glomsaker et al[12]. found older age as a risk factor of post ERCP complications.

Main pancreatic duct cannulation was significantly high (66.7%) among the patients with post ERCP complication. Wang et al.[27] found main pancreatic duct cannulation as a risk factor of post ERCP complications. Number of attempt of cannulation was significantly high among the patients with post ERCP complication. Vitte et al.[28] and Freeman et al.[29] revealed difficulty of cannulation as a risk factor of post ERCP complication. Wang et al.[27] reported cannulation time >10 min as a risk factor of post ERCP complication. Williams et al.[30] (2007) and Testoni et al.[17] reported cannulation attempt >10 times as a risk factor of post ERCP complication.

Duration of procedure and bleeding during sphincterotomy was found significantly high among the patients with post ERCP complication in this study. Mehta et al.[31] didn't find significant difference in outcomes or overall adverse events between

shorter and longer ERCP procedures but they also concluded that longer procedures might be associated with higher risk of post-procedure bleeding.

Conclusion:

The present study concludes that older age (>50 years), main pancreatic duct cannulation, multiple attempt of cannulation (>5) and prolonged duration of procedure are the main risk factors of post-ERCP complications.

References:

1. Mc Cune WS, Shorb PE, Moscovitz H. Endoscopic cannulation of the ampulla of vater: a preliminary report. Annals of surgery. 1968; 167(5):752.

2. Shrikhande SV, Barreto SG, Goel M, Arya S. Multimodality imaging of pancreatic ductal adenocarcinoma: a review of the literature. HPB. 2012; 14(10):658-668.

3. Mercer S, Singh S, Paterson I. Selective MRCP in the management of suspected common bile duct stones..Hpb. 2007;9(2):125-130.

4. Gurusamy K, Sahay SJ, Burroughs AK, Davidson BR. Systematic review and meta-analysis of intraoperative versus preoperative endoscopic sphincterotomy in patients with gallbladder and suspected common bile duct stones. British Journal of Surgery. 2011; 98(7):908-916.

5. Fasting S. Risk in anaesthesia. Tidsskr Nor Laegeforen. 2010;130:498-502.

6. Kim DC, Moon JH, Choi HJ. The role of endoscopic retrograde cholangiopancreatography at an academic medical center in the era of less-invasive diagnostic tools.Expert review of gastroenterology & hepatology. 2012;6(5):549-551.

7. Coté GA, Singh S, Bucksot LG, Lazzell–Pannell L, Schmidt SE, Fogel E et al. Association between volume of endoscopic retrograde cholangiopancreatography at an academic medical center and use of pancreatobiliary therapy.Clinical Gastroenterology and Hepatology. 2012; 10(8):920-924.

8. Andriulli A, Loperfido S, Napolitano G. Incidence rates of post ERCP complications: a systematic survey of prospective studies. Am J Gastroenterol. 2007;102:1781–8.

9. Jeurnink SM, Steyerberg EW, Kuipers EJ, Siersema PD. The burden of endoscopic retrograde cholangiopancreatography (ERCP) performed with the patient under conscious sedation. Surgical endoscopy. 2012;26(8):2213-2219.

10. Baron TH, Saleem A. Intraductal electrohydraulic lithotripsy by using SpyGlasscholangioscopy through a colonoscope in a patient with Roux-en-Y hepaticojejunostomy. Gastrointestinal endoscopy. 2010;71(3):650-651.

11. Kapral C, Muhlberger A, Wewalka F, Duller C, Knoflach P, Schreiber F. Quality assessment of endoscopic retrograde cholangiopan-creatography: results of a running nationwide Austrian benchmarking project after 5 years of implementation. Eur J Gastroenterol Hepatol. 2012;24:1447-54.

12. Glomsaker T, Hoff G, Kvaløy JT, Soreid K, Aabakken L, Soreide JA. Patterns and predictive factors of complications after endoscopic retrograde cholangiop -ancreatography. Br J Surg. 2013; 100:373–80.

13. Cotton PB, Garrow DA, Gallagher J, Romagnuolo J. Risk factors for complications after ERCP: a multivariate analysis of 11,497 procedures over 12 years. Gastrointest Endosc. 2009;70:80-88.

14. Chandrasekhara V, Khashab MA, Muthusamy VR, Acosta RD, Agarwal D, Bruining DH, et al. ASGE Standards of Practice Committee. Adverse events associated with ERCP. Gastrointest Endosc. 2017;85:32–47.

15. Kochar B, Akshintala VS, Afghani E, Elmunzer BJ, Kim KJ, Lennon AM, et al. Incidence, severity, and mortality of post-ERCP pancreatitis: a systematic review by using randomized, controlled trials. Gastrointest Endosc. 2015;81:143–9.

16. Dumonceau JM, Andriulli A, Elmunzer BJ, Mariani A, Meister T, Deviere J, et al. Prophylaxis of post-ERCP pancreatitis: European Society of Gastrointestinal Endoscopy (ESGE) Guideline - updated June 2014. Endoscopy 2014;46:799–815.

17. Testoni PA, Mariani A, Giussani A, Vailati C, Masci E, Macarri G, et al. Risk factors for post-ERCP pancreatitis in highand low volume centers and among expert and non-expert operators: a prospective multicenter study. Am J Gastroenterol. 2010;105:1753-1761.

18. Adler DG, Lieb JG, Cohen J. Quality indicators for ERCP.American J Gastroenterol. 2015;110: 91-101.

19. Colton JB, Curran CC. Quality indicators, including complications, of ERCP in a community setting: a prospective study. Gastrointestinal endoscopy.2009;70(3):457-467.

20. Cotton PB. Evaluating ERCP is important but difficult. Gut.2002; 51(2):287-289.

21. Alam MR, Islam AN, Islam AMMS, Masud MH. Complications of ERCP (endoscopic retrograde cholangiopancreaticogrphy) in Gastroenterology department of BSMMU. Bangladesh Medical Journal. 2016; 44(2):97-101.

22. Islam MS, Alam AHMT, Ahmed SU, Zaman KS, Islam M. Early Complications of Therapeutic Endoscopic Retrograde Cholangiopan Creatography: A Prospective Tertiary Hospital Study. Medicine Today. 2012; 23(2):63-66.

23. Masci E, Toti G, Mariani A, Curioni S, Lomazzi A, Dinelli M, et al. Complications of diagnostic and therapeutic ERCP: a prospective multicenter study. The American journal of gastroenterology. 2001; 96(2):417-423.

24. Freeman ML. Understanding risk factors and avoiding complications with endoscopic retrograde cholangiopancreatography. Current gastroenterology reports. 2003;5(2):145-153.

25. Barthet M, Lesavre N, Desjeux A, Gasmi M, Berthezene P, Berdah S, et al. Complications of endoscopic sphincterotomy: results from a single tertiary referral center. Endoscopy. 2002;34(12):991-997.

26. Katsinelos P, Lazaraki G, Chatzimavroudis G, Gkagkalis S, Vasiliadis I, Papaeuthimiou A, et al. Risk factors for therapeutic ERCP-related complications: an analysis of 2,715 cases performed by a single endoscopist. Annals of gastroenterology. 2014;27(1):65.

27. Wang P, Li ZS, Liu F, Ren X, Lu NH, Fan ZN, et al. Risk factors for ERCP-related complications: a prospective multicenter study. The American journal of gastroenterology.2009; 104(1):31.

28. Vitte RL, Morfoisse JJ, Association TIGOT, Généraux NDGDH. Evaluation of endoscopic retrograde cholangiopancreatography procedures performed in general hospitals in France. Gastroenterologiecliniqueetbiologique. 2007; 31(8-9):740-749.

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29. Freeman ML, Nelson DB, Sherman S, Haber GB, Herman ME, Dorsher PJ, et al.Complications of endoscopic biliary sphincterotomy. New England Journal of Medicine. 1996;335(13):909-919.

30. Williams EJ, Taylor S, Fairclough P, Hamlyn A, Logan RF, Martin D, et al. Risk factors for complication following ERCP; results of a large-scale, prospective multicenter study.Endoscopy. 2007;39(09):793-801.

31. Mehta PP, Sanaka MR, Parsi MA, Albeldawi MJ, Dumot JA, Lopez R, et al. Association of procedure length on outcomes and adverse events of endoscopic retrograde cholangiopancreatography. Gastroenterology report. 2014;2(2):140-4.

Original Article

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Knowledge, Attitude and Practice on Dengue Fever among the Clinical Students of Different Medical Colleges of Dhaka City

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Abstract:

Background: Knowledge, attitude, and practice regarding dengue fever are important to be cultivated especially among the young population. Bangladesh is a dengue privileged country. Aim of the study: To assess knowledge and attitudes on dengue fever among the clinical students of Dhaka Central International Medical College & Hospital, Ad-Din Medical College & Hospital, Dhaka Medical College Hospital, Shaheed Suhrawardy Medical College & Hospital and Mugda Medical College & Hospital. Methods: This prospective observational study was conducted in the Department of Medicine, in 5 different medical colleges of Dhaka city. In total 433 clinical students was included as the targeted population of this study. A predesigned questionnaire was used in data collection. Results: Majority (81%) of the participants defined dengue fever as a viral disease. Aedes aegypti was defined as the factor of dengue fever by 93% of participants. According to the majority of the participants (71%), dengue fever persists for 7 days and 71% of participants expressed that; the platelet count of dengue patients begins to fall after 3 days. Near about 84% of participants thought capillary leakage of fluid is riskier for dengue patients than fall of platelet count. In total, 129 participants thought that paracetamol is the treatment of backbone pain in dengue fever patients. The majority of the participants (76%) thought that doing HCT besides platelet count in dengue patients has a strong role. Majority of the participants 55% thought that the dengue Ab test (IgM & IgG) of patients should be performed after 5 days of fever. In this study, 358 participants (83%) thought that there is new hope in dengue treatment. Majority of the participants 55% thought that a vaccine for dengue fever is available. Conclusion: Medical students have the highest opportunities to gain knowledge which can be reflected in changing practices in general communities. The satisfactory knowledge and positive attitudes on dengue fever among the clinical students of 5 different Medical Colleges may be effective in controlling dengue fever in several communities.

Keywords: Knowledge, Attitudes, Dengue fever, Clinical students, Aedes aegypti

Introduction:

Dengue fever is one of the most important mosquito-borne viral diseases affecting humans. Dengue infections can result in a broad spectrum of disease severity ranging from an influenza-like illness (DF) to the life-threatening dengue hemorrhagic fever (DHF)/ dengue shock syndrome (DSS)[1].

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As per the report of the World Health Organization about 2.5 billion people which is 40% of the world's population are at risk of developing the disease[2]. But in a study, they reported that dengue fever had a wide geographic distribution before the 18th century while the first known pandemic of dengue-like illness began[3]. The 55th World Health Assembly declared DF (dengue fever) prevention and control as a priority and urged the member states to develop sustainable inter-sectorial strategies[4].

Health education programs involving different sectors of the community are important intervention tools to ensure behavioral changes that lead to involving the community in controlling DF (dengue fever), particularly the vector[5]. For success, community-based strategies must be flexible and adapted to the local setting because of cultural, ecological, and social differences between localities. Various types of containers plastic and metal containers, tires, animal-feeding dishes, coconut shells, flower vases, and water storage drums have been identified as potential mosquito breeding sites[6]. But some people believe that mosquitoes within the home and outside are different. So, it is also believed that mosquitoes inside the house do not carry disease[7]. The knowledge, attitudes, and practices of the general population are the most critical factors preventing dengue fever[8]. A study found that a lack of knowledge about its transmission and its preventive methods can increase the chance of spreading dengue fever (DF)[9]. A study by Rozita et al. reported the need to expand dengue fever preventive knowledge to control its outbreaks[10]. It is also essential to investigate dengue patients' health service-seeking behavior[11]. For this reason, we had arranged this study in Bangladesh.

Methodology:

This prospective observational study was conducted in 5 different medical colleges of Dhaka city, Bangladesh during the period from March 2021to October 2021. In total 433 clinical students of Dhaka Central International Medical College & Hospital, Ad-Din Medical College & Hospital, Dhaka Medical College Hospital. Shaheed Suhrawardy Medical College & Hospital and Mugda Medical College & Hospital, Bangladesh was included as the study people of this study. A predesigned questionnaire was used in data collection. Complete information from the study people about their study as the clinical students were recorded before starting the study. A predesigned questionnaire for the assessment of respondents' knowledge practice and attitudes towards dengue fever was applied for data collection.

The respondent sample size was finalized by using non-probability and convenience sampling methods from the clinical students present in the medical college. Properly written consent was taken from all the participants before data collection.

Table 1: Questioner for the study people

No	Questions
1	What is dengue fever?
2	What is the vector of dengue fever?
3	How long dengue fever persists?
4	When does the platelet count begin to fall?
5	Which one is riskier for patients?
6	There are how many spectrums of dengue fever?
7	What is the treatment of break bone pain in dengue fever patients?
8	What does dengue rash indicate?
9	Is there any role in doing HCT besides platelet count in dengue patient?
10	When to send dengue Ab test (IgM & IgG)?
11	When to transfuse blood to a dengue patient?
12	Is there any new hope in the dengue treatment?
13	Is there any vaccine in dengue fever?
14	When to be hospitalized?
15	Is there any role of steroids in dengue fever?
16	Which fluid is preferable in dengue shock management of patients?
17	Is Dengue virus transmitted through the breast milk?
18	Is there any long-term complications in dengue fever?
19	Who is responsible for the dengue epidemic in Dhaka?
20	Have you cleaned your house & surrounding to prevent dengue fever?

Prior to the filling of the questionnaire, every respondent provided voluntary consent for the study. All respondents were assured that the information shared through the questionnaire will be kept confidential and anonymous. All data were collected, processed, and analyzed by using MS Office and SPSS version 23 programs as per need.

Result:

In this study, among a total of 433 participants, 63% were male whereas 37% were female. So, male participants were dominating in number and the male-female ratio was 1.7:1. The mean (±SD) age of the participants was 22.5±2.25 years. The majority (81%) of the participants defined dengue fever as a viral disease. Besides this, 16% and the rest 3% defined it as parasitological and bacterial disease respectively. Aedes aegypti was defined as the vector of dengue fever by 93% of participants. According to the majority of the participants (72%), dengue fever persists for 7 days. Besides this, 72% thought it lasts for 10 days and the rest 12% thought 5 days. Seventy-two percent of participants expressed that; the platelet count of dengue patients begins to fall after 3 days. But 10% thought 'after 7 days and the rest 19% thought 'after 5 days. Near about 84% of participants thought capillary leakage of fluid is riskier for dengue patients than fall of platelet count. About half (48%) of the participants thought that there are 3 spectrums of dengue fever. Another 45% thought it may be 4 spectrums. In total, 372 participants thought that paracetamol is the treatment of breakbone pain in dengue fever patients. On the other hand, 11% defined NSAIDs, and the rest 3.5% defined aspirin as the treatment of breakbone pain in dengue fever patients. Dengue rash as an indicator of Plasma leakage of the fluid, the patient is deteriorating and the patient is improving were defined by 43%, 35.8%, and 21.2% of participants respectively. The majority of the participants (76%) thought that doing HCT besides platelet count in dengue patients has a strong role. But according to 16.9% of participants' opinions, it has a little role and according to 69% opinion, it has no role at all.

Majority of the participants 55% thought that the dengue Ab test (IgM & IgG) of patients should be performed after 5 days of fever. But 37% defined it as after 3 days and the rest 8% defined it as after the 1st day of fever. In this study, as per the opinion of 40.4%, 46.4%, and 13.2% participants, the blood transfusion should be needed if any bleeding manifestation occurs platelet count fall below 20,000 and platelet count fall below 50,000 respectively. In this study, 358 participants (82.7%) thought that there is new hope in dengue treatment. Majority of the participants 55% thought that a vaccine for dengue fever is available. Besides these, as the majority of the participants, 64% participants thought that the necessity of steroids is a matter of controversy, 69.5% agreed that normal saline is preferable for dengue patients, 84% thought dengue virus does not transmit through breast milk, 55% thought that dengue fever has no long term complication, another 84% thought that we all (People) are responsible for dengue fever epidemic in Dhaka and another 88% cleaned their house and surroundings to prevent dengue fever.

Table 1: Concept, factors, and duration of Dengue Fever of patients (N=433)

Characteristics	N	(%)
Q1. What is dengue fever?		
Viral disease	350	80.8
Parasitological disease	70	16.2
Bacterial disease	13	3.0
Q2. What is the vector of dengue fever?		
Anopheles	30	6.9
Aedes aegypti	403	93.1
Q3. How long does dengue fever persist?		
Ten days	73	16.9
Seven days	310	71.6
Five days	50	11.5

Table 2: Timing of Platelet count fall, Severity, Spectrum of dengue fever (N=433)

Characteristics	N	(%)
Q4. When does platelet count begin to fall?		
After 3 days	308	71.1
After 7 days	42	9.7
After 5 days	83	19.2
Q5. Which one is riskier?		
Capillary leakage of fluid	365	84.3
Fall of platelet count	68	15.7
Q6. How many spectrum of dengue fever?		
Three	206	47.6
Four	194	44.8
Five	33	7.6

Table 3: Related of Investigations (N=433)

Characteristics	n	(%)
Q9. Is there any role of doing HCT besides platelet count in dengue patient?		
Strong role	330	76.2
Little role	73	16.9
No role	30	6.9
Q10. When to send dengue Ab test (IgM & IgG)?		
After 5 days of fever	237	54.7
After 3rd day of fever	162	37.4
After 1st day of fever	34	7.9

Table 4: Related to treatment (N=433)

Characteristics	N	(%)
Q7. What is the treatment of break bone pain in dengue fever?		
Paracetamol	372	85.9
NSAID	46	10.6
Aspirin	15	3.5
Q8. What does dengue rash indicate?		
Plasma leakage of fluid	186	43.0
Patient is deteriorating	155	35.8
Patient is improving	92	21.2
Q11. When to transfuse blood to a dengue patient?		
If any bleeding manifestations occur	175	40.4
If the platelet count falls below 20,000.	201	46.4
If the platelet count falls below 50,000.	57	13.2
Q12. Is there any new hope in dengue treatment?		
Yes	358	82.7
No	75	17.3
Q14. When to be hospitalized?		
If platelet count falls below 20,000		
Both of the above	372	85.9
Any bleeding manifestation	61	14.1
Q15. Is there any role of steroid in dengue fever?		
Controversial	279	64.4
Yes	64	14.8
No	90	20.8
Q16. Which fluid is preferable in dengue shock management?		
Normal saline	301	69.5
5% DA	94	21.7
Dextran	38	8.8

Table 5: Related to prevention (N=433)

Characteristics	N	(%)
Q13. Is there any vaccine for dengue fever?		
No	237	54.7
Yes	196	45.3
Q17. Is dengue virus transmitted through breast milk?		
No	365	84.3
Yes	68	15.7
Q18. Is there any long-term complication in dengue fever?		
No	238	55.0
Yes	195	45.0
Q19. Who is responsible for the dengue epidemic in Dhaka?		
We all	364	84.1
Government	50	11.5
City mayor	19	4.4
Q20. Have you cleaned your house & surrounding to prevent dengue fever?		
Yes	380	87.8
No	53	12.2

Discussion:

The aim of this study was to assess knowledge and attitudes on dengue fever among the clinical students of Dhaka Central International Medical College & Hospital, Ad-Din Medical College & Hospital, Dhaka Medical College Hospital. Shaheed Suhrawardy Medical College & Hospital and Mugda Medical College & Hospital, Dhaka, Bangladesh. In this study, the majority (81%) of the participants defined dengue fever as a viral disease. Besides this, 16% and the rest 3% defined it as parasitological and bacterial disease respectively. Aedes aegypti was defined as the vector of dengue fever by 93% of participants. With a lot of teams of scientists Mirza et al.[3] also reported that dengue is one of the most important vector-borne tropical viral diseases around the world.

A study conducted in Karachi reported that 89% of respondents have heard about dengue and 78.5% knew that, the vector is the mosquito, 51% were aware that mosquito responsible for dengue breeds in clean stagnant water[12] Majority of the participants 55% of our settings thought that, vaccine of dengue fever is available. But in a study[3], they reported that, regarding the availability of vaccines for dengue, only 26.8 percent of the students manage to answer correctly that there is no vaccine available on the shelf for this disease. In this study, as the majority of the participants, 64.4% participants thought that 'necessity of steroid is a matter of controversial, 70% agreed that normal saline is preferable for dengue patients, 84% thought dengue virus does not transmit through breast milk, 55% thought that dengue fever has no long term complication, another 84% thought that we all (People) are responsible for dengue fever epidemic in Dhaka and another 88% cleaned their house and surroundings to prevent dengue fever. As for now, according to the findings of a study, there is no treatment for dengue patients except fluid management as well as thorough monitoring[13]. Majority of our participants 55% thought that the dengue Ab test (IgM & IgG) of patients should be performed after 5 days of fever. As per their opinion of 40.4%, 46%, and 13.2% participants, the blood of dengue transfuse should be needed if 'any bleeding manifestation occur' 'platelet count fall below 20,000' and 'platelet count fall below 50,000' respectively. Finally, in our study, we found satisfactory knowledge regarding dengue fever among the participants whose mean age was 22.5 years. But another study of Bangladesh[14], also reported that those people aged 45 to 60 years were more likely to report a positive attitude towards undertaking the precautionary measures to prevent dengue fever than those aged <25 years.

Limitation of the study:

As few centers are involved in this study with limited sample size, the findings of this study might not reflect the exact scenario of the whole country.

Conclusion & recommendation:

Medical students have the highest opportunities to gain knowledge which can be reflected in changing practices in general communities. The satisfactory knowledge and positive attitudes on dengue fever among the clinical students of Dhaka Central International Medical College & Hospital, Ad-Din Medical College & Hospital, Dhaka Medical College Hospital. Shaheed Suhrawardy Medical College & Hospital and Mugda Medical College & Hospital, Dhaka, may be effective in controlling dengue fever in several communities. But closing the gaps between knowledge and practice among general people will remain an important challenge for controlling dengue in a crowded large city like Dhaka. For getting more specific findings we would like to recommend conducting similar studies with larger-sized samples in several places.

References:

1. Rahman ML, Rashid AKMM, Debnath M, Islam T. The Scenario of Dengue-like Illness in Paediatric Population of Southern Bangladesh. Medicine. TAJ 2021; 34(1): 86-96.

2. Samuel PP, Tyagi BK. Diagnostic methods for detection & isolation of dengue viruses from vector mosquitoes. Indian journal of medical research, 2006, 123(5):615-28.

3. Mirza H, Raza H, Bashir R. Knowledge, Attitude & perception of Dengue among First Year Medical Students. Pakistan Journal of Medical & Health Sciences. 2013;7:258-263.

4. Sanchez L, Perez D, Perez T, Sosa T, Cruz G, Kouri G, et al. Intersectoral coordination in Aedes aegypti control. A pilot project in Havana City, Cuba. Tropical medicine and international health, 2005, 10(1):82-91.

5. Claro LB, Tomassini HC, Rosa ML. Prevenção e controle do dengue: umarevisão de estudossobreconhecimentos, crenças e práticas da população [Dengue prevention and control: a review of studies on knowledge, beliefs, and practices]. Cadernos de saúdepública, 2004, 20(6):1447-57.

6. Lloyd LS, Winch P, Ortega-Cento J, Kandall C. The design of a community-based health education intervention for the control of Aedes aegypti. American journal of tropical medicine and hygiene, 1994. 50(4):401-11.

7. Winch PJ, Lloyd LS, Hoemeke L, Leontsini E. Vector control at the household level: An analysis of its impact on women. Acta Tropica, 1994, 56: 327-339.

8. Chandren, JR, Wong LP, AbuBakar S. Practices of dengue fever prevention and the associated factors among the orang Asli in peninsular Malaysia. PLoS Negl Trop Dis. 2015;9(8): e0003954.

9. Wong LP, AbuBakar S, Chinna K. Community knowledge, health beliefs, practices and experiences related to dengue fever and its association with igg seropositivity. PLoS Negl Trop Dis. 2014; 8(5):e2789.

10. Al-Zurfi BM, Fuad MD, Abdelqaderm MA, Baobaid MF, Elnajeh M, Ghazi HF, et al. Knowledge, attitude and practice of dengue fever and health education programme among students of Alam shah science school, Cheras, Malaysia. Malays. J. Public Health Med. 2015;15(2):69-74.

11. Elsinga J, Lizarazo EF, Vincenti MF, Schmidt M, Velasco-Salas ZI, Arias L, Bailey A, Tami A. Health seeking behaviour and treatment intentions of dengue and fever: A household survey of children and adults in venezuela. PLoS Negl. Trop Dis. 2015; 9(12): e0004237.

12. Itrat A, Khan A, Javaid S, Kamal M, Khan H, Javed S, et al. Knowledge, awareness and practices regarding dengue fever among the adult population of dengue hit cosmopolitan. PloS one. 2008;3(7): e2620.

13. Ministry of Health Malaysia. Clinical Practice Guidelines. Management of dengue infection in adults. Third Edition. 2015: 21-24.

14. Dhar-Chowdhury P, Emdad Haque C, Michelle Dredgers S, Hossain S. Community perspectives on dengue transmission in the city of Dhaka, Bangladesh. Int Health. 2014; 6(4):306-16.

Original Article

DCIMCJ

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Detection of Chlamydia Trachomatis Infection in Sexually Active Women by Immunochromatographic Test (ICT) in Bangladesh.

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Abstract:

Background: Genital infections by Chlamydia trachomatis (Ct) are now recognized as highly prevalent sexually transmissible disease. The genital Chlamydial infection is the most common sexually transmitted diseases (STD) and major cause of infertility and ectopic pregnancy for millions of women in the world particularly in developing countries. This cross sectional study was done to diagnose genital Chlamydia trachomatis infection among 110 sexually active women (SAW), attending Mymensingh Medical College Hospital and 40 commercial sex workers of the local region during the period from July 2011 to June 2012 by Immunochromatographic test (ICT). Materials and methods: Endocervical swabs were collected from each of the cases and examined by Immunochromatographic test (ICT) for antigen detection. Results: Ct antigens were found in 40% (16/40) CSW cases and 20.9% (23/110) SAW cases by ICT. Majority of the Ct infected cases (44.4%) were in the age group 25 to 35 years and most of the cases (87.5%) presented with lower abdominal pain. Concluion: This Clearview Chlamydia (Immunochromatographic test) is rapid monoclonal antibody based latex immunodiffusion test for detecting chlamydial antigen in endocervical specimens. ICT for direct detection of Chlamydial antigen in endocervical secretion appeared to be a sensitive and specific test for rapid diagnosis of genital Ct infection in female for prevention of complications, infertility and morbidity.

Keywords: Chlamydia trachomatis, ICT, CSW, SAW

Introduction:

Genital infections by Chlamydia trachomatis are now recognized as highly prevalent sexually transmissible disease. In frequency, they surpass the classic sexually transmissible diseases such as syphilis and gonorrhea and thus constitute a serious public health problem[1]. WHO reported that, 91.98 million (27%) among 340 million new curable STDs (syphilis, gonorrhoea, chlamydia and trichomoniasis) were due to Chlamydial infections[2].

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Although most infections remain asymptomatic, undetected and untreated infections result in persistent transmission and can cause serious sequele, including pelvic inflammatory disease, ectopic pregnancy tubal infertility, and epididymitis. Moreover, Ct infection may be a cofactor in the transmission of human immunodeficiency virus (HIV)[3]. In Bangladesh, there are few prevalence reports on Chlamydia trachomatis infection and 43.5% prevalence of Chlamydial infection found among all sexually transmitted infection in Bangladesh[4]. Chlamydia antigen was detected by Immunochromatographic (ICT) test in women attending at Mymensingh Medical College Hospital and 58.3% cases was found to be positive[5]. 30% by ICT by Khan et al (2011) from patients attending at Mymensingh Medical College Hospital[6].

According to WHO global estimates in 1999, four major STDs among 15-49 years old people were syphilis, gonorrhea, Chlamydia and trichomoniasis and the total number of new cases of these curable STDs was about 340 million. Among these, chlamydial incidence was around 92 million (27%) affecting more women (50 million) than men (42 million). The largest number of new cases (42.89 million) occurred in the region of south and southeast Asia which was about 46.6% of the total (WHO 2001)[2].

Genital C. trachomatis infection is a sexually transmitted disease. Eighty percent of the women do not experience symptom. But those who develops symptoms after three weeks incubation period have dysuria, vaginal discharge, contact bleeding, poorly differentiated abdominal pain[7].

Methods:

This cross sectional study was conducted on 40 commercial sex workers of the local region and on 110 sexually active Symptomatic women attending at out patient department of Gynae & obs in Mymensingh Medical college Hospital who were not treated with antibiotic within the last two weeks prior to inclusion. The study was carried out in the Department of Microbiology Mymensingh Medical College (MMC) during the period from July 2011 to June 2012. Data were recorded in a pre-designed data sheet and analyzed manually. Specimen was examined within a day of sample collection. The specimen was kept in refrigerator at (2-8ºC) until preparation for ICT.

Immunochromatographic Test (ICT) utilizes a unique combination of monoclonal antibody against Chlamydial lipopolysaccharide to selectively identify Chlamydia trachomatis antigen in endocervical swab specimens with a high degree of sensitivity. A swab specimen from a patient was treated with extraction buffer R1 to extract the antigen. The extracted specimen was put to the sample well and it migrated through the absorbent area and along the membrane. If Chlamydia trachomatis antigen was present, the labeled antibody-dye conjugate binds to it forming an antibody-antigen complex.

As the mixture flowed along the membrane, the antibody immobilized in the test region (T) of the membrane captures the complex, producing a visible rose-pink color band proportion to the amount of antigens. Absence of this pink colored band in the test region suggests a negative result. To serve as a procedural control, a pink colored band in the control region (C) was always appearing regardless the presence of Chlamydia trachomatis antigens.

Results:

Among the 40 specimens of CSW 16(40%) cases were positive and among the 110 specimens of SAW 23(20.9%) cases were positive by ICT. The prevalence of genital Chlamydia trachomatis infection in CSW was significantly higher then that of SAW. Majority of the suspected cases 24 (60%) belonged to the age group of 15-25 years and highest prevalence was 4(44.4%) to the age group of 25-35. Majority of the suspected cases 47 (42.72%) belonged to the age group of 15-25 yrs and highest prevalence was 10(22.2%) to the age group of 25-35. out of the suspected 40 case of CSW 29 (72.5%) presented with excessive vaginal discharge, 35(87.5%) with lower abdominal pain. Among the suspected 110 cases of SAW 93 (84.5%) presented with excessive vaginal discharge followed by 70(63.6%) with lower abdominal pain. Among CSW, suspected cases 32(80%) from low income group showed 22 (68.7%) positive. Out of 110 SAW, highest suspected cases 76 (69%) from low income group showed 22(22.9%) positive. Low SEC is statistically significant for chlamydial infection in CSW.

Table I: Prevalence of genital Chlamydia trachomatis infection by ICT.

Type of Patients	Total tested	ICT Results	
		Positive	Negative
CSW	40(26.6%)	16 (40%)	24 (60%)
SAW	110(73.3%)	23 (20.9%)	87 (79%)
Total	150(100%)	39 (26%)	111 (74%)

Table I Shows among the 40 specimens of CSW 16(40%) cases were positive and among the 110 specimens of SAW 23(20.9%) cases were positive by ICT.

Table II:Age wise distribution of genital Chlamydia trachomatis infection among the CSW.

Age Group (years)	No. of suspected cases	ICT positive	No. of Positive Cases by ICT in percentage
15-25	24 (60)	10	41.6%
>25-35	9 (22.7)	4	44.4%
>35-45	7 (17.5)	2	28.5%

Table II shows majority of the suspected cases 24 (60%) belonged to the age group of 15-25 years and highest prevalence was 4(44.4%) to the age group of 25-35.

Table III: Age wise distribution of genital Chlamydia trachomatis infection among the SAW.

Age group (Years)	No. of suspected cases	ICT Positive	No. of Positive Cases by ICT in percentage
15-25	47 (42.72)	10	21.2%
>25-35	45 (40.9)	10	22.2%
>35-45	18 (16.36)	3	16.6%

Table III Shows majority of the suspected cases 47 (42.72%) belonged to the age group of 15-25 yrs and highest prevalence was 10(22.2%) to the age group of 25-35.

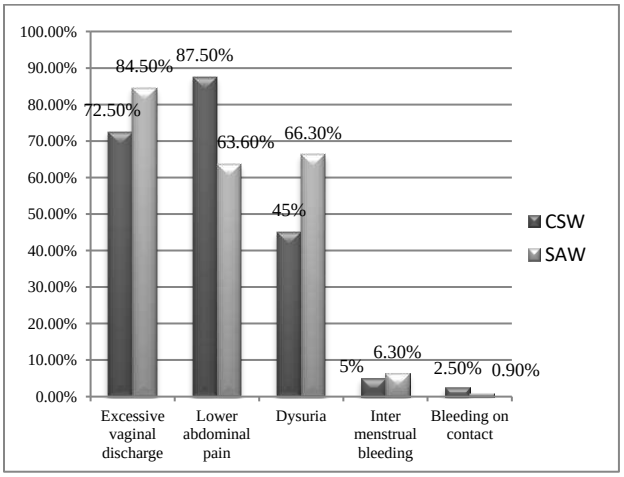

Figure-I: Distribution of the patients according to Symptoms.

Figure-I shows out of the suspected 40 case of CSW 29 (72.5%) presented with excessive vaginal discharge, 35(87.5%) with lower abdominal pain. Among the suspected 110 cases of SAW 93 (84.5%) presented with excessive vaginal discharge followed by 70(63.6%) with lower abdominal pain.

Table IV: Distribution of the patients according to Symptoms

Symptoms	CSW
Excessive Vaginal discharge	29 (72.5)
Lower Abdominal pain	35 (87.5)
Inter menstrual Bleeding	2 (5)
Dysuria	18 (45)
Bleeding on contact	1 (2.5)

Table IV shows out of the suspected 40 case of CSW 29 (72.5%) presented with excessive vaginal discharge, 35(87.5%) with lower abdominal pain.

Table V: Distribution of the cases according to Socio-economic condition:

Socio-economic condition	CSW		
	No. Of suspected cases	**No. Of Positive Cases by ICT**	CSW $(\chi^2) = 5.80$ P<0.05
***Low**	32 (80)	22 (68.7)	
****Medium**	6 (15)	2 (33.3)	SAW $(\chi^2) = 0.989$
*****High**	2 (5)	0 (0)	P>0.05
Total	40(100)	24 (60)	

Table V Shows among CSW, suspected cases 32(80%) from low income group showed 22 (68.7%) positive. Out of 110 SAW, highest suspected cases 76 (69%) from low income group showed 22(22.9%) positive. Low SEC is statistically significant for chlamydial infection in CSW.

Discussion:

Chlamydia trachomatis is now one of the most Prevalent bacteria found in classic sexually transmissible disease and as such constitutes a serious Public heath problem.

Out of 40 cases of CSW 40% showed ICT positive. Khan et al. (2011) in Mymensingh Medical Hospital reported 34% prevalence rate by ICT among symptomatic women. In another study at the same institute by Shamsuzzaman et al.[5] observed 58% chlamydial infection using ICT kits among symptomatic female in Bangladesh which was higher than our result. In another study by Young et al.[8] reported that clearview *Chlamydia* Kit showed a lower prevalence (8.8%) of chlamydial infection in U.K.

In this study, among the 40 CSW majority respondents 60% belonged to the age group of 15-25 years, 22.7% in the age group of >25-35 years and 17.5% in the age group of >35-45 years (Table II), The youngest and oldest positive cases were in the age 18 and 38 years respectively. A study by Nessa et al.[4] showed the higher number of genital CT infection in the age group 18-25 years (82%) among Hotel based sex workers (HBSW) in Dhaka and the highest number of positive cases were in this group. Another study by Petrovey et al.[9.] showed high prevalence rate among the age group 18-29 years of Female sex workers in Hungary. Young age is more susceptible for chlamydial infection because they posses columnar epithelial cells in cervix.

In this study all the patients were symptomatic. Majority of the respondents, 72.5% among CSW. A total of 87.5% and 63.6% had lower abdominal pain among CSW and SAW respectively. Nessa et al.[4] showed major cases 49.6% had excessive vaginal discharge followed by 48.4% had lower abdominal pain among HBSW in Dhaka. Khan et al.[6] in Mymensingh Medical College Hospital reported 75.71% lower abdominal pain which was closer to this study.

Out of the 40 respondents of CSW 68.7% were found positive from low socioeconomic group followed by 33.3% was medium socioeconomic group respectively. Schachter and Alexander (1998)[10] also found increased frequency of genital Chlamydial infection in individuals of lower socioeconomic status. A study by Malenae, Joshi and Mathur[11] showed the higher incidence of *Chlamydia trachomatis* infection in poor socioeconomic group. Agrawal et al.[12] also showed higher incidence in unemployed and low income group also. Martin et al.[13] have linked CT infection in lower socioeconomic status. Lower socioeconomic group may have poor sex education, poor personal hygiene and low social structure which may promote sexually transmitted diseases including Chlamydia[14]. Due to insufficient sample size, only three patients were available from the high income group. So, no conclusive comment can be drawn regarding this group.

Conclsion:

This Immunochromatographic test is rapid monoclonal antibody based latex immunodiffusion test for detecting chlamydial antigen in endocervical specimens. ICT for direct detection of Chlamydial antigen in endocervical secretion appeared to be a sensitive and specific test for rapid diagnosis of genital Ct infection in female. This rapid diagnostic test can be done for prevention of complications, infertility and morbidity.

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References:

1. Santos C, Teixeira F, Vicente A, Astofil-Fiho S. 2003,Detection of Chlamydia trachomatis in endocervical smears of sexually active women in Manaus-AM, Brazil, by PCR, BJID. 2003;7:91-95.

2. Global prevalence and incidence of selected curable sexually transmitted infections: overview and estimates. Report No.: WHO/HIV_AIDS/2001.02. Geneva: World Health Organization; 2001. Available from:http://www.who.int/hiv/pub/sti/who_hiv_aids_2001.02.pdf [cited 2018 Nov 5]

3. Plummer FA, Simonsen JN, Cameron DW, Ndinya-Achola JO, Kreiss JK, Gakinya MN, et al. Cofactors in male-female sexual transmission of human immunodeficiency virus type 1. J Infect Dis; 1991; 163(2):233-9.

4. Nessa K, Waris SA, Sultan Z, Monira S, Hossain M, Nahar S, et al**.** Epidemiology and Etiology of Sexually Transmitted Infection among Hotel-Based Sex Workers in Dhaka, Bangladesh. J of clin Microbiol, 2004 ; 42(2):618-621.

5. Shamsuzzaman AKM, Parveen R, Hossain MA. Rapid diagnosis of genital C.trachomatis infection in female by ICT method. J Science Foundation. 2003;1(2):1-5.

6. Khan, ER, Hossain, MA, Paul, SK, Mahmud, MC, Rahman, MM, Alam, MA, et al. Molecular diagnosis of genital Chlamydia trachomatis infection by polymerase chain reaction, Mymensingh Med J. ;20(3):362-5.

7. Lanjouw E, Ossewaarde JM, Stary A, van der Meijden WI. European guideline for the manegment of chlamydia trachomatis infection. Int J STD AIDS.2010;21:729-37.

8. Young H, Moyes A, Lough H, Smith W, Mckenna JG, Thompson C. Preliminary evaluation of "Clearview Chlamydia" for the rapid detection of Chlamydial antigen in cervical secretions, Genitourin Med.1991;67:120-123.

9. Petrovay F, Balla E, Nemeth I, Gonczo E. Genotyping of Chlamydia trachomatis from the endocervical specimens of high-risk women in Hungary. Journal of Medical Microbiology. 2009; 58: 760–764.

10. Schachter, J & Alexander, ER. 1998 Chlamydial infections',in Bacterial infections of humans: epidemiology and control. In:Evans AS, Brachman PS, editors. Spriger. New York: Plenum Publishing Corporation; 1998. P.197-221.

11. Malenie R, Joshi PJ, Mathur MD. 'C. trachomatis antigen detection in pregnancy and its verification by antibody blocking assay,' Indian journal of Medical microbiology. 2006; 24(2): 97-100.

12. Agrawal SK, Reddy BS, Bhalla P, Kaur H. Utility of Direct Fluorescent Antibody Test for detection of Chlamydia trachomatis and its detection in male patients with non gonococcal urethritis in New Delhi. Indian j Dermatol Venereol Leprol. 2003; 69: 144-147.

13. Martin DH, Koutsky L, Eshenbach DA, Dalwing JR, Alexander RE, Benedict JK. Prematurity and perinatal mortality in pregnancy complicated by maternal C. trachomatis infection. JAMA. 1982; 247:1585-1588.

14. Islam N. The poor access to urban land for housing, In urban land management of Bangladesh, Ministry of land, Government of Bangladesh. 1992;p 193-140.

Original Article

DCIMCJ

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Increase Level of Serum Ferritin in Hospitalized COVID-19 Patients as a Predictor of Severity and Mortality.

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Abstract:

Introduction: The COVID-19 pandemic has been challenging for both patients and physician. Many laboratory markers have been used to better understand the causes of poor outcomes and to improve the management of COVID-19 patients. Objective: To study the association between ferritin levels at admission, representing an inflammatory state, severity and hospital mortality in COVID-19 patients. Methods: From September 2020 through March 2021, SARS-CoV-2 positive patients with moderate to severe clinical symptoms were evaluated at admission, regarding clinical and laboratory data on renal and hepatic function, hematologic parameters, and acute phase proteins. A total of 100 hospitalized patients with COVID-19 in word and intensive care unit (ICU)) were enrolled and classified into moderate (n = 17), severe (n = 40) and critical groups (n = 43). Clinical information and laboratory results were collected and the concentrations of ferritin were compared among different groups. The association between ferritin and mortality was evaluated by logistic regression analysis. Results: The amount of ferritin was significantly higher in critical group compared with moderate and severe groups. The median of ferritin concentration was about three times higher in death group than survival group (1722.25 g/L vs. 501.90 g/L, p < 0.01). The concentration of ferritin was positively correlate with other inflammatory cytokines, such as interleukin IL-6, C-reactive protein (CRP). Logistic regression analysis demonstrated that ferritin was an independent predictor of disease severity and in-hospital mortality. Conclusion: Early analysis of ferritin levels in patients with COVID-19 might effectively predict the disease severity.

Keywords: COVID-19, ferritin, hypertension, mortality, pneumonia, SARS-CoV-2.

Introduction:

The coronavirus disease 2019 (COVID-19) remains a worldwide pandemic since it is first reported in Wuhan, China in December 2019[1]. Most of these patients have developed mild or moderate symptoms, such as fever and dry cough, and recovered quickly. However, severe patients have developed dyspnea and/or hypoxemia and may progress rapidly to acute respiratory distress syndrome (ARDS), septic shock, coagulopathy, and even multiple organ failure (MOF)[2]. It has been found that the virus affects host human cells by binding to the angiotensin-converting enzyme 2 (ACE-II) receptor. Despite initial findings that showed that SARS-CoV-2 causes a respiratory tract infection, current data have proved its systemic effects on all the body systems[3]. Elderly individuals and those with several co-morbidities are at greater risk of mortality and morbidity compared with younger individuals. However, the fact that younger individuals without major comorbidities can also develop potentially mortal complications, such as fulminant myocarditis and disseminated intravascular coagulopathy, should be remembered[4,5]. The disease may trigger a broad inflammatory process and cause sepsis, septic shock, and multiple organ dysfunction

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syndrome, which requires mechanical ventilatory support[6]. The exact underlying pathophysiological mechanisms remain unclear and no reliable marker is yet available to predict the severity and progression of the disease. Many laboratory markers were investigated in previous studies to better understand the pathogenesis of the disease and to assess how these markers play a role during the COVID-19 process[7]. Many inflammatory biomarkers, such as interleukin IL-2, IL-6, IL-10, and tumor necrosis factor (TNF)-α, in severe patients are higher compared with those in patients with mild or moderate disease. Mortality in these severe patients with COVID-19 has been found to be associated with cytokine storm featured with a lot of inflammatory cytokines[8]. In addition, recent data have indicated that patients with COVID-19 have decreased hemoglobin levels and elevated levels of ferritin. A study conducted in the United States of America (USA) demonstrated that ferritin levels were pathologically high in 5,700 patients hospitalized for COVID-19[9].

Ferritin is an intracellular protein that can store iron, and plays a critical role in inflammatory diseases, such as infection, cancer, or neurodegeneration. As a hallmark of the "hyperferritinemic syndromes", high circulating ferritin is found in four critical diseases, including macrophage activation syndrome (MAS), adult-onset Still's disease (AOSD), catastrophic anti-phospholipid syndrome (CAPS), and septic shock. Some reports revealed that ferritin is an independent risk factor for severity in patients with COVID-19 [10,11]. Elevated ferritin levels may be predictive of an imminent inflammatory reaction in COVID-19 or be associated with viral spread in the human body and affect iron metabolism[12-13]. Therefore, we believe that it is important to determine the association between iron metabolism and progression of COVID-19. The aim of our study is to investigate whether ferritin level can predict the severity of COVID-19.

Materials and methods:

After approval obtained from Dhaka central international medical college journal Ethics Committee, this study was initiated with a retrospective design that enrolled a total of 100 patients with COVID-19 admitted in hospital with COVID-19 at Dhaka central international medical college and hospital between September 2020 and March 2021. All patients had a positive polymerase chain reaction (PCR) test result of SARS-CoV-2. Patients aged below 18 and above 80, with a history of liver malignancy, liver failure, cirrhosis, hepatitis, receiving medical treatment leading to impairment in liver function tests, pregnant women, and individuals with cancer were excluded. The demographic features, comorbidities such as chronic obstructive pulmonary disease (COPD), asthma, chronic renal failure (CRF), diabetes mellitus (DM), hypertension (HT), heart failure (HF), clinical and laboratory findings including white blood cell count (WBC), neutrophil, monocyte, lymphocyte, reticulocyte distribution width (RDW), creatinine, aspartate aminotransferase (AST), alanine aminotransferase (ALT), gamma-glutamyl transferase (GGT), total bilirubin, albumin, c-reactive protein (CRP), ferritin, interleukin-6 (IL-6), and procalcitonin were obtained from the hospital database. Patients were divided into two groups where subjects admitted to ICU were assigned as Group SC and individuals admitted to ward as Group MM. Enrolled patients with COVID-19 were classified into three groups in accordance with the guideline for the diagnosis and treatment of 2019 novel coronavirus-infected pneumonia. Moderate group showed fever and respiratory symptoms, such as dry cough, with radiological findings of pneumonia. Severe group was defined when any of the following criteria was met: dyspnea, respiration rate (RR) $\geq$ 30 times/min; oxygen saturation by pulse oximeter $\leq$ 93% in resting state; partial pressure of arterial oxygen (PaO2) to fraction of inspired oxygen (FiO2) ratio $\leq$ 300 mm Hg (l mmHg = 0.133 kPa).

Critical group was defined as: respiratory failure and requiring mechanical ventilation, shock or with other organ failure that requires ICU care. Severe and critical patients were treated in ICU. All data were recorded into a standardized data sheet.

Statistical analysis:

The results of continuous variables were presented as median and interquartile range (IQR) values, and categorical variables were presented as counts and percentages. The distribution of the variables was analyzed using Kolmogorov-Smirnov test. The analysis of the demographic characteristics was conducted using Chi-square test or Fisher's exact test. The comparison of the laboratory findings was completed by Mann-Whitney U test. A linear regression analysis was used to determine the predictors affecting disease severity. A receiver operating curve (ROC) was performed to find a cut-off value for the possible predictors affecting disease severity, and the sensitivity and specificity of these predictors. Statistical analyses were performed using the IBM SPSS Statistic Version 26.0.P< 0.05 was considered statistically significant.

Results:

A total of 100 patients with confirmed COVID-19 were enrolled and classified into moderate (n = 17), severe (n = 40) and critical groups (n = 43) according to the guidelines for COVID-19. The median age of the patients was 65 years old, and males accounted for 58.0% of the enrolled patients.

The median body temperature of the patients was 37.9 ◦C when they were admitted to the hospital. HBP (42.0%), DM (20.0%), and CHD (16.0%) were the most common complications (Table 1).

Table -1 presents the demographic features of the study groups. Patients in the severe group were significantly older and had a higher frequency of hypertension, diabetes mellitus, coronary artery disease, and heart failure compared with patients in the mild group. In addition, the frequency of dyspnea was significantly higher in the severe group than in the mild group. Moreover, hospital stay (days), mechanical ventilation (MV) support rate, and MV duration were significantly higher in the severe group (Table 1).

As expected, markers of inflammation, such as neutrophils, and inflammatory cytokines IL-6, were significantly higher in critical group compared with moderate and severe groups. Ferritin levels in critical patients were significantly higher than those in moderate and severe patients. Significant positive correlation between ferritin and inflammatory cytokines, including IL-6 (r = 0.288, p = 0.005), and CRP (r = 0.295, p = 0.003), were evaluated in enrolled patients with COVID-19.

Ferritin is significantly elevated in death patients in ICU, compared with that in the survival group, the clinical characteristics and laboratory test results at admission were evaluated in the death group (Table 2). In death group, the body temperature was higher when patients admitted in the hospital.

Table1: Clinical characteristics and laboratory results in patients with COVID-19.

Characteristics	Median (IQR) Total (n = 100)	Moderate (n = 17)	Severe (n = 40)	Critical (n = 43)	p value
Basic information on admission					
Temperature (◦C)	37.9 (36.5–38.5)	36.7 (36.1–37.5)	36.7 (36.4–38.3)	38.3 (37.8–38.9)	<0.01
Gender (Male %)	58 (58.0%)	6 (35.3%)	22 (55.0%)	30 (69.8%)	0.045
Age (year)	65 (56.0–74.5)	52 (33.5–55.5)	65 (57.3–73.0)	71 (62.0–80.0)	<0.01
SBP (mmHg)	131(117–144)	125 (115–137)	127 (112–144)	140 (122–146)	ns
DBP (mmHg)	79 (72–87)	81 (74–90)	78 (70–87)	80 (73–87)	ns
RR (rates/min)	22 (20–27)	20 (20–21)	21 (20–23)	25 (21–32)	<0.01
SpO2 (%)	92 (86–96)	97 (96–98)	92 (90–98)	90 (78–92)	<0.01
History					
CHD, n (%)	16 (16.0)	0 (0.0)	7 (17.5)	9 (20.9)	ns
HBP, n (%)	42(42.0)	1 (5.9)	21 (52.5)	20 (46.5)	<0.01
DM, n (%)	20(20.0)	2 (11.8)	10 (25.0)	8 (18.6)	ns
Laboratory results on admission					
Blood cell count					
WBC (×10⁹/L)	7.92 (5.01–11.33)	5.41 (4.57–8.69)	6.69(4.74–9.13)	10 (7.13–14.31)	<0.01
Neutrophils (×10⁹/L)	6.56 (3.90–9.88)	3.76 (2.78–6.36)	5.46 (3.87–7.99)	9.22 (6.39–13.13)	<0.01
Lymphocytes(10⁹/L)	0.67 (0.44–1.04)	1.32 (0.91–1.64)	0.84 (0.47–1.06)	0.50 (0.33–0.78)	<0.01
Monocytes (×10⁹/L)	0.41 (0.28–0.63)	0.50 (0.37–0.71)	0.40 (0.28–0.63)	0.39 (0.18–0.59)	ns
RBC (×10¹²/L)	4.01 (3.63–4.53)	4.24 (3.63–4.44)	4.15 (3.59–4.55)	3.98 (3.66–4.51)	ns
Hemoglobin (g/L)	125(113.0–139.0)	124 (109.5–138)	129(111–138.5)	123(115.0–140.0)	ns
Platelet (×10⁹/L)	193(131.0–248.0)	216 (191–357)	210 (144–263.5)	150(101.0–222.0)	<0.01
Coagulation function					
PT (s)	14.75 (14.3–16.5)	14.1(13.5–14.35)	14.4 (13.5–16.1)	15.6(14.5–17.4)	<0.01
D dimer (_g/ml)	2.58 (0.94–16.60)	0.67 (0.5–1.29)	2.30 (1.05–7.25)	4.55 (1.19–21.0)	<0.01
Distribution of others					
Ferritin (_g/L) IL-6 (pg/ml)	1023.80 (434.451821.38)	370.70 (89.90–756.0)	855.75 (434.45–1687.25)	1715.80 (965.602429.20)	<0.01
ALT (U/L)	29.55(9.27–93.6)	3.81(2.29–16.12)	21.11(7.8–53.8)	59.8(20.3–209.4)	<0.01
AST (U/L)	29 (18.25–40.75)	23.0(15.0–35.0)	23.5(14.5–37.7)	33.0(20.0–45.0)	<0.01
Creatinine (_mol/L)	35.5(24.0–50.25)	24.0(16.50–38.0)	34.0(23.5–54.7)	44 (31.0–75.0)	<0.01
CRP (mg/L)	72(58.75–93.75)	58.0(50.0–78.50)	68 (61.0–86.50)	91.0(71.0–127.0)	<0.01
	73.6(21.0–128)	18.7(3.35–68.35)	65.3(14.5–138)	88(65.0–151.9)	<0.01
MV, n (%)	19 (19.0)	2 (11.8)	6 (15.0)	11 (25.6)	ns
In-hospital death, n (%)	50 (50.0)	0 (0.0)	11 (27.5)	39 (90.7)	<0.01

Table 2: Comparison of the clinical information and laboratory results in patients with COVID-19 depending on in-hospital outcomes.

Characteristics	Median (IQR)		p value
	Survival (n = 50)	Death (n = 50)	
Basic information on admission			
Temperature (◦C)	36.6 (36.3–37.0)	38.4 (38.0–38.9)	<0.01
Gender (Male %)	62 (52–73)	35 (70%)	0.025
Age (year)	23 (46.0%)	68 (60–78)	0.016
SBP (mmHg)	126 (112–141)	140 (122–146)	0.015
DBP (mmHg)	78 (72–86)	82 (71–88)	Ns
RR (rates/min)	20 (20–22)	25 (20–32)	<0.01
SpO2 (%)	96 (92–98)	90 (79–92)	<0.01
Laboratory results on admission			
Blood cell count	6.46 (4.67–9.92)	9.35 (5.84–13.63)	<0.01
WBC (×10⁹/L)	4.98 (3.16–7.74)	8.40 (4.64–12.65)	<0.01
Neutrophils (×10⁹/L)	0.97 (0.58–1.38)	0.49 (0.33–0.79)	<0.01
Lymphocytes(10⁹/L)	0.46 (0.30–0.68)	0.37 (0.19–0.49)	0.020
Monocytes (×10⁹/L)	4.08 (3.56–4.51)	4.00 (3.68–4.54)	ns
RBC (×10¹²/L)	124.0 (109.3–137.3)	126.0 (116.8–141.3)	ns
Hemoglobin (g/L)	216.0 (168.0–267.5)	153.0 (103.5–222.3)	<0.01
Platelet (×10⁹/L)			
Coagulation function			
PT (s)	14.2 (13.68–14.88)	15.5 (14.58–17.45)	<0.01
INR (s)	1.09 (1.03–1.17)	1.22 (1.14–1.41)	<0.01
D dimer (_g/ml)	1.12 (0.62–2.80)	7.13 (1.25–21.00)	<0.01
Distribution of others			
Ferritin (_g/L)	501.90 (316.93–969.70)	1722.25 (1100.78–2404)	<0.01
IL-6 (pg./ml)	11.35 (4.19–31.92)	58.99 (19.66–178.50)	<0.01
ALT (U/L)	22.50 (14.75–35.00)	33.00 (20.00–46.00)	<0.01
AST (U/L)	28.00 (20.00–39.00)	44.00 (31.00–71.25)	<0.01
Creatinine (μmol/L)	64.50 (55.50–81.25)	88.00 (65.25–114.00)	<0.01
CRP (mg/L)	29.90 (9.43–117.30)	90.20 (64.90–143.13)	<0.01
In-hospitalization (days)			
	24 (18–35)	10 (5–18)	<0.01

The time from admission to death or discharge was lower than that in the survival group, which reflected that the illness was more serious in the death group. The deceased patients were older than the patients who survived the disease, and most of them were male. The routine blood tests and the inflammation markers, such as PCT, CRP, IL-6, in the death group were higher than those in the survival group.

Table 3: Logistic regression for the relationship between ferritin and in-hospital mortality inpatients with COVID-19.

Exposure	No-adjusted OR (95%CI)	p value	Adjust I model OR (95%CI)	p value	Adjust I model OR (95%CI)	p value
Low-ferritin	1.0	0.026	1.0	0.040	1.0	0.625
Medium-Ferritin	3.55 (1.17–10.82)	<0.001	3.32 (0.98–11.30)	<0.001	2.12 (0.10–43.36)	0.013
High- ferritin p for trend	32.63 (8.30–128.32)	<0.001	31.33 (6.83–143.60)	<0.001	104.97 (2.63–4185.89)	0.008

Notably, the median (IQR) concentration of ferritin was significantly higher in death group than survival group.

The logistic regression model was performed in the no adjusted model, and the adjusted models I and II (Table 3). Compared with that in the low-ferritin group, the risks of death in the medium (OR = 3.55, 95% CI 1.17–10.82, $p < 0.001$) and the high ferritin groups (OR = 32.63, 95% CI 8.30–128.32, $p < 0.001$) increased by 3.55 and 32.63 times, respectively.

Discussion:

The present study showed that comorbidities, including diabetes, hypertension, heart failure, and coronary artery disease, may play important roles in disease severity. In addition, dyspnea was the most prominent symptom in patients with severe cases. In this study, we found that the concentration of ferritin in severe or critical groups was 2.3–4.6 times higher compared with moderate group. Moreover, the median ferritin level in death group was 3.4 times higher than that in survival group. The in-hospital mortality rate was also elevated in high-ferritin group. In addition, the logistic regression analysis and ROC curve showed that ferritin was an independent risk factor and with higher AUC. Therefore, we recommend that the serum ferritin may serve as a good biomarker for the prediction of in-hospital mortality in clinical practice, especially in ICU.

In these studies it is clearly understood that SARS-CoV-2 infection has a high mortality rate, particularly among elderly patients with comorbidities[14-15]. The estimated increase in severity with age is reported in several cases, with reports that the mean age is between 50 and 60 years. Liu et al. revealed that patients over 60 years tend to develop respiratory failure. This demonstrated that elderly patients with COVID-19 had more severe disease compared to younger patients [16]. The present study also found that elderly COVID-19 patients with ages in the 50s and 60s tended to have more severe disease than younger patients. Additionally, the fatality rate was higher in the elderly population (53.3% in patients in their 60s). The higher mortality rate in the elderly population might be explained by an increase in comorbidities with advancing age.

Hypertension is the most prevalent comorbidity among COVID-19 patients. It is reported with a prevalence of 17% and is two-fold higher in severe cases compared to mild ones[17]. A meta-analysis demonstrated that hypertension is rarer in discharged patients than in patients deceased from COVID-19. Also, a positive correlation was detected between hypertension and severity of the disease [18]. The present study revealed a three-fold higher prevalence of hypertension in patients with severe COVID-19 compared with patients with mild COVID-19.

Serum ferritin is used as a marker for the evaluation of iron storage and serves as a predictor of mortality in some severe diseases such as hemodialysis and sepsis.13–15 Like CRP or PCT, serum ferritin is an acute phase protein, which is also elevated during infection or inflammation. Serum ferritin concentration has been found elevated in viral diseases, such as influenza H5N1, hepatitis B and C, dengue fever. It has also been found that serum ferritin is elevated enormously in death patients with COVID-19. The average concentration in severe cases is over 800 g/L, which is 1.5–5.3 times higher than that in less severe cases[19]. However, the ferritin level in non-survivors is 1400 g/L, which is 3–4 times higher than those in survivors[6].

In this study, we showed that inflammatory cytokines, such as IL-6, CRP, and PCT, in critical patients in ICU are almost 2–10 times higher than those in non-critical patients. The concentration of ferritin is also found to be positively correlated with these inflammatory cytokines, including IL-6 and CRP. Furthermore, the ferritin concentration in death group is 3.43 times higher than that in survival group. These results indicate that the hyper ferritinemia may reflects disease severity and be associated with mortality rate for COVID-19.

Early identification of severe patients remains a crucial topic in clinical practice when treating this emerging virus. However, the conventional biomarkers such as WBC or PCT has limited value in evaluating the severity. In this study, we showed that ferritin had higher AUC than PCT or CRP.

Observation of ferritin may allow the early identification of critical patients and decrease mortality in ICU. Consideration of the sensitivity of ferritin and CRP (83.3% vs. 91.7%), we recommend that the serum ferritin itself or combined with CRP may provide better results in predicting of in-hospital mortality in clinical practice, especially in ICU wards.

Limitations:

1. This study is a retrospective study with limited sample size and performed in a single center in Dhaka, Bangladesh.

2. The ferritin and other cytokine levels were only obtained at admission.

Conclusion:

This study confirmed an elevated level of ferritin in patients with COVID-19. Increased ferritin level is associated with mortality rate, and ferritin is an independent factor for predicating in-hospital mortality in patients with COVID-19 in ICU.

References:

1. Li H, Liu SM, Yu XH, Tang SL, Tang CK. Coronavirus disease 2019 (COVID-19): current status and future perspectives. Int J Antimicrob Agents. 2020; 55:105951.

2. Jiang F, Deng L, Zhang L, Cai Y, Cheung CW, Xia Z. Review of the clinical characteristics of coronavirus disease 2019 (COVID-19). J Gen Intern Med. 2020; 35:1545–9.

3. Bangash MN, Patel J, Parekh D. COVID-19 and the liver: little cause for concern. Lancet Gastroenterol Hepatol. 2020;5:529-530.

4. Tang N, Li D, Wang X, and Sun Z: Abnormal coagulation parameters are associated with poor prognosis in patients with novel coronavirus pneumonia. J Thromb Haemost. 2020; 18:844-847.

5. Madjid M, Safavi-Naeini P, Solomon SD, Vardeny O: Potential effects of coronaviruses on the cardiovascular system: a review. JAMA Cardiol. 2020; 5:831-840.

6. Zhou F, Yu T, Du R, Fan G, Liu Y,Liu Z, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. Lancet. 2020; 395:1054-1062.

7. Lang M, Som A, Mendoza DP, Flores EJ, Reid N, Carey D, et al. Hypoxaemia related to COVID-19: vascular and perfusion abnormalities on dual-energy CT. Lancet Infect Dis. 2020; 1473:309930367-4.

8. Bozkurt FT, Tercan M, Patmano G ,Tanrıverdi T B, Demir HA , Yurekli UF. Can Ferritin Levels Predict the Severity of Illness in Patients With COVID-19? Cureus. 2021; 13(1): e12832.

9. Denga F, Zhanga L, Lyua L, Lua Z, Gao D, Ma X, et al. Increased levels of ferritin on admission predicts intensive care unit mortality in patients with COVID-19 .Med Clin (Barc). 2021; 156(7):324–331.

10. Lin Z, Long F, Yang Y, Chen X, Xu L, Yang M. Serum ferritin as an independent risk factor for severity in COVID-19 patients. J Infect. 2020; 81:647–79.

11. Zhou C, Chen Y, Ji Y, He X, Xue D. Increased serum levels of hepcidin and ferritin are associated with severity of COVID-19. Med Sci Monit. 2020;26:e926178,

12. Kernan KF, Carcillo JA. Hyperferritinemia and inflammation. Int Immunol. 2017;29:401-409.

13. Wessling-Resnick M: Crossing the Iron Gate: why and how transferrin receptors mediate viral entry. Annu Rev Nutr. 2018; 38:431-458.

14. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. Lancet. 2020; 395:507-513.

15. Wu Z, McGoogan JM. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: summary of a report of 72,314 cases from the Chinese Center for Disease Control and Prevention. JAMA. 2020; 323:1239-1242.

16. Liu Y, Mao B, Liang S, Yang J, Lu H, Chai Y, et al. Shanghai Clinical Treatment Experts Group for COVID-19. Association between age and clinical characteristics and outcomes of COVID-19. Eur Respir J. 2020; 55:2001112.

17. Parveen R, Sehar N, Bajpai R, Agarwal NB. Association of diabetes and hypertension with disease severity in covid-19 patients: a systematic literature review and exploratory meta-analysis. Diabetes Res Clin Pract.2020; 166:108295.

18. Hu Y, Sun J, Dai Z, Deng H, Li X, Huang Q, et al. Prevalence and severity of coronavirus disease 2019 (COVID-19): a systematic review and meta-analysis. J Clin Virol. 2020; 127:104371.

19. Gomez-Pastora J, Weigand M, Kim J, Wu X, Strayer J, Palmer AF, et al. Hyperferritinemia in critically ill COVID-19 patients – is ferritin the product of inflammation or a pathogenic mediator? Clin Chim Acta. 2020; 509:249–51.

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Case Report

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Marjolin's Ulcer – A Case Report

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Abstract:

Marjolin's ulcer is the neoplastic change from long standing ulcer and scar tissue whether inflammatory or traumatic. Usually these lesions are treated as chronic ulcer and suspicion of malignancy with crusting, increasing in pain or size of ulcer and bleeding. We report a case of 65 years old female presented with scar above her right knee for 40 years, and chronic ulcer for last 3 months. Biopsy was taken from edge of ulcer and send for histopathology examination which revealed squamous cell carcinoma.

Keywords: Marjolin's ulcer, chronic ulcer, scar

Introduction:

A Marjolin ulcer is a cutaneous malignancy that arises in the setting of previously injured skin, longstanding scars, and chronic wounds. Historically, Marjolin ulcers are named for French surgeon Jean Nicolas Marjolin and first described as ulcerations with dense villi arising within a burn cicatrix[1].

Marjolin's ulcer (scc) is the second most common form of skin cancer. It is strongly related to commutative sun exposure and damage, especially in white skinned individuals living nearer the equator[2]. In the northern hemisphere it effects the elderly, whereas it is not uncommon in sun damage, middle-age, white people in the southern hemisphere.

Everywhere, it is more common in men than women. SCC is also associated with chronic inflammatory states, as in non-healing wounds, venous ulcers, lupus vulgaris, vaccination scars, snake bite scars, pressure sores, osteomyelitis zones, pilonidal abscess, and radiotherapy areas[3-5].

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Case report:

A 65-year-old female presented with scar above her right knee for 40 years. When the patient was 25-year-old, she experienced on RTA following falling from rickshaw and laceration occurred on her front of thigh and back of knee. She was treated in a tertiary hospital. Following the change of the dressing the wounds healed with formation permanent scar. Now she also suffering from chronic ulcer for 3 months above her right knee which about about 3cm x 2cm in size. Patient took different antibiotic and analgesics of various dose and duration in last 3 months. She is diabetic but not hypertensive. Her bowel and bladder habit is normal.

On general examination She was mildly anemic, BP was 120/70 mm oh Hg and pulse was 78 beats/min. There were no significant findings in systemic examinations.

On local examination ulcer was situated above the right knee, single in number, oval in shape with irregular margin, about 3cm x 2cm, edge everted &, approximately 1 cm higher than the surrounding skin with marked induration, floor covered with of necrotic material and, discharge was exudative but foul smelling, Base is indurated, surrounding skin is wrinkled with scaring with loss of hair & skin sensation is lost , temperature is not raised, non-tend, not bleed to touch, side to side move & not fix with underlying structure, draining lymph node is not palpable, distal pulses are normal. Knee join flexion is restricted, but no any joint pain or swelling.

Biopsy Was taken from edge of the ulcer and was send for histopathological examination. The histopathological report revealed highly differentiated squamous cell Carcinoma.

Future treatment plan:

After correcting anemia, wide excision with flap coverage. The resection included a margin of 2-3 cm around the lesion and extended to the deep fascia. Following a week of closed negative pressure suction, the wound was transplanted with blade-thin skin taken from the patient's back. The skin survived well after the surgery.

As regards experiences and lessons learnt, the principle of MU treatment is to extensively remove the tumor. In order to achieve this, a thorough evaluation is required. This should include CT or MRI and lymph node biopsies or resection in search of metastases. The patient presented herein refused such tests and the tumor recurred with bone metastasis. A more thorough second surgical resection that included resection of the regional lymph nodes was more effective as the tumor did not recur again.

Discussion:

After the first description of the French surgeon Jean Nicolas Marjolin in the year 1828, da Costa in 1923 used the term Marjolin's ulcer for the first time to describe malignant tumors occurring on top of burn injuries[1].

Marjolin's ulcer is a rare entity, estimated to occur in 1.7 % of all chronic wounds with a mean latency of 28.7 years[6]. A literature review done in the year 2009 showed that Marjolin's ulcers is caused mostly by burn wound with a rate of 76.5 %[7].

At present, Marjolin's ulcer denotes all neoplasms growing in scar tissues, chronic ulcers, and areas affected by inflammation[1]. Squamous cell carcinoma is the most frequent identified malignancy, although other types of malignancies have been described such as basal cell carcinoma[5]. After reviewing the literature, no cases of Marjolin's ulcer due to 30-year old neglected external fixator were identified.

The most common cause of Marjolin's ulcer is old burn scars, followed by malignant degeneration arising from chronic osteomyelitic fistula[8]. Chronic post-traumatic osteomyelitis and infected nonunion are complex problems that result in considerable morbidity and can thereby threaten the viability of the limb.

The development of infection may result from compromised soft tissue and bone vascularity, systemic compromise of the host, and virulent or resistant organisms. Biofilm formation on implants and vascularized bone surfaces protects pathogens against host defenses and anti-biotherapy, and may lead to persistence of infection.

The reported latency period for the development of malignancy is between 11 and 75 years[5], with a mean of 30–35 years[9]. The younger the patient is at the time of injury, the more time it takes to undergo malignant transformation[10]. The clinical triad of Marjolin's ulcer consists of nodularity, induration, and ulceration occurring for a period greater than 3 months. Other signs and symptoms include rolled or everted wound margins, exuberant or excessive granulation tissue, foul smelling purulence, increase in size, bleeding on contact, crusting over epithelial pearls, and pain. Ulcerations associated with this entity often grow rapidly, with a flat surface and indurated elevated margins[12], but they may also be the slow-growing exophytic papillary type, which is less aggressive[5, 7-13].

As a rule of thumb, biopsy should be performed on chronic non-healing ulcers, as it is the gold standard for diagnosing any malignant transformation. There is positive correlation between the duration of ulceration and the risk of malignant transformation[11,12].

Although there is no definitive treatment protocol yet established for confirmed Marjolin's ulcer, therapy generally includes wide local excision with skin grafting[9], or amputation proximal to the lesion[8]. Refinements of the above procedures include free flaps, cryosurgery, and Mohs surgery[13], which includes complete circumferential peripheral and deep margin assessment using frozen section histology, whereby a surgeon serves as both surgeon and pathologist in the operating room; this is now considered to be the gold standard of treatments[12]. Other experimental treatments include carbon dioxide laser, intra-lesional interferon, and photodynamic therapy.

The 5-year cure rate is 90 % with Mohs surgery, compared to 76 % with surgical excision. Mohs surgery is however expensive and has a prolonged surgical time, and few doctors are adequately trained to perform the procedure. Frozen section should be performed during the surgery, and if results showed positive margins, further resection or amputation is warranted[9,12].

Perhaps the most widely accepted treatment is amputation, although some recommend wide excision prior to amputation, if the latter would impair patient function. Amputation is the most definitive option for treating both the cancer and infection and is advised when either bone or joints are involved. Ogawa et al. recommend amputation in grade II or III lesions, and wide local excision for very small or grade I lesions. Finally, perioperative management includes appropriate antibiotics following culture results and the removal of any foreign body[9-11,14].

Well differentiated lesions are less aggressive and therefore have better prognosis. The 5-year survival rate is 40 %–69 %, 60 % for those with wide excision and 69 % for the amputation group. After excision, the overall recurrence rate is 20 %–50 %, with 98 % of the ulcers recurring within 3 years. Following amputation, the rate of metastasis is 20 %–35 %. So long as the margins are clean following wide excision, there is no significant difference in recurrence between the latter and amputation. The overall 3-year survival rate is 65 %–75 %, and the 10-year survival rate is 34 %. However, for those with metastasis to the lymph nodes, the 3-year survival rate significantly drops to 35 %–50 %. If patients survive past 3 years, they have good prognosis since 95 % of patients with metastasis present in the first 12 months[9-14].

Conclusion:

Marjolin's ulcer is rare sequelae of chronic wound infection. Patients often present after a latency period with exacerbated pain, discharge, and exophytic mass. Treatment options vary according to local and regional factors. Early recognition and control of the disease allow for better control and relapse. This disease should be suspected in every case of chronic ulcer, where histological studies of the lesion must be conducted to exclude or confirm the diagnosis.

Reference:

1. Bazaliński D, Przybek-Mita J, Barańska B, Więch P. Marjolin's ulcer in chronic wounds - review of available literature. Contemp Oncol (Pozn). 2017;21(3):197-202

2. Fazeli MS, Lebaschi AH, Hajirostam M, Keramati MR. Marjolin's ulcer: clinical and pathologic features of 83 cases and review of literature. Med J Islam Repub Iran. 2013 Nov;27(4):215-24.

3. Bozkurt M, Kapi E, Kuvat SV, Ozekinci S. Current concepts in the management of Marjolin's ulcers: outcomes from a standardized treatment protocol in 16 cases. J Burn Care Res. 2010;31:776-780.

4. Kadir AR: Burn scar neoplasm. Ann Burns Fire Disasters. 2007; 20: 185-188.

5. Copcu E, Aktas A, Sisman N, Oztan Y: Thirty-one cases of Marjolin's ulcer. Clin Exp Derm. 2003, 28: 138-141.

6. Trent JT, Kirsner RS. Wounds and malignancy. Adv skin Wound Care. 2003;16(1): 31-4.

7. Kerr-Valentic MA, Samimi K, Rohlen BH, Agarwal JP, Rockwell WB. Marjolin's ulcer: modern analysis of an ancient problem. Plast Reconstr Surg. 2009;123(1):184-191.

8. Asuquo M, Ugare G, Ebughe G, Jibril P Marjolin's ulcer: the importance of surgical management of chronic cutaneous ulcers. Int J Dermatol. 2007;46(2):29-32.

9. Chiang KH, Chou AS, Hsu Y, Lee S, Lee C, Yen P, et al. Marjolin's ulcer: MR appearance AJR Am. J. Roentgenol. 2006;186(3):819-820

10. Hill BB, Sloan DA, Lee EY, McGrath PC, Kenady DE. Marjolin's ulcer of the foot caused by nonburn trauma. South. Med J. 1996;89(7): 707-710.

11. Bauer T, David T, Rimareix F, Lortat-Jacob A. Ulcère de Marjolin sur ostéite chronique: diagnostic et résultats du traitement: 7 cas Marjolin,s ulcer in chronic osteomyelitis: seven cases and a review of the literature. Rev Chir Orthop. Reparatrice Appar. Mot. 2007;93(1): 63-71.

12. Pekarek B, Buck S, Osher L. A comprehensive review on Marjolin's ulcers: diagnosis and treatment. J Am Col Certif. Wound Spec. 2011; 3(3):60-64.

13. Aydoğdu E, Yildirim S, Aköz T. Is surgery an effective and adequate treatment in advanced Marjolin's ulcer? Burns.2005;31:421-431.

14. Ogawa B, Chen M, Margolis J, Schiller FJ, Schnall SB. Marjolin's ulcer arising at the elbow: a case report and literature review Hand.2006;1(2):89-93.

Medical Quiz

DCIMCJ 2021 July;8(2):67-68

Medical Quiz: Images

Mamun KAA[1]

A 12 year old boy, accompanied by his mother, reported hair loss for the past six months after a family conflict. The mother noted that, when the patient was anxious, he had an uncontrollable urge to pull his hair. A sense of pleasure or relief was seen after the hair was pulled. He was treated by topical clotrimazole, minoxidil without improvement. He was repeatedly trying to stop pulling out your hair but failed. There was significant distress at school related to pulling out hair.

Fig-I

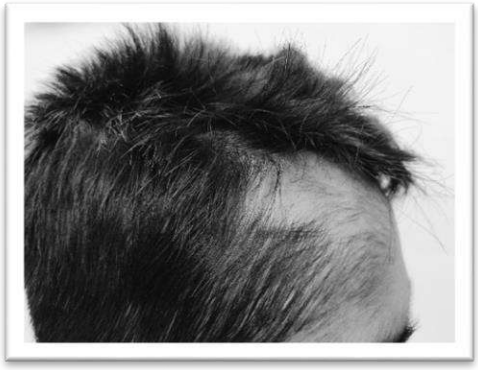

Fig-II

Questions:

- **Q1**. Mention abnormal findings in the pictures.
- **Q2.** What is the diagnosis?
- **Q3**. What investigations can be done?
- **Q4**. What are the treatment options?

Answer to Medical Quiz: Images:

- ✓ There is focal hair loss in different parts of scalp, with short and broken hairs.
- ✓ Skin biopsy and dermoscopy can allow clinicians to differentiate trichotillomania from other causes of alopecia (although this is rarely needed, as patients commonly admit hair pulling behaviours).
- ✓ Anti depressants e.g. clomipramine, antipsychotics such as olanzapine may be beneficial as primary medications . **Cognitive Behavioural Therapy (CBT) is also effective.**

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

Discussion:

Trichotillomania (also called hair-pulling disorder) is a psychiatric disorder that involves recurrent, irresistible urges to pull out hair from your scalp, eyebrows or other areas of your body, despite trying to stop[1]. Hair pulling is followed by a sense of relief or gratification. Trichotillomania is 7 times as prevalent in children as in adults with a peak prevalence between the ages of 4 and 17 years[2]. It can cause a child to experience distress and may result in moderate impairment in social or academic functioning[3] and it may occur in several disorders like obsessive-compulsive disorder, depression, personality disorder and mental retardation[4]. Additionally, trichotillomania may result in impairment in other important areas of functioning, such as family relationships. Most of the cases present to psychiatrists only after multiple visits to dermatologists and general physicians with complaints of hair loss and remains undiagnosed for a substantial duration. Skin biopsy and dermoscopy can allow clinicians to differentiate trichotillomania from other causes of alopecia[5]. Antidepressants, Anti Psychotic and cognitive behavioural therapy shows proven benefit[6].

References:

1. Keren M, Ron-Miara A, Feldman R, et al. Some reflections on infancy-onset trichotillomania. Psychoanal Study Child 2006;61:254-72.

2. Franklin ME, Flessner CA, Woods DW, Kheuten NJ, Piacentini JC, Moore P, et al. The child and adolescent trichotillomania impact project: descriptive psychopathology, comorbidity, functional impairment, and treatment utilization. J Dev Behav Pediatr. 2008; 29(6):493-500.

3. Krishnan KRR, Davidson JRT, Guajardo C. Trichotillomania a review. Compr Psychiatry 1985;26(2):123-8.

4. Parakh P, Srivastava M. The many faces of trichotillomania. Int J Trichol 2010;2(1):50-52.

5. Stein DJ, Bouwer C, Maud CM. Use of the selective serotonin reuptake inhibitor citalopram in treatment of trichotillomania. Eur Arch Psychiatry Clin Neurosci1997;247(4):234-236.

6. Swedo SE, Leonard HL, Rapoport JL, Lenane MC, Goldberger EL, Cheslow DL. A double-blind comparison of clomipramine and desipramine in the treatment of trichotillomania (hair pulling). N EnglJ Med 1989;321(8):497-501.