Bangladesh Medical & Dental Council (BM&DC) Recognized Journal

# Green Life Medical College Journal

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# GREEN LIFE MEDICAL COLLEGE JOURNAL

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## Journal Committee




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# ABOUT THE JOURNAL


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**AIMS & SCOPE:**

The Green Life Medical College Journal is an english language scientific papers dealing with clinical medicine, basic sciences, epidemiology, diagnostic, therapeutics, public helath and healthcare in relation to concerned specialities. It is an official journal of Green Life Medical College and is published bi-annually.

This Joural is recognized by Bangladesh Medical & Dental Council (BM&DC).

The Green Life Medical College Journal of Bangladesh intends to publish the highest quality material on all aspects of medical science. It includes articles related to original research findings, technical evaluations and reviews. In addition, it provides readers opinion regarding the articles published in the journal.

**INSTRUCTION TO AUTHORS:**

**Papers:**

The Green Life Medical College Journal (published bi-annually) accepts contributions from all branches of medical science which include original articles, review articles, case reports, and letter to the Editor.

The articles submitted are accepted on the condition that they must not have been published in whole or in part in any other journal and are subject to editorial revision. The editor preserves the right to make literary or other alterations which do not affect the substance of the contribution. It is a condition of acceptance that the copyright becomes vested in the journal and permission to republish must be obtained from the publisher. Authors must conform to the uniform requirements for manuscripts submitted to biomedical journals (JAMA 1997; 277: 927-34).

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**Preparation of manuscript:**

Each manuscript should indicate the title of the paper, and the name(s) and full address(es) of the author(s). Contributors should retain a copy in order to check proofs and in case of loss. Two hard copies of each manuscript (double-spaced) should be submitted. If a manuscript is accepted for publication in the GMCJ, the editor responsible for it and may request a soft copy (a CD or via internet) for the revision. Each paper will be reviewed for possible publication. The Editor may wish to see the raw data (electronic form) if necessary.

In preparing the manuscript, use double spacing throughout, including title, abstract, text, acknowledgement, references, table and legends for illustrations and font type and size 'Times New Roman 12'. Begin each of the following sections on a separate paper. Number pages consecutively.

**The standard layout of a manuscript:**

- Title page
- Abstract, including Keywords
- Introduction
- Methods
- Results
- Discussion
- Acknowledgements
- Funding
- List of references
- Tables & Figures
- Illustrations

The pages should be numbered in the bottom right-hand corner and the title page being page one, etc. Start each section on a separate page.

**Title page:**

A separate page which includes the title of the paper. Titles should be as short and concise as possible (containing not more than 50 characters). Titles should provide a

reasonable indication of the contents of the paper. This is important as some search engines use the title for searches. Titles in the form of a question, such as 'Is drinking frequent coffee a cause of pancreatic carcinoma?" may be acceptable.

The title page should include the name(s) and address(es) of all author(s). Details of the authors' qualifications and post (e.g., professor, consultant) are also required. An author's present address, if it differs from that at which the work was carried out, or special instructions concerning the address for correspondence, should be given as a footnote on the title page and referenced at the appropriate place in the author list by superscript numbers ([1, 2, 3] etc.) If the address to which proofs should be sent is not that of the first author, clear instructions should be given in a covering note, not on the title page.

**Abstract:**

The 'Abstract' will be printed at the beginning of the paper. It should be on a separate sheet, in structured format (Introduction/Background; Methods; Results; and Conclusions) for all Clinical Investigations and Laboratory Investigations. For Reviews and Case Reports, the abstract should not be structured. The Abstract should give a succinct account of the study or contents within 350 words. The results section should contain data. It is important that the results and conclusion given in the 'Abstract' are the same as in the whole article. References are not included in this section.

**Keywords:**

Three to six keywords should be included on the summary page under the heading Keywords. They should appear in alphabetical order and must be written in United Kingdom English spelling.

**Introduction:**

The recommended structures for this section are:

- Background to the study/Introduction
- What is known/unknown about it
- What research question / hypothesis you are interested in
- What objective(s) you are going to address

The introduction to a paper should not require more than about 300 words and have a maximum of 1.5 pages double-spaced. The introduction should give a concise account of the background of the problem and the object of the investigation. It should state what is known of the problem to be studied at the time the study was started. Previous work should be quoted here but only if it has direct bearing on the present problem. The final paragraph should clearly state the primary and, if applicable, secondary aims of the study.

**Methods:**

The title of this section should be 'Methods' - neither 'Materials and methods' nor Patients and methods'. The Methods section should give a clear but concise description of the process of the study. Subjects covered in this section should include:

- Ethics approval/license
- Patient/population
- Inclusion/exclusion criteria
- Conduct of the study
- Data handling
- Statistics
- Cognitive Task Analysis (CTA)

**Ethical clearance:**

Regardless of the country of origin, all clinical investigators describing human research must abide by the Ethical Principles for Medical Research Involving Human Subjects outlined in the Declaration of Helsinki, and adopted in October 2000 by the World Medical Association. This document can be found at: http://ohsr.od.nih.gov/guidelines/helsinki.html. Investigators are encouraged to read and follow the Declaration of Helsinki. Clinical studies that do not meet the Declaration of Helsinki criteria will be denied peer review. If any published research is subsequently found to be non-compliant to Declaration of Helsinki, it will be withdrawn or retracted. On the basis of the Declaration of Helsinki, the Green Life Medical Journal requires that all manuscripts reporting clinical research state in the first paragraph of the 'Methods' section that:

- The study was approved by the appropriate Ethical Authority or Committee.
- Written informed consent was obtained from all subjects, a legal surrogate, or the parents or legal guardians for minor subjects.

Human subjects should not be identifiable. Do not disclose patients' names, initials, hospital numbers, dates of birth or other protected healthcare information. If photographs of persons are to be used, either take permission from the person concerned or make the picture unidentifiable. Each figure should have a label pasted on its back indicating name of the author at the top of the figure. Keep copies of ethics approval and written informed consents. In unusual

circumstances the editors may request blinded copies of these documents to address questions about ethics approval and study conduct.

The methods must be described in sufficient detail to allow the investigation to be interpreted, and repeated if necessary, by the reader. Previously documented standard methods need not be stated in detail, but appropriate reference to the original should be cited. However, any modification of previously published methods should be described and reference given. Where the programme of research is complex such as might occur in a neurological study in animals, it may be preferable to provide a table or figure to illustrate the plan of the experiment, thus avoiding a lengthy explanation. In longitudinal studies (case-control and cohort) exposure and outcome should be defined in measurable terms. Any variables, used in the study, which do not have universal definition should be operationalised (described in such terms so that it lends itself to uniform measurement). Where measurements are made, an indication of the error of the method in the hands of the author should be given. The name of the manufacturer of instruments used for measurement should be given with an appropriate catalogue number or instrument identification (e.g. Keyence VHX-6000 digital microscope). The manufacturer's town and country must be provided, in the case of solutions for laboratory use, the methods of preparation and precise concentration should be stated.

**Single case reports:**
Single case reports of outstanding interest or clinical relevance, short technical notes and brief investigative studies are welcomed. However, length must not exceed 1500 words including an unstructured abstract of less than 200 words. The number of figures/tables must not be more than 4 and references more than 25.

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In the case of animal studies, it is the responsibility of the author to satisfy the board that no unnecessary suffering has been inflicted on the animal concerned. Therefore, studies that involve the use of animals must clearly indicate that ethical approval was obtained and state the Home Office License number or local equivalent.

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When a drug is first mentioned, it should be given by the international non-proprietary name, followed by the chemical formula in parentheses if the structure is not-well known, and, if relevant, by the proprietary name with an initial capital letter. Dose and duration of the drug should be mentioned in sufficient details. If the drug is already in use (licensed by appropriate licensing authority), generic name of the drugs should preferably be used followed by proprietary name in brackets.

Present the result in sequence in the text, table and figures. Do not repeat all the data in the tables and/or figures in the text. Summarize the salient points. Mention the statistics used for statistical analysis as footnote under the tables or figures. Figures should be professionally drawn. Illustration can be photographed (Black and White glossy prints) and numbered.

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Comments on the observation of the study and the conclusion derived from it. Do not repeat the data in detail, already given in the results. Give implications of the findings, their strengths and limitations in comparison to other relevant studies. Avoid un-qualified statements and conclusions which are not supported by the data. Avoid claiming priority. New hypothesis or implications of the study may be labeled as recommendations.

Letters are welcome. They should be typed double-spaced on side of the paper in duplicate.

**References:**
References should be written in Vancouver style, numbered with arabic numerals in the order they appear in the text. The reference list should include all information, except for references with more than six authors, in which case give the first six names followed by et al.

**Examples of correct forms of references:**
Dorababu M, Prabha T, Priyambada S, Agrawal VK, Aryaa NC, Goel RK. Effect of Azadirachta indica on gastric ulceration and healing of bacopa monnierang in experimental NIDDM rats. *Indian J Exp. Biol 2004; 42: 389-397.*

**Chapter in a book:**
Hull CJ. Opioid infusions for the management of postoperative pain. In: Smith G, Covino BG, eds. Acute Pain. London: Butterworths. 1985,1 55-79.

All manuscripts for publication should be addressed to the executive editor.

**LETTER TO THE EDITOR:**
Any reader can provide feedback regarding published articles by writing letter to editor. The reader can also share any opinion in relation to medical science.

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**Professor M.A. Azhar**
Editor-in-chief
Green Life Medical College Journal and
Principal
Green Life Medical College

# ABOUT THE COLLEGE

## INTRODUCTION

In 2005, about fifty distinguished physicians of the country started a hospital to give specialized care in the private sector. They named it Green Life Hospital and it turned out to be a great success. So in 2009, they decided to establish a medical college which will be a non-government, non-profit, self-financing project and will serve the humanity.

This College came into existence in 2009. The college commences its activities with the enrollment of 51 students in the 1st batch in 2010. Since inception, the college has undergone tremendous development and became a splendid centre for learning and development. At present we are enrolling 110 students each year. Among them, numbers of seats are reserved for overseas students.

We continue to evaluate and improve our programme to ensure the best medical education for the students. Our educational strategy is to create a conducive learning environment and to steer our students to acquire adequate knowledge, skills and temperament to practice medicine and be a competent health care professional group.

Green Life Medical College (GMC) is approved by the Ministry of Health and Family Welfare (MOHFW), Government of Bangladesh and Bangladesh Medical and Dental Council (BMDC) and affiliated to the University of Dhaka.

## AIMS AND OBJECTIVES OF THE COLLEGE

**Aims:**

To create a diverse and vibrant graduate scholars in medical discipline and to create highly competent and committed physicians for the country.

**Objectives:**

- To provide an appropriate learning environment where medical students can acquire a sound theoretical knowledge and practical skills with empathetic attitude to the people.
- To carry out research in medical sciences to scale up the standard of medical education in the country.

## LOCATION

The campus is located at 32, Bir Uttom K. M. Shafiullah Sarak (Green Road), Dhanmondi, Dhaka. The location is at the heart of the mega city Dhaka and is facilitated with very good communication networks.

The Medical College and the Hospital complexes have been raised in a multistoried fully air-conditioned building with an arrangement of approximately 500 patients. The building is equipped with state-of-the-art infrastructure, excellent with an out-patient department and adequate in-patient facilities.

## *EDITORIAL*

# Ambient Air Quality and Health

Air is the mixture of nitrogen, oxygen, and minute amounts of other gases that surrounds the earth and forms its atmosphere that we breathe. Air is vital for life but if it is polluted then it affect the health of the human and other life.

According to World Health Organization air pollution is the alteration of the natural characteristics of the atmosphere caused by biological and chemical contaminants. Air pollution is known to create a major health risk, as it can lead to the development of respiratory conditions, heart problems and even cancer. Air pollution is caused by the emission from the vehicle, factories, power generating establishments where fossil fuel and coals are used, fertilizer dust and brick kilns.

Air pollution is a manmade environmental disaster at present taking place all over the world. Clean air is considered to be a basic requirement of human health and well-being. But air pollution is creating a significant threat to health worldwide. In a report from a meeting on September 2016 in Geneva, Switzerland states that 92% of the world population lives in places where the air quality level exceeds the WHO limits.[1]

More than 5.5 million people worldwide are dying prematurely every year as a result of air pollution, according to new research. The main culprit is the emission of small particles from power plants, factories, vehicle exhausts and from the burning of coal and wood.[2]

According to WHO Global Urban Ambient Air Pollution Database (update 2016), more than 80% of people living in urban areas where the air quality levels that exceed the World Health Organization (WHO) limits. While all regions of the world are affected, populations in low-income cities are the most impacted. According to the latest urban air quality database, 98% of cities in low- and middle income countries with more than 100 000 inhabitants do not meet WHO air quality guidelines. As urban air quality declines, the risk of stroke, heart disease, lung cancer, and chronic and acute respiratory diseases, including asthma, increases for the people who live in them.[3]

In Bangladesh according to Department of Environment (DoE), in December, 2016, 58% of the particulate pollutants responsible for the smog in the air of Dhaka city come from the orthodox brick kilns around and inside Dhaka, 18% from road dust and soil dust, 10% from vehicles, 8% from burning of biomass and 6% from other sources. The air quality in Dhaka has remained consistently unhealthy during the dry season according to the Department of Environment (DoE). On February 17, 2014, Dhaka's air quality was measured 172 Air Quality Index (AQI) which is considered unhealthy and on January 25, 2017 it was measured 361 AQI, that is deemed extremely unhealthy according to the National Ambient Air Quality Standard (NAAQS). In a report prepared by the World Health Organization (WHO) in 2014, Dhaka took the 23$^{rd}$ place in terms of worst air quality among 1,600 cities of the world. About 8.5 million patients are suffering from Asthma, 7.5 million suffering from Bronchitis and COPD mainly due to air pollution.[4]

The quality of air in the other major cities of the country is also not healthy. Apart from Dhaka, Narayanganj and Gazipur, the air quality in the port city of Chittagong and Barishal is also extremely unhealthy according to the DoE's latest report published in January, 2017. And the air in Rajshahi and Sylhet have been categorized as unhealthy also.[4]

In Bangladesh usually a huge increase in air pollution occurs in between the month of October and March as a dry season and also due to brick burning in kilns during this period, in addition to continual exhaust fumes from the over congested roads. The air quality falls mostly due to the high prevalence of fine particle (PM2.5) and coarse dust (PM10), which are the main pollutants. [5]

According to the preliminary findings on 'Country Environment Assessment for Bangladesh' states that noncompliant industries and inadequate waste management of hazardous and nonhazardous materials are polluting the cities' air and the country is losing one percent GDP every year due to air pollution.[6]

Keeping all the tings discussed for the health of the people of the country some programs must be taken to combat air pollution by increasing awareness about causes, effects, and ways to protect and tackle air pollution in Bangladesh.

Concerned authority should take immediate plan to solve the problems associated with air pollution, to combat morbidity, premature mortality and to reduce the scope of the pollution-caused degradation of ecosystems. A target should be fixed to reduce the air pollutant emission like sulfur dioxide, nitrogen oxides, non-methane volatile organic compounds, fine particulate matter, and ammonia.

Finally, programs need to be launched to action air pollution in the cities like Dhaka Chittagong etc.. Need to

use of clean technologies that reduce industrial smoke stack emission must be taken without delay.

The industrial, domestic and agricultural waste should not be burnt abundantly in the open places. The scavengers of the cities or metropolitan cities should not clean the roads and footpath without diffusion of water before swipe.

For transport shifting to clean modes of power generation, prioritizing rapid urban transit, walking and cycling networks in cities as well as rail inter urban freight and passenger travel are essential.

***Journal of Green Life Med. Col. 2018; 3(1): 1-2***

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W H O releases World Health Organization (WHO), media centre,

*ORIGINAL ARTICLE*

# Patient's Satisfaction on Health Services in a Private Medical College Hospital in Bangladesh

CHOWDHURY N S[1], CHOWDHURY N N[2], HOSSAIN K N[3], ISHRAT S[4], MOLLAH D S[5]

***Abstract***

***Introduction: This study was to assess the patient's satisfaction and service quality of a private hospital in Dhaka city.***

***Methods: This was a cross sectional study where 152 respondent were taken as a sample. This study was done in out- patient departments of Aichi Medical College of Dhaka city within duration of four months.***

***Results: Findings were, respondents commonly from young age 20-30 years (30.3%), mostly females(57.9%), some education (up to s.s.c)25.7%, mainly house wives (55.3%), with low income (10000-20000tk/month)28.9%. They got services 25.7% from maternal care, (gynae OPD) 27% from child care( PaediatricsOPD) and 47.4% from common disease (MedicineOPD). Regarding staff (means nurses, doctor & attendants, ) responsiveness respondents were highly satisfied like as in patient's needs(80.4%), regarding assurance 91.4% were satisfied about the skill of staff(doctor's ,technician).Regarding communication with doctors 98% of respondents were satisfied. Regarding discipline 90.1% were satisfied. Regarding baksheesh(tips) hospital stuff 85.6% were disagreed about expected tips. Regarding other issues respondents compliance were satisfied.***

***Conclusion: From the above study findings this was a good tertiary teaching care hospital where doctors- patients, staff- patients relationship were good. Patients got their quality treatment from out-patients departments with a low costs.***

***Key Word: Patient's satisfaction, Health services, Private hospital***

***Journal of Green Life Med. Col. 2018; 3(1): 3-9***

**Introduction:**

Appropriate health care strategies are vital to the ability of the third world countries to achieve other development objectives. While not a sufficient condition for development, it is important to recognize that a healthy population is better disposed to need to sustain continued growth in other sectors of the economy.[1]

In recent years the World Bank and other donor's have been advising developing countries to ensure that limited resources not only have an optimal impact on the populations health at affordable cost but also that health services are client oriented.[2] The health care delivery system in Bangladesh faces three major challenges like improving quality, increasing access and reducing costs. While all three elements are important there is growing evidence that the perceived quality of health care services has relatively greater influence on patient behaviors (satisfaction, choice, usage, referrals. etc) compared to access and cost.[3] Low level of investment in the health care sector, service, quality especially in the public hospitals seems to have deteriorated markedly as reported with increasing frequency in the popular media.[1] A better understanding of the determinants of patient satisfaction should help policy and decision makers to implement

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programs tailored to patients needs as perceived by patients and service providers.[2] Large segments of the population in developing countries are deprived of a fundamental right, access to basic health care without an appropriate and adequate health support and delivery system in place, its adverse effects will be felt in all other sector of the economy. In simple term, an ailing nation equates to an ailing economy as manifested in lower income earning capacity of household and significant productivity losses in these sectors that sustain the economy.[4]The problem of access to health care is particularly acute in Bangladesh. According to a world Bank (1987) estimate 30% of the population has access to primary health services and overall health care performance remains unacceptably low by all conventional measurement. A subsequent study notes some improvements but indicate that the poor performance of the health care sectors was attributed to the critical staff are absent.[5] Essential supplies are generally unavailable, facilities are inadequate, and the quality of staffing is poor. The problems of supervision and accountability exacerbate the problem, and if corrupt practices are added to the list, it is not difficult to imagine the predicament of the patients. In fact, these conditions and general perception of poor and unreliable service may explain why those who can afford it have been seeking health care services in other countries. In a country where the population growth rate will place additional demands on the health sector, its preparedness to serve its constituencies effectively is particularly troubling as the future begins to catch up.[6] To address the impending problems consideration has been given to the privatization alternative. Thus, the medical practice and private clinics and laboratories ordinance was promulgated in 1982 to encourage the growth of private health care service delivery. By June 1996, a total of 346 private hospitals and clinics with more than 5500 beds were registered with the directorate of hospitals and clinics. Of this total,142 were established in Dhaka alone with a capacity of 2428 beds.[6] Additional considerations are seen in the proportion of GDP allocated to the healthcare sector : it was more than doubled between 1985/86 and 1994/95 from 0.6 to 1.3%.[7] A significant proportion of this allocation was earmarked for primary healthcare. While these allocations are encouraging the perceptions that people have about the relative quality of health care services in the country may not be so favorable and remains to be assessed .This assessment is important because even if the problems of access were to be substantially alleviated, quality factors are likely to strongly influence patients' choice of hospital. In Nepal for example, the government made substantial investment in basic health care; yet utilization remained low because of clients negative perceptions of public health care.[8] In Vietnam, poor service in the public sector led to increased use of private providers.[9] Apparently quality is important and demands continuous attention. With the growth of private health care facilities, especially in Dhaka city, it is important to assess the quality of services delivered by these establishment. In particular, it is important to determine how the quality of services provided by private hospital. If quality issues are being compromised by these establishment, it calls for the re- evaluation of policy measures to redefine their role, growth and coverage, and to seek appropriate interventions to ensure that these institutions are more quality- focused and better able to meet the needs of their patients.[10]

Studies in the developing world have shown a clear link between patient satisfaction and a variety of explanatory factors among which service quality has been prominent.[11,12] We believe this link is also important in the health care sector in Bangladesh. Earlier studies suggest that service quality can be adequately measured using the SERVQUAL frame work[13] and its refined version in the context of Bangladesh.[10] To help explain patient's satisfaction. The frame works further embellished on the basis of focus group discussions is as follows Conceptual Framework.

The proposed care components of hospital service quality in Bangladesh are as follows.

**Responsiveness:**

The literature identifies responsiveness as an important component of service quality and characterizes, it as the willingness of the staff to be help full and to provide prompt services. Six items were used to delineate and measure the construct.

**Assurance:**

Assurance is defined as the knowledge and behaviors of employees that convey a sense of confidence that service out comes will match expectations. Six items were used to measure this construct to reflect competence, efficiency and the correctness to services provided to clients.

**Communication:**

Communication is defined as keeping customers informed in language they can understand it also involves listening to them. Communication with patients is vital to delivering service satisfactory because when hospital staff take the time to answer questions that concern patients it can

alleviated their feelings of uncertainty. Four items were used to assess the level of communication at private hospital.

**Discipline:**

Discipline is defined as the sense of order that one perceives in a given service environment and is reflected in both behaviors of the staff and the appearance of the overall hospital environment.In many organizations and institutions in Bangladesh lack of discipline is pervasive. Employees are often reluctant to perform their prescribed tasks and demonstrate a proclivity to circumvent existingrules and regulation cleanliness is another manifestation of the extent of order and discipline in the organization. In the hospital environment, the extent of discipline can influence perceptions of service quality. Six items representing aspects of discipline were used to measure the construct. Baksheesh.

Baksheesh (tips) represents the extra compensation that is expected in many service settings in Bangladesh for due services. This concept seems to have taken root in the country's social fabric. Al through there is a fine line. It maybe distinguished from bribes in that bribes represent payments or demands for money to obtain or render' undue' services. Two items were used to measure Baksheesh.

These five constructs represent the initial set factors that emerged as latent variables from our exploratory analysis.

**Methods:**

This was a cross -sectional descriptive study was carried out in Aichi Medical College & hospital Dhaka, Bangladesh. The study population consisted of outdoor patient of different departments like medicine, surgery, gynae, pediatrics & orthopedics of 152 respondents. Sample was taken purposive in non-probability technique in face to face interview method from October 2016 to February 2017. Data were collected with structured questionnaire. Prior to the study question fill-up by every participant was explained the purpose of the study. A preliminary questionnaire was first- developed in english using Likert Scales, then translated into Bangla and retranslated several times until it was user friendly and captured the desired constructs. Scale items were rated 5 point Likert scales in each item was anchored at the numeral 5 with verbal statement 'strongly disagree" and at the numerical 1 with the verbal statement "strongly agree".

The questionnaire was pre- tested several times to arrive at appropriate wording, format, length and sequencing of the question. Pre –test feedback was use to refine the questionnaire until it was ready for data collection. Here some question answers have been coded strongly agree-1, agree-2, uncertain- 3, disagree- 4, strongly disagree-5 and scored value was mentioned later according to item of Likert scale. High scores reflect satisfaction with medical care. The population was defined as residents of Dhaka city who had utilized hospital services.

**Results:**

Following tables are showing the findings of this study.

**Table I**

*Socio-demographic profile of the study respondents into the various out-patient department of Aichi medical college(N-152)*

| Age group (years) | Frequency(N) | Percent(%) |
|---|---|---|
| <10years | 38 | 25 |
| 10-20 years | 16 | 10.5 |
| 20-30 years | 46 | 30.3 |
| 30-40 years | 21 | 13.8 |
| 40-50 years | 19 | 12.5 |
| Above | 12 | 7.9 |
| **Gender** | | |
| Male | 64 | 42.1 |
| Female | 88 | 57.9 |
| **Income** | | |
| <10000 | 39 | 25.7 |
| 10000-20000 | 44 | 28.9 |
| 20000-30000 | 39 | 25.7 |
| 30000-40000 | 13 | 8.6 |
| 40000-50000 | 07 | 4.6 |
| >500000 | 10 | 6.6 |
| **Educational level** | | |
| Illiterate | 09 | 5.9 |
| Only can write | 10 | 6.6 |
| Primary | 35 | 23 |
| S.S.C | 39 | 25.7 |
| H.S.C | 31 | 20.4 |
| Honors | 21 | 13.8 |
| Masters | 07 | 4.6 |
| **Occupation** | | |
| Govt.service | 03 | 2 |
| Non-govt service | 14 | 9.2 |
| Business | 26 | 17.1 |
| Un-employed | 06 | 3.9 |
| House wife | 84 | 55.3 |
| Day laborer | 03 | 02 |
| Others | 16 | 10.5 |

In the demographic profile of the study respondents (table:I) most of the participant (30.3%) were in the age group 20-30 years and mostly females(57.9%) compare to their counterpart. Most of this respondent 28.9% came from family monthly income 10000-20000 Bangladeshi taka(BDT). Majority 25.7% were secondary level of education and 55.3% respondent was house wife.

**Table II**

*On responsiveness satisfaction questionnaire for study purpose among study population (n=152)*

| Staff were responsiveness to patient's needs | Frequency (N) | Percent (%) |
|---|---|---|
| Strongly agree | 75 | 49.3 |
| Agree | 61 | 40.1 |
| Uncertain | 15 | 9.9 |
| Disagree | 1 | 0.7 |
| Strongly disagree | 0 | 0 |
| **Stuff were caring** | | |
| Strongly agree | 71 | 46.7 |
| Agree | 65 | 42.8 |
| Uncertain | 13 | 8.6 |
| Disagree | 03 | 2.0 |
| Strongly disagree | 0 | 0 |
| **Staff were courteous** | | |
| Strongly agree | 67 | 44.1 |
| Agree | 73 | 48.0 |
| Uncertain | 11 | 7.2 |
| Disagree | 01 | 0.7 |
| Strongly disagree | 0 | 0 |
| **Immediately staff responded** | | |
| Strongly agree | 63 | 41.4 |
| Agree | 62 | 40.8 |
| Uncertain | 17 | 11.2 |
| Disagree | 06 | 3.9 |
| Strongly disagree | 04 | 2.7 |
| **Staff were helpful** | | |
| Strongly agree | 70 | 46.1 |
| Agree | 66 | 43.4 |
| Uncertain | 16 | 10.3 |
| Disagree | 0 | 0 |
| Strongly disagree | 0 | 0 |
| **Service provided Prompt** | | |
| Strongly agree | 56 | 36.8 |
| Agree | 69 | 45.4 |
| Uncertain | 24 | 15.8 |
| Disagree | 01 | 0.7 |
| Strongly Disagree | 02 | 1.3 |
| Total | 152 | 100 |

Table II shows staff responsiveness to patient's needs 89.4%, caring 89.5%,staff courteous 92.1%, stuff responded 82.2%,staff helpful 89.5% and service provided prompt 82.2% were agreed.

**Table III**

*On assurance satisfaction questionnaire for study purpose among the study population (152)*

| Staff were professional | Frequency | Percent |
|---|---|---|
| Strongly agree | 62 | 40.8 |
| Agree | 78 | 51.3 |
| Uncertain | 12 | 7.9 |
| Disagree | 0 | 0 |
| Strongly disagree | 0 | 0 |
| **Doctor were competent** | | |
| Strongly agree | 103 | 67.8 |
| Agree | 46 | 30.3 |
| Uncertain | 2 | 1.3 |
| Disagree | 0 | 0 |
| Strongly disagree | 1 | 0.7 |
| **Skilled staff** | | |
| Strongly agree | 63 | 41.4 |
| Agree | 76 | 50.0 |
| Uncertain | 12 | 7.9 |
| Disagree | 01 | 0.7 |
| Strongly disagree | 0 | 0 |
| **Services were provided Efficiently** | | |
| Strongly agree | 64 | 42.1 |
| Agree | 7.8 | 51.3 |
| Uncertain | 10 | 6.6 |
| Disagree | 0 | 0 |
| Strongly disagree | 0 | 0 |
| **Procedures were performed correctly** | | |
| Strongly agree | 66 | 43.4 |
| Agree | 67 | 44.1 |
| Uncertain | 17 | 11.2 |
| Disagree | 02 | 1.3 |
| Strongly disagree | 0 | 0 |
| **Nurses were well Trained** | | |
| Strongly agree | 69 | 45.4 |
| Agree | 70 | 46.1 |
| Uncertain | 12 | 7.9 |
| Disagree | 01 | 0.7 |
| Strongly Disagree | 0 | 0 |
| Total | 152 | 100 |

Table III shows regarding assurance staff were professional 92.1%, doctor competent 98.1%,staff skilled 91.4% ,service provided efficiently 93.4%, procedures were performed correctly 87.5% ,91.5% well trained nurses were agreed.

**Table IV**

*On communication satisfaction among study population(n-152)*

| Doctors were willing to Answer | Frequency | Percent |
|---|---|---|
| Strongly agree | 97 | 63.8 |
| Agree | 52 | 34.2 |
| Uncertain | 3 | 2 |
| Disagree | 0 | 0 |
| Strongly disagree | 0 | 0 |
| **Adequate explanations of any test** | | |
| Strongly agree | 73 | 48 |
| Agree | 67 | 44.1 |
| Uncertain | 06 | 3.9 |
| Disagree | 06 | 3.9 |
| Strongly disagree | 0 | 0 |
| **Adequate information of Health condition to doctor** | | |
| Strongly agree | 88 | 57.9 |
| Agree | 60 | 39.5 |
| Uncertain | 04 | 2.6 |
| Disagree | 0 | 0 |
| Strongly disagree | 0 | 0 |
| **Adequate information on treatment** | | |
| Strongly agree | 88 | 57.9 |
| Agree | 61 | 40.1 |
| Uncertain | 3 | 2 |
| Disagree | 0 | 0 |
| Strongly disagree | 0 | 0 |
| **Monitored health conditionregularly** | | |
| Strongly agree | 62 | 40.8 |
| Agree | 79 | 52 |
| Uncertain | 4 | 2.6 |
| Disagree | 4 | 2.6 |
| Strongly disagree | 3 | 2 |
| Total | 152 | 100 |

Table IV shows that doctors were willing to answer 98%,explanation about test 92.1%.information of health condition to doctors 97.4%, information of treatment 98%,regular monitored health condition 92.8% were agreed.

**Table V**

*On discipline satisfaction among study population(n=152)*

| Room were regularly cleaned | Frequency | Percent |
|---|---|---|
| Strongly agree | 46 | 30.3 |
| Agree | 78 | 53.3 |
| Uncertain | 22 | 14.5 |
| Disagree | 5 | 3.3 |
| Strongly disagree | 01 | 0.7 |
| **Staff was disciplined** | | |
| Strongly agree | 50 | 32.9 |
| Agree | 78 | 51.3 |
| Uncertain | 21 | 13.8 |
| Disagree | 03 | 2.0 |
| Strongly disagree | 0 | 0 |
| **Toilet facilities were clean** | | |
| Strongly agree | 35 | 23 |
| Agree | 72 | 47.4 |
| Uncertain | 32 | 21.1 |
| Disagree | 12 | 7.9 |
| Strongly disagree | 01 | 0.7 |
| **Rules and regulation** | | |
| Strongly agree | 62 | 40.8 |
| Agree | 79 | 52 |
| Uncertain | 04 | 2.6 |
| Disagree | 04 | 2.6 |
| Strongly disagree | 03 | 2 |
| **Maintained cleanliness** | | |
| Strongly agree | 49 | 32.2 |
| Agree | 76 | 50 |
| Uncertain | 22 | 14.5 |
| Disagree | 04 | 2.6 |
| Strongly disagree | 01 | 0.7 |
| **Staff had cleanAppearance** | | |
| Strongly agree | 66 | 39.5 |
| Agree | 73 | 48 |
| Uncertain | 16 | 10.5 |
| Disagree | 3 | 2.0 |
| Strongly disagree | 0 | 0 |
| Total | 152 | 100 |

Table V: shows that room cleaned regularly 81.6%, disciplined staff 84.2%, clean toilet facilities 70.4%, rules and regulation 90.1%,cleanliness maintained 82.2%,clean appearance of hospital staff 87.5% were agreed.

**Table-VI**

*Baksheesh for satisfaction questionnaire*

| Stuff expected tips | Frequency | Percent |
|---|---|---|
| Strongly agree | 10 | 6.6 |
| Agree | 11 | 7.2 |
| Uncertain | 01 | 0.7 |
| Disagree | 46 | 30.3 |
| Strongly disagree | 84 | 55.3 |

Table VI : shows that 85.6% were disagreed about expected basksheesh.

**Discussion:**

This was a descriptive type of cross sectional study in Aichi medical college& hospital in Dhaka city with a sample of one hundred and fifty-two respondents during the period of October 2016 to February 2017 with a view to assess the service quality and patient's satisfaction of private hospital in Dhaka city. The objective of the study was to find out the patient's satisfaction and service quality of hospital along with socio-demographic variables. Service quality was measured by using SERVQUAL frame work and after then likert scales was to use to score the value study.[4] Among the respondent's majority were females (57.9%) where the age of the patient's included in this study ranged between 10 years to above 50 years. Majority of patients were within 20-30 years of age. It correlates with other studies done in Bangladesh where male were (42.1%). Females were more as they occupied at home maker field and their house were near to hospital. It correlates other study too.[5] Regarding level of income among the respondents more found at income group (10000 – 20000 tk/ month). Regarding educational status of the respondent's majority had S.S.C (25.7%) level of education and 4.6% were masters level of education. This result also correlates with other study.[4] Regarding occupation of the respondent's majority 55.3% were house wife. Only 2% each were from day laborer and government services. Regarding service taking from the hospital most of them (47.4%) had common diseases like flu, common cold, fever and headache. Regarding staff responsiveness to patient's needs 89.4% were agreed. Regarding staff caring majority were agreed 89.5%. Regarding staff courteous to the respondent 92.1% were agreed. These responsiveness about staff were highly satisfied. Regarding staff skills 91.4% were agreed. With their good performance. Regarding doctors willing to answer 98% were agreed. Regarding rules and regulation 90.1% were agreed. Regarding hospital staff expected tips /baksheesh 85.6% were disagreed.

**Conclusion:**

Improving health care services requires attention to service features that are regularly rated by patients. These features include doctors, nurses, etc. However, additional organizational and extra- organizational issues that play a vital role must also be addressed to improve the health care system. From the above results and discussion private hospitals are aimed at providing better healthcare facilities to the patients. The patient's realization about quality of healthcare drives a greater proportion of the population towards private hospitals in Bangladesh. Results showed that in private hospitals, doctors , nurses and supporting staff are providing almost same quality service to different level of people with different occupation, income and gender as because all of them are spending same amount of money for their required care.The owners of the health care systems should be careful enough to maintain private hospitals for the betterment of the people and the government should monitor strongly the quality aspects of total medical care system to ensure providing better quality services.

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# Study on Knowledge and Attitude about Reproductive Health among Rural Adolescent in Some Selected Villages at Dhamrai

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*Abstract*

***Introduction:*** *Adolescence represents a window of opportunity to prepare for a healthy adult life. Nearly 35% of the global diseases burdens have their roots in adolescence.*

***Methods:*** *This was a rural based descriptive cross sectional study with a view to determine the knowledge and attitude about reproductive health among 350 rural adolescents in some selected villages at Dhamrai, Dhaka from 15th January to 15thApril, 2017.*

***Results:*** *Majority 269(76.9%) respondents were female and 81(23.1%) were male with mean age of 16.49±2.02 years. Most of the respondents 219(62.6%) were unmarried and 235(67.1%) came from nuclear family and had a mean monthly family income 16105±15501 Taka. According to current schooling status, 219(62.6%) respondents were in school and 145 (41.4%) were secondary in completed.Near two third of the respondents (60.9%) lived with their parents. Most of the respondents (87.1%) heard about reproductive health. Near half of the respondents had average knowledge about reproductive health issues. Regarding reproductive health service utilization, 391(91.1%) teen heard about it and their main source of information were from mass media 223(63.7%). Among the main obstacles to get reproductive health service 163(46.6%) rural teens were reported lack of knowledge. About 213(60.9%) respondents got RH services from Government health facility.*

***Conclusion:*** *Reproductive health education can improve the knowledge and perceptions of adolescents especially in rural areas.*

***Key words:*** *Knowledge about reproductive health, Rural adolescents, Reproductive health education.*

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**Introduction:**

Adolescents are an important resource of any country as they constitute 18% of the world population and nearly 1.2 billion (88%) live in developing world.[1] Adolescent health and nutrition status has an intergenerational effect; hence it is one of the important stages of the life cycle in terms of health interventions but this period is often ignored.[2] Nearly two-thirds of premature deaths and one-third of the total disease burden in adults are associated with conditions or behaviors that begin in their adolescence or youth, including tobacco use, lack of physical activity, unprotected sex, exposure to violence leading to unintended pregnancy, early pregnancy and childbirth, human immunodeficiency virus (HIV) and other sexually transmitted diseases, malnutrition, substance abuse, and injuries.[3] Outcome of sexual behaviors and mental health problems become significant among adolescents in 15-19 years age group.[4] During this important period, a child undergoes biological transition, which is characterized by puberty related changes inphysical appearance and the attainment of reproductive capability. Women especially in the developing world are facing many reproductive health problems. The related issues such as abortion, childbirth, sexuality, contraception, and maternal mortality, to determination of

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reproductive health biological, social, cultural, economical, and behavioral factors play an important role. Nearly 90 percent of all the births in the world occur in developing countries.[5]In order to lead a healthy, responsible and fulfilling life and protect themselves from reproductive health problems youngsters need to be knowledgeable. They require adequate information about the physical, psychological changes that take place during puberty, menstruation, pregnancy and child birth. The need to address these problems through reproductive health education has been recognized at various national and international forums. This study was conducted to assess the knowledge and attitude of rural adolescents about reproductive health.

**Methods:**

This descriptive cross-sectional observational study was conducted to assess the knowledge and attitude about the reproductive health among rural adolescents of 13-19 year's teen inhabitants in selected rural communities of Dhamrai upazilla, Savar, Dhaka. The data were collected from Boro Chondrial, Sutipara, Khatra, Dautia, Choto Chondrial villages of Dhamrai upazilla, Savar, Dhaka. Convenient sampling technique was adopted to select the sample population. A sample of 350 respondents was selected for the study who were willing to participate and to provide required information. Physically and mentally retarded and very sick people' were excluded from the study. The required data were gathered by pretested semi structured questionnaires from 13-19 years adolescents. Face to face interview was used to collect data. The questionnaire had two parts consisting of socio-demographic characteristics and knowledge and attitude about the reproductive health (which includes questions to evaluate the respondent's knowledge). The field work was conducted from 15$^{th}$ January to 15$^{th}$April, 2017 to collect data. Assurance had been given that confidentiality concerning their information would be maintained strictly. The questionnaire was first prepared in English then translated to Bangali. Pre-testing was conducted on 5% of sample size prior to the actual data collection process. The data were checked, verified and then entered into the computer. The analysis was carried out with the help of SPSS version-23 windows software program. All analyzed data were presented in the form of percentages.

**Knowledge Score:**

Here knowledge related reproductive health issues in the questionnaire were 4 in number. All questions have three parts- yes, no, don't know. We gave 1 mark on "yes" and 0 marks on "no" and "don't know". The highest score of knowledge level obtained was 20 marks and the lowest score of knowledge level was 0 marks. By dividing the knowledge score into four groups we divide the knowledge score by one forth for each group that is, Poor knowledge level (0-5), Average knowledge level (6-10), Good knowledge level (11-15) and Excellent knowledge level (16-20).

**Results:**

**Table I**

*Distribution of respondents according to socio-demographic characteristic (n=350)*

| Socio-demographic characteristic | | |
|---|---|---|
| Age (years) | Frequency | Percentage |
| 13 - 15 | 114 | 32.6 |
| 16 - 19 | 236 | 67.4 |
| Mean ± age = 16.49 ± 2.02 | | |
| Gender | | |
| Female | 269 | 76.9% |
| Male | 81 | 23.0% |
| Current schooling status | | |
| In- school | 219 | 62.6 |
| Out-of-school | 131 | 37.4 |
| Father's occupation | | |
| Business | 60 | 17.1 |
| Service holder | 60 | 17.1 |
| Day labourer | 140 | 40.0 |
| Retired | 10 | 2.9 |
| Others | 80 | 22.9 |
| Mother's Occupation | | |
| House wife | 320 | 91.4 |
| Service holder | 30 | 8.6 |
| Monthly family income | | |
| <5000 | 25 | 7.1 |
| 5,001-10,000 | 150 | 42.9 |
| 10,001-15,000 | 70 | 20.0 |
| 15,001-20,000 | 53 | 15.1 |
| >20,000 | 52 | 14.9 |
| Marital status | | |
| Married | 130 | 37.1 |
| Unmarried | 220 | 62.9 |
| Type of family | | |
| Nuclear | 235 | 67.1 |
| Joint | 115 | 32.9 |
| Living mostly with | | |
| Parents | 213 | 60.9 |
| Husband/wife | 107 | 30.6 |

Out of 350 respondents, 236 (67.4%) were in the age group of 16 – 19 years, and the rest of 114 (32.6%) were in the age group of 13–15 years. Their mean age was 16.49±2.02 years. According to respondents, 269(76.9%) were female and 8 (23.1%) were male and their current schooling status 219(62.6%) were in-school and 131(37.4%) out-of-school.

Two-third respondents fathers were day labourer and the majority 320(91.4%) mothers were housewife. Only 150(42.9%) respondents had a monthly family income of 5,001/ -10,000/ taka. Majority 220(62.9%) were unmarried, 130 (37.1%) were married. According to the type of family, 235(67.1%) were from nuclear family and the rest 115(32.9%) were from joint family. Near two-third of the respondents (60.9%) lived with their parents and about one-third (30.6%) lived with spouse.

Figure 1 revels that, more than four-fifth (87.1%) respondents heard about reproductive health only 45(12.9%) respondents had no idea about reproductive health.

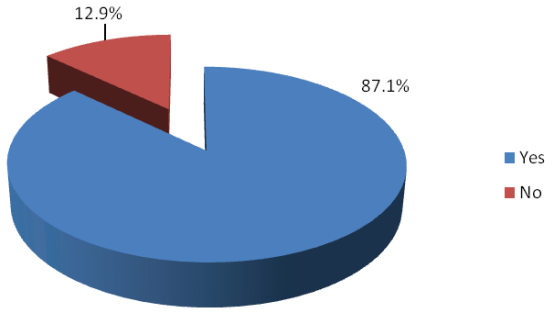


**Figure 1:** *Distribution of the respondents according to their knowledge about reproductive health (n=350)*

**Table II**

*Distribution of the adolescents about common sexual and reproductive health diseases (n=350)*

| Common sexual and reproductive health diseases | Frequency | Percentage |
|---|---|---|
| Gonorrhea | 104 | 29.7 |
| Syphilis | 74 | 21.1 |
| Hepatitis-B | 225 | 72.9 |
| Chlamydia | 5 | 1.4 |
| HIV/AID | 315 | 90.0 |
| Cervical cancer | 199 | 56.9 |

Out of 350 respondents, 315(90.0%) respondents gave their view about HIV/AIDS followed by 255(72.9%) about Hepatitis-B, 199(56.9%) Cervical cancer, 104(29.7%) Gonorrhea, 74 (21.1%) Syphilis and 5(1.4%) Chlamydia as sexual and reproductive health diseases.

**Table III**

*Knowledge about reproductive health issues (n=350)*

| Knowledge of reproductive health issues | Poor | Average | Good | Excellent |
|---|---|---|---|---|
| Puberty | 61(17.4) | 169(48.3) | 117(33.4) | 03(0.9) |
| STDs | 85(24.3) | 171(48.9) | 82(23.4) | 12(3.4) |
| Safe motherhood | 86(24.6) | 173(49.4) | 90(25.7) | 01(0.3) |
| Complication of unsafe abortion | 144(41.1) | 146(41.7) | 59(16.9) | 01(0.3) |
| Consequence of early pregnancy | 70(20.0) | 185(52.9) | 94(26.9) | 01(0.3) |
| High risk behavior of adolescents | 91(26.0) | 185(52.9) | 73(20.9) | 01(0.3) |

Out of 350 respondents, knowledge about reproductive health issues 169(48.3%) had average knowledge of puberty, 171(48.9%) about STDs, 173(49.4%) safe motherhood, 146(41.7%) complication of unsafe abortion, 185(52.9%) consequence of early pregnancy, 185(52.9%) high risk behaviour of adolescents.

**Table IV**

*Opinion about reproductive health service utilization (n=350)*

| Query about reproductive health (RH) issues | Frequency | Percentage |
|---|---|---|
| Any support about reproductive health education in school | 192 | 54.9 |
| Discussed reproductive health topics with parents | 90 | 25.7 |
| If no, reasons | | |
| Not necessary | 93 | 26.6 |
| Fear | 77 | 22.0 |
| Cultural restriction | 90 | 25.7 |

Regarding query about reproductive health issues 192(54.9%) got support about reproductive health education in school, 90(25.7%) discussed reproductive health topics with parents but 93(26.6%) thought not necessary, 90(25.7%) had no query due to cultural restriction and 77(22.0%) due to fear.

**Table V**
*Opinion about reproductive health service utilization (n=350)*

| | Frequency | Percentage |
|---|---|---|
| Heard about RHS | | |
| Source of information | 319 | 91.1 |
| School | 135 | 38.6 |
| Health professionals | 124 | 35.4 |
| Mass | 223 | 63.7 |
| Mother | 76 | 21.7 |
| Main obstacles to get RHS | | |
| Never thought of the services | 157 | 44.9 |
| Service not necessary | 90 | 25.7 |
| Lack of knowledge | 163 | 46.6 |
| Too young | 85 | 24.3 |
| Too healthy | 26 | 7.4 |
| Lack of privacy | 51 | 14.6 |
| Source of RHS facilities | | |
| Govt. health facility | 213 | 60.9 |
| Private hospital | 36 | 10.3 |
| Pharmacy | 41 | 11.7 |
| Traditional health practitioners | 22 | 6.3 |

Regarding reproductive health service utilization, 391(91.1%) teen heard about it and their main source of information were from mass media 223(63.7%), 135(38.6%) from school, 124 (35.4%) health professionals and only 76(21.7%) from mother. Main obstacles to get reproductive health service 163(46.6%) was lack of knowledge, 157(44.9%) never thought of the services, 90(25.7%) service not necessary, 85(24.3%) too young, 51(14.6%) lack of privacy, 26(7.4%) too healthy. About 213(60.9%) respondents got RH services from Government health facility, 41(11.7%) from pharmacy, 36(10.3%) from private hospital and 22(6.3%) from traditional health practitioners.

**Discussion:**

The reproductive health needs of adolescents have long been neglected, but in the last 10 years, the importance of information on reproduction and sexuality is being increasingly emphasized. Reproductive health covers all aspects of adolescent health.[6] The objective of the study was to determine the knowledge and attitude about the reproductive health among rural adolescents. A total of 350 respondents were selected. It was found that 236(67.4%) respondents were in the age group of 16 – 19 years with their mean age was 16.49±2.02 years. Among them, 269(76.9%) were female and 81(23.1%) were male. According to current schooling status, 219(62.6%) were in school and 131(37.4%) were out-of-school. According to the mother's occupation, 320(91.4%) respondents mothers were housewife and about one third respondents' fathers were day labourer. A cross-sectional study was carried out in Block Beri, district Jhajjar (Haryana) among 320 adolescent students where the occupation of the fathers of (97/320) (30.3%) and (100/320) (31.3%) adolescents was agriculture or labor respectively while mothers were house wives in 259/320 (80.9%) cases.[7] Out of 350 respondents, majority 220(62.9%) were unmarried, 130(37.1%) were married. Approximately 30 percent of women were married between the ages of 15 - 19 years of Jaipur district.[8] According to the type of family, 235(67.1%) were from nuclear family and the rest 115(32.9%) were from joint family. Family type was nuclear family in majority of respondents, thus demonstrating how even in rural areas joint families have disintegrated. Only 21% came from joint families in Nellore, Andhra Pradesh.[9] Near two third of the respondents (60.9%) lived with their parents and about one-third (30.6%) lived with spouse which goes in line with the study conducted in Southwest Nigeria where 66.4% adolescents lived with their parents.[10]

More than four-fifth (87.1%) respondents heard about reproductive health, only 45(12.9%) respondents had no idea about reproductive health whereas Abajobir AA[11] conducted a community based cross-sectional study among rural adolescents in East Gojjam zone, Ethiopia where more than two-third (67%) of the adolescents had knowledge about reproductive health.

Out of 350 respondents, 315(90.0%) respondents gave their opinion about HIV/AIDS followed by 255(72.9%) about Hepatitis-B, 199(56.9%) Cervical cancer, 104(29.7%) Gonorrhea, 74(21.1%) Syphilis and 5(1.4%) Chlamydia as sexual and reproductive health diseases which on the contradictory, with a study done in South Delhi, India where the majority of respondents (71%, n = 179) had no

knowledge about the effects of Genital Herpes infections, two fifths did not know the consequences of acquiring Syphilis (43%, n = 107) and (28%, n = 71) were unaware that Gonorrhoea was an STI.[12]Among 350 respondents knowledge about reproductive health issues 169 (48.3%) had average knowledge of puberty, 171(48.9%) about STDs, 173(49.4%) safe motherhood, 146(41.7%) complication of unsafe abortion, 185(52.9%) consequence of early pregnancy, 185(52.9%) high risk behaviour of adolescents.

Regarding query about reproductive health issues 192(54.9%) got support about reproductive health education in school, 90(25.7%) discussed reproductive health topics with parents but 93(26.6%) though not necessary, 90(25.7%) had no query due to cultural restriction and 77(22.0%) due to fear. Regarding reproductive health service utilization, 391(91.1%) teen heard about it and their main source of information were from mass media 223(63.7%), 135(38.6%) from school, 124 (35.4%) health professionals and only 76(21.7%) from mother. Several studies in Ethiopia, South Africa, Tanzania and Ghana showed that health professionals were the main sources of Sexual and Reproductive Health (SRH) information. This disparity may be explained by the settings in which the studies were carried out. Other studies were either health facility or community based while the current study was carried out among in-school adolescents.[12-15] About 213(60.9%) respondents got RH services from government health facility, 41(11.7%) from pharmacy, 36(10.3%) from private hospital and 22(6.3%) from traditional health practitioners. A community based cross-sectional study was conducted in Northwest Ethiopia where the overall utilization of Voluntary Counseling Testing (VCT) services among males and females was 65% and 80%, respectively.[16]

The practice of sexuality is highly determined by norms and values. Main obstacles to get reproductive health service 163(46.6%) were lack of knowledge, 157(44.9%) never thought of the services, 90(25.7%) service not necessary, 85(24.3%) too young, 51(14.6%) lack of privacy, 26(7.4%) too healthy. Talking about sexual and reproductive health is considered unethical and shameful act in most of the communities in Nepal.[17,18] The fear of stigma and loss of social status, shame, disrespectful service provider, lack of privacy were discovered as the barriers to SRH service seeking behavior in different studies conducted in the United States, Eastern Europe and Central Asia.[19]

**Conclusion:**

Sexually Transmitted Infection (STI) epidemic still presents a serious challenge to societies around the world, including Bangladesh. Global surveillance and research has identified adolescents (particularly girls) as an emerging vulnerable group. Sex education and STI education aimed at adolescents is a crucial weapon in the STIs/HIV prevention armory and the school is an important means of reaching them. It is important to educate adolescents about safe sex and contraceptives so that they can safeguard themselves from STIs. It is also essential to provide information about signs and symptoms of STIs which will alert them to seek timely medical attention as needed which is till now simply not effective in Bangladesh.

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*ORIGINAL ARTICLE*

# A Comparative Study of Effect of Ethanol And *Trigonella Foenum Graecum* Seeds (Methi) Extract In Inducing Gastric Ulcer in Experimental Rats

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**Abstract**

***Introduction:*** *The gastric epithelium is under constant assault by a series of endogenous noxious factors, including HCl, pepsinogen / pepsin, and bile salts. In addition, a steady flow of exogenous substances such as medications, alcohol, and bacteria encounter the gastric mucosa. A highly intricate biologic system is in place to provide defense from mucosal injury and to repair any injury that may occur. Bangladesh is a developing country with a very high point prevalence of duodenal ulcer disease (11.9%) and a H. pylori prevalence of more than 90% in asymptomatic adults and 80% in children at the age of 5 years. From the ancient time, various plants were used in traditional medicine with reputation as efficacious remedies. The incidence of duodenal ulcer disease has been declining dramatically for the past 30 years, but the incidence of gastric ulcers appears to be increasing as a result of the widespread use of NSAIDs and low-dose aspirin. The list of plant derived modern medicine is very long now. About 33% of the drugs produced in the developed countries are derived from plants. Trigonella foenum-graecum (Fenugreek, Methi) is a herbal medicine used in many parts of world. Preliminary study on animal showed that Trigonella foenum-graecum seeds reduced total acid. A study was carried out to see the effect of Trigonella foenum-graecum (Fenugreek, Methi) and ethanol in inducing gastric ulcer in an experimental rats.*

***Methods:*** *The present study was performed on 18 (eighteen) rats which were divided randomly into 3 groups each having 6 rats. Groups were labeled as group-A, group-B and group-C. The study was carried out to demonstrate the effect of vehicle (distilled water), ethanol and Trigonella foenum-graecum seeds extract in inducing gastric ulcer in experimental rats. The study was prospective experimental type and was conducted in the department of Pharmacology, Dhaka Medical College, Dhaka, from July 2008 to June 2009.*

***Result:*** *The present study showed (table-I) the control group (group-A) and group-C had no lesion in the stomach. The gastrotoxicity (Ethanol induced)) was evidenced only in the group-B. The mean lesion length, breadth, lesion area and lesion index were 6.52±3.80, 1.63±1.35, 13.58±15.91 and 31.5±9.61 respectively in the group-B. There was no evidence of gastrotoxicity produced by the Trigonella Foenum Graecum (Methi) seeds.*

***Conclusion:*** *The gastrotoxicity was evidenced only in the group-B (Ethanol). The mean lesion length, breadth, lesion area and lesion index were 6.52±3.80, 1.63±1.35, 13.58±15.91 and 31.5±9.61 respectively in the group-B. There was no evidence of gastrotoxicity produced by the Trigonella Foenum Graecum seeds (Methi) in group-C.*

***Key words:*** *Gastric ulcer, Ethanol, Trigonella foenum graecum seeds (Methi) extract.*

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## Introduction:

Peptic ulcer is a break in the gastric or duodenal mucosa that arises when the normal mucosal defensive factors are impaired or are overwhelmed by aggressive luminal factors such as acid and pepsin. The ulcers extend through the muscularis mucosae and are usually over 5 mm in diameter.[1] The gastric epithelium is under constant assault by a series of endogenous noxious factors, including HCl, pepsinogen/pepsin, and bile salts. In addition, a steady flow of exogenous substances such as medications, alcohol, and bacteria encounter the gastric mucosa. A highly intricate biologic system is in

place to provide defense from mucosal injury and to repair any injury that may occur. The mucosal defense system can be envisioned as a three-level barrier, composed of pre epithelial, epithelial, and subepithelial elements.[2] Bangladesh is a developing country with a very high point prevalence of duodenal ulcer disease (11.9%) and a H. pylori prevalence of more than 90% in asymptomatic adults and 80% in children at the age of 5 years.

From the ancient time, various plants were used in traditional medicine with reputation as efficacious remedies. They formed an integral part of the health management practices and constituted important items of medicines from the very early days of human civilization. With the progress of civilization and development of human knowledge, different chemical constituents from plant have been isolated; various biological and pharmacological tests have been performed. Thus scientists have been able to identify and isolate therapeutically active compounds that have been used to prepare modem medicine.[3]

Herbs play a far great part in our everyday lives than most of us realize. All herbals build on earlier knowledge, while reflecting the practice and interests of the time. The gastroprotective, cytoprotective and anti-ulcer effect of several other plants like Azadirachta indica (Neem), Ejambolana, propolis ethanol extract, popular spice anise -pimpinella anisum etc. are also studied by several other investigator.[4,5] They concluded that these plants possesses significant cytoprotective and anti-ulcer activities against experimentally induced gastric lesions possibly through promotion of mucosal defensive factors and anti-secretory or antioxidant status and decreasing lipid per oxidation.

*Trigonella foenum-graecum* (Fenugreek, Methi) is an herbaceous annual of l0-40 cfl, aromatic and has compound leaves of 7 to 12 cm long. It is a herbal medicine used in many parts of world. Its leaves are used for their cooling properties and its seeds for their carminative, tonic and aphrodisiac effects.[6] The seed contains alkaloids, steroidal sapogenins, fixed oil and mucilage.[7] It has been used for labor induction, aiding digestion and lactation.[8] Preliminary study on animal showed that *Trigonella foenum-graecum* seeds reduced total acid and showed significant ulcer protective effects in ethanol-induced ulcer model.[9] Other studies reveal the possible hypoglycemic and antihyperlipidemic properties of *Trigonella foenum-graecum* seeds in animals.[8]

**Methods:**

The present study was performed on 18 (eighteen) rats which were divided randomly into 3 groups each having 6 rats. Groups were labeled as group-A, group-B and group-C. The rats were aged between 8-10 weeks of both sexes and weighing between 180-200 gm. They were kept for some days to acclimatize to the animal room conditions in medium sized metallic cages in the animal house of Pharmacology Department in Dhaka Medical College, Dhaka. They were allowed to live at room temperature, fed on standard pellets of rat food and allowed to drink water adlibitum.

**Materials:**

To conduct the experiment, aqueous extract of T. foenum-graecum seeds, absolute ethanot (99.9%), distilled warer (vehicle) and normal rat food were used.

**Grouping of the animals:**

**Group A:** This group was served as control group for ethanol treated group and they were provided with 1 ml of distilled water (5 ml/kg body wt) orally by gastric tube.

**Group B:** This group was provided with I ml of distilled water (5ml/kg body wt) and I ml of absolute ethanol (5 ml/kg body wt) orally by gastric tube. The dose of ethanol was selected according to Mahmood.[10] This group was served as experimental group in this part of experiment.

**Group C:** This group was provided with 1 ml of distilled water (5ml/kg body wt) and aqueous extract of *T. foenum-graecum* seeds (500 mg/kg body wt) orally by gastric tube.

After 60 min all rats were sacrificed by an overdose of diethyl ether and were prepared for dissection.

The study was carried out to demonstrate the effect of vehicle (distilled water), ethanol and *Trigonella foenum-graecum* seeds extract in inducing gastric ulcer in experimental rats. The study was prospective experimental type and was conducted in the Department of Pharmacology, Dhaka Medical College, Dhaka, from July 2008 to June 2009. All the data were analyzed by SPSS version 16.1.

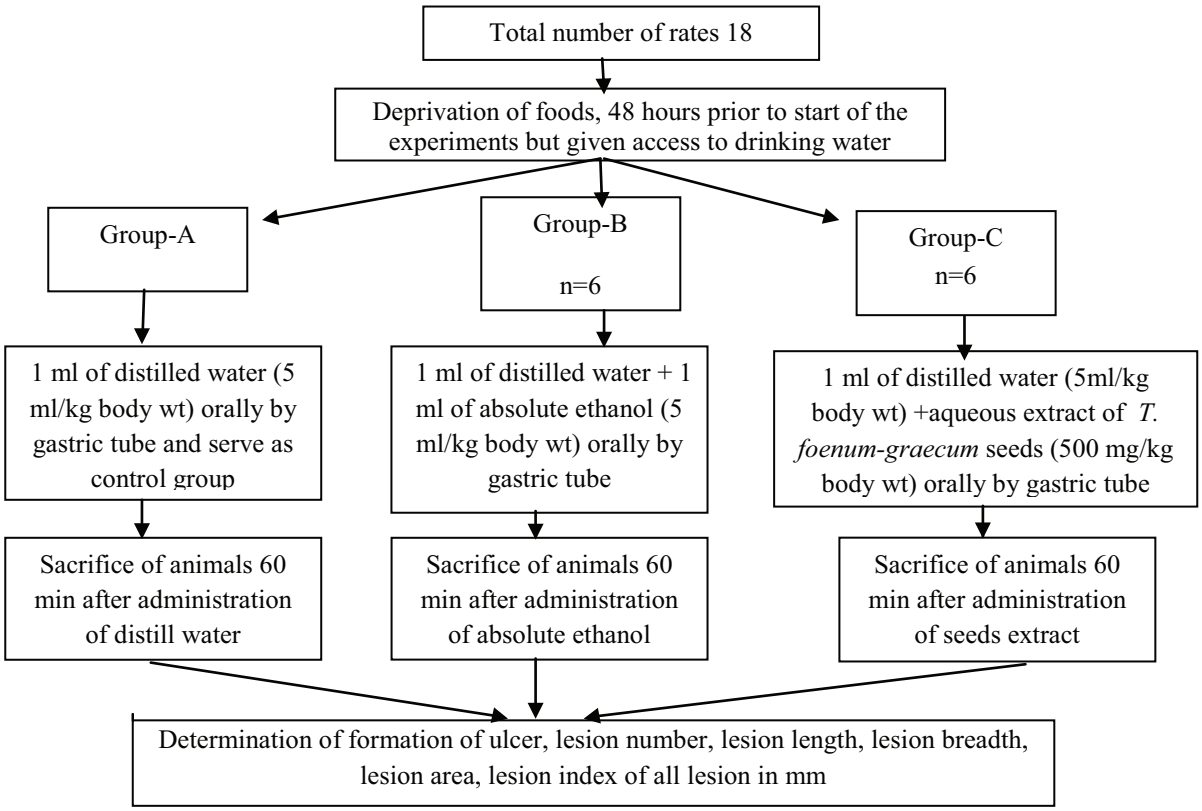


**Figure-1:** *Outline of the study*

**Ethical Clearance:**
This study was approved by the Ethical Review Committee of Dhaka Medical College, Dhaka.

**Results:**
The present study showed (table-I, fig.2) that the control group (group-A) and group-C (*Trigonella foenum-graecum*) had no lesion in the stomach. In Group B (ethanol) the total number of lesions was 29 and mean number of lesions (±SD) was 4.83±0.75. The gastrotoxicity was evidenced only in the group-B (This group was provided with 1 ml of distilled water (5ml/kg body wt) and 1 ml of absolute ethanol (5 ml/kg body wt) orally by gastric tube. The mean lesion length, breadth, lesion area and lesion index were 6.52±3.80, 1.63±1.35, 13.58±15.91 and 31.5±9.61 respectively in the group-B. There was no evidence this gastrotoxicity produced by the *Trigonella Foenum Graecum* seeds (Methi). Statistical differences was observed between group-A and group-B (table-I). There was also a significant (P<0.001) differences between group-B (ethanol) and group-C (*Trigonella foenum-graecum*).

**Table –I**

*Effect of ethanol and Trigonella Foenum Graecum seeds (Methi) on the stomach of the experimental rates.*

| Groups | Number of lesion (mean±SD) | Lesion length in mm (mean±SD) | Lesion breadth in mm (mean±SD) | Lesion area mm2 (mean±SD) | Lesion index (mean±SD) |
|---|---|---|---|---|---|
| Group A (n=6) | 0 | 0 | 0 | 0 | 0 |
| Group B (n=6) | 4.83±0.75** | 6.52±3.80** | 1.63±1.35** | 13.58±15.91** | 31.5±9.61** |
| Group C (n=6) | 0 | 0 | 0 | 0 | 0 |

** very significant (P<0.001)

Group A: This group was served as control group and they were provided with 1ml of distilled water (5 ml/kg body wt) orally by gastric tube.

Group B: This group was provided with 1 ml of distilled water (5ml/kg body wt) and 1 ml of absolute ethanol (5 ml/kg body wt) orally by gastric tube.

Group C: This group was provided with 1 ml of distilled water (5ml/kg body wt)and aqueous extract of *T. foenum-gracum* seeds (500 mg/kg body wt) orally by gastric tube.

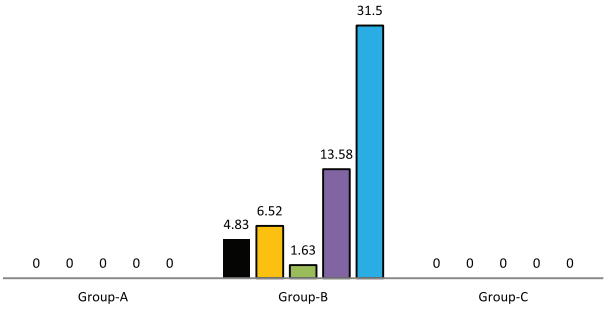


**Fig.-2:** *Effect of ethanol and Trigonella Foenum Graecum seeds (Methi) on the stomach of the experimental rates.*

**Fig.-3:** *Fenugreek Seeds (Methi)*

**Discussion:**

The present study was carried out to evaluate the gastroprotective effect of *Trigonella foenum graecum* seeds on gastric-ulcer in rats. For this purpose, effect of aqueous extract of *T. foenum-gracum* seeds were demonstrated in normal untreated gastric damage in rats. In addition histological studies of rat stomach following administration of aqueous extract of *T. foenum-gracum* seeds and ethanol were also done. The seeds have been used to treat a number of gastrointestinal disorder.[10] Although *T. foenum-gracum* seeds has not been well established in promoting protection toward gastric mucosa, many properties of *T. foenum-gracum* seeds as in antioxidant properties[11], anti-inflammation[12] and wound healing[13] can be applied in elucidating the mode of protection produced by *T. foenum-gracum* seeds.

In the present study, absolute ethanol was used as agent to induce stomach ulcer in rats. The dose and routes of administration was selected according to Mequanente et al[14] and Mahmood et al[10] study experiment. Ethanol-induced gastric ulcers are commonly used for evaluation of anti-ulcer activity. Absolute ethanol penetrates the gastric mucosa very quickly, which explains why 30 minutes was sufficient for developing gastric lesions in rats.

The experiment comprised of total 18 rats which were divided into 3 groups each having 6 rats. Groups were labeled as group-A, group-B, and group-C. This part of experiment was carried out to demonstrate the effect of distilled water, ethanol and *T. foenum-gracum* seeds extract in inducing gastric ulcer in experimental rats. In this study, gastric ulcer was induced in rats by administrating single dose of 1 ml of absolute ethanol (5 ml/kg body wt) orally by gastric tube. The gastrotoxicity was evaluated by measuring the number of lesions, lesions breath, lesions length and lesions area and lesion index of experimental rats. The control group (Group A) and group C had no lesion in the stomach. In group B the total number of lesions was 29. So in group B administration of ethanol produces a highly significant ($p<0.001$) change in gastric damage parameters. Present study findings demonstrated that ethanol produces severe gastric damage. There was no gastric mucosa damage in group-C (*Trigonella foenum-graecum*).

The current study was basically a pharmacological one and both the modern drug and herbal product was used to influence the biological system. It was evident that, biological systems have certain limitations; like individual variations, interference in the response with the system, which might have interfered with the primary findings. So the results obtained in this experiment, may differ somewhat from the exact effect. Despite all these limitations, interpretation of the results obtained in this study was made carefully and cautiously.

**Conclusion:**

The present study showed that the control group (group-A) and group-C (*Trigonella foenum-graecum*) had no lesion in the stomach. In Group B (ethanol) the total number of lesions was 29 and mean number of lesions (±SD) was 4.83±0.75. The gastrotoxicity was evidenced only in the group-B. The mean lesion length, breadth, lesion area and lesion index were 6.52±3.80, 1.63±1.35, 13.58±15.91 and 31.5±9.61 respectively in the group-B. There was no evidence of gastrotoxicity produced by the *Trigonella Foenum Graecum* seeds (Methi).

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# Importance of Meatoplasty in Final Outcome of Open Cavity Mastoidectomy

ALAM MS[1], AKTARUZZAMAN M[2], HABIB MA[3], SHAHAJAD SELIM[4]

*Abstract:*

***Introduction: CSOM accounts for 28000 deaths and a disease burden of over 2 million Disability Adjusted Life Years (DALYs). Over 90% of the burden is borne by countries in the South-east Asia and Western Pacific regions, Africa, and several ethnic minorities in the Pacific region. CSOM may be of safe and unsafe type. The aim of a meatoplasty is to enlarge the lumen of the entrance of the ear canal by removing the obstructing cartilage of cavum conchae as well as the underlying soft tissue' Larger the size of mastoid cavity, there should be a proportionately large and adequate meatoplasty.***

***Objective: To highlight the importance of the size of meatoplasty in relation to the size of operative mastoid cavity in open cavity mastoidectomy.***

***Methods: Prospective and retrospective observational study performed at the department of ENT and Head Neck surgery , National ENT Institute, Tejgaon, Dhaka and Bangladesh ENT Hospital, Dhaka over one and half year in 35 patients of unsafe variety of chronic supporative otitis media undergoing open cavity mastoidectomy with conchomeatoplasty.***

***Result: All 35 patients under went open cavity mastoidectomy with 9 patients small (<1.5CM), 15 patients average (1.5CM) and 11 patients large (>1.5CM) conchomeatoplasty. All 15 patients underwent an average meatoplasty and all 11 patients with large meatoplasty achieved dry ear by second or third follow up at 6 weeks to 12 weeks after surgery as against none of the 9 patients with small meatoplasty. All 35 patients had achieved a dry ear by 6 months of surgery.***

***Conclusion: Conchomeatoplasty is an integral part of open cavity mastoidectomy. It is an important determinant of the ventilation, drainage, healing and persistently dry mastoid cavity. The size of Conchomeatoplasty should be as large as possible for a given size of post operative mastoid cavity.***

***Keywords: Open cavity mastoidectomy, meatoplasty, conchomeatoplasty, chronic otitis media, CWD (canal wall down)***

***Journal of Green Life Med. Col. 2018; 3(1): 21-25***

**Introduction:**

The global burden of illness from chronic suppurative otitis media (CSOM) involves 65-330 million individuals with discharging ears[1].

CSOM accounts for 28000 deaths and a disease burden of over 2 million Disability Adjusted Life Years (DALYs). Over 90% of the burden is borne by countries in the South-east Asia and Western Pacific regions, Africa, and several ethnic minorities in the Pacific region [2,8]. In Bangladesh, the prevalence of CSOM is above 4%.

CSOM may be of safe and unsafe type. Unsafe CSOM requires mastoid surgey with or without tympanoplasty. Patients with extensive disease require canal wall down or open cavity or Modified Radical Mastoidectomy (MRM), which involves the creation of a mastoid cavity with exteriorization of the cavity into the external auditory canal. The scutum or lateral wall of the epitympanum is removed along with removal of the malleus and incus. The posterior bony canal wall is lowered to the level of the facial nerve. An adequate meatoplasty is a prerequisite with the canal wall down mastoidectomy to facilitate edges of desquamated epithelial debris and provide access to the mastoid bowl. It is an operative technique to widen the lateral cartilaginous part of the external auditory canal.

Cartilage displaced anteriorly from the cavum conchae of the pinna, as well as bulky underlying soft tissue can cause narrowing of the lateral part of the ear canal. The aim of a meatoplasty is to enlarge the lumen of the entrance

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of the ear canal by removing the obstructing cartilage of cavum conchae as well as the underlying soft tissue' Larger the size of mastoid cavity, there should be a proportionately large and adequate meatoplasty.

The V/S ('V'-volume of air circulating through the cavity, surface- area of the cavity) ratio provides the relation between the size of mastoid cavity and that of meatoplasty.[2] A conchomeatoplasty should be so performed as to achieve adequate size of meatus in accordance with the size of mastoid cavity to provide an adequate surface volume ratio for aeration, epithelial stability and good post operative visualization of the cavity.[3]

**Aims of the study**

The aim of the study was:

l) to evaluate the size of meatoplasty with their follow up results in patients of canal wall down mastoidectomy (CWD) and tympanoplasty.

2) to recommend the size of meatoplasty for adequate aeration and drainage of mastoid cavity.

**Methods:**

The study was conducted at the department of ENT and Head-neck Surgery, National ENT institute, Tejgaon, Dhaka and Bangladesh ENT Hospital, Dhaka for period of 1.5 years. The course of change in meatoplasty size and length of time taken to achieve dry cavity were the key assessment measures of the outcome.

Thirty five patients of unsafe CSOM' attending the Out Patient Department, meeting the eligibility criteria and subsequently, undergoing CWD mastoidectomy and tympanoplasty with meatoplasty, were included in the study. This study was a prospective and retrospective observational study. All the patients underwent detailed medical history and clinical examination.

Each patient also underwent otoscopic examination, examination under microscope (EUM), in selected cases, pure tone audiometry, speech audiometry, tympanometry and X-ray of both mastoids. HRCT of temporal bones was done in patients with complicated CSOM and in revision cases. Apart from ear, the nose and throat were also examined in detail by cold spatula, anterior and posterior rhinoscopy, tongue depressor and indirect laryngoscopy to rule out an concomitant abnormality and source of infection.

Systemic examination of the patient was also performed with regards to the central nervous system, cardiovascular system, chest and abdomen to rule out systemic illnesses. Informed consent of all the patients was obtained. Only the patients willing to attend follow up visits as advised were included in the study.

**Inclusion criteria:**

All cases of unsafe CSOM undergoing canal wall down mastoidectomy, tympanoplasty and meatoplasty were included in the study.

**Exclusion criteria:**

Patients having intracranial complications and children below 12 years were excluded from the study.

**Surgical Procedure:**

CWD mastoidectomy with tympanoplasty along with adequate meatoplasty was performed through post aural approach under general anaesthesia in all the cases following standard surgical procedures. All the cases were operated by a single surgeon.

Type III tympanoplasty with temporalis fascia along with or without augmentation was performed to achieve a closed middle ear space after canal wall down mastoidectomy.

Conchomeatoplasty includes two vertical incision one is along the incisura turminalis another is along intertragic notch, removal of adequate conchal cartilage and cartilage from floor of the ear canal. Meatal skin is sutured posteriorly with post auricular soft tissue and muscle by posterior fixation technique like a tent.[10]

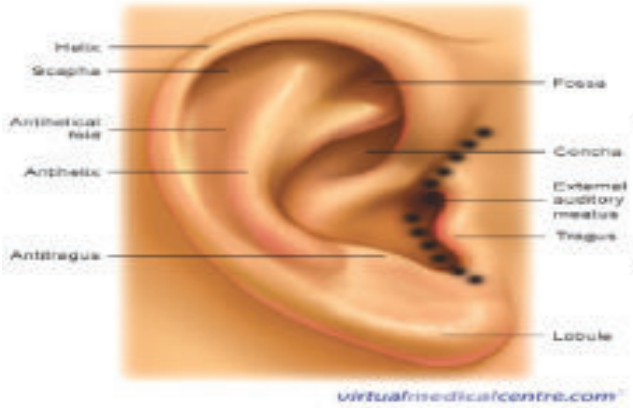


**Fig.-1:** *showing one vertical incision along incisura terminalis and another vertical incision along inter tragic notch.*

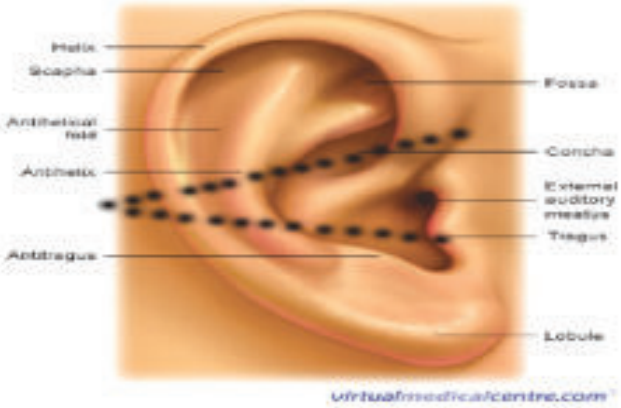


**Fig.-2** *showing final suturing of meatal flap with post auricular soft tissue like a tent.*

The size of meatoplasty was measured by a measuring gauze at the end of the surgery and afterwards, during the subsequent follow up visits.

The diameter of meatoplasty was measured from the medial end of the tragal cartilage horizontally backwards touching the margin of conchal bowl.

The volume of the mastoid cavity was measured by instilling saline into the mastoid bowl from an insulin syringe and measuring the volume of saline required to fill the bowl at the end of the drill work during surgery and at subsequent follow up visits.

**Post operative treatment and follow up:**
Each patient received intravenous systemic antibiotics during surgery and afterwards for up to 15 days and later a ten day course of oral antibiotics, one month of systemic antihistamines, analgesics, nasal decongestant. Patients were discharged on the 2nd post operative day. Pack was removed on 10th post operative day with removal of post auricular stitches. They were appointed for follow up at two weeks, one month, three months and six months after operation for dressing and reassessment.

At each follow up visit, detailed general and otologic examination was performed. Particular attention was focused on the period to achieve dry ear, infections, hearing ability, instances of residual cholesteatoma and mastoid cavity status etc. A colored photograph of the mastoid cavity and meatoplasty opening was taken with 4 mm otoendoscope and camera in each visit.

**Statistical analysis:**
One way ANOVA and students'paired,'t'test was used for analysis of the data.

**Results:**
Thirty-five patients, 25 males and 10 females in the age range of 12 to 50 years were included in the study (Table 1).

**Table-1**
*Composition of the study group (n=35)*

| Male | Female | Age range(years) |
|---|---|---|
| 25 | 10 | 12-50 |

**Table-II**
*Average duration of dry mastoid cavity with different size of conchomeatoplasty*

| Parameters | Size of Meatoplasty | | |
|---|---|---|---|
| No of Patients | Small(<1.5cm) | Average(1.5cm) | Large(>1.5cm) |
| (n=35) | 9 | 15 | 11 |
| Mean Time for attaining Dry Ear (weeks) | 8 | 6 | 5 |

All 35 patients underwent canal wall down mastoidectomy with 9 patients small < 1.5 CM, 15 patients average (1.5Cm), 11 patients large >1.5 CM achieved dry ear by 5 weeks after surgery. All 15 patients underwent average meatoplasty (1.5 CM) achieved dry ear by 6 weeks and all 9 patients with small meatoplasty <1.5 CM achieved dry ear by 8 weeks.

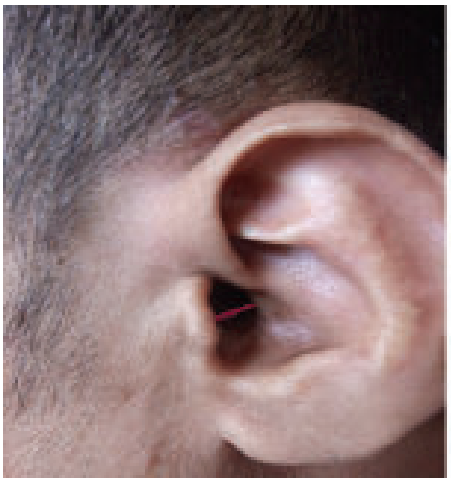

**Fig.-1:** *showing endoscopic view of meatoplasty 6weeks following operation.*

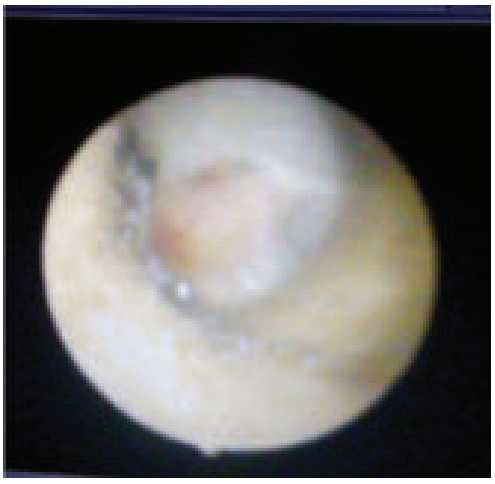

**Fig.-2:** *showing endoscopic view of post mastoidectomy cavity 6 weeks following operation.*

**Discussion:**

CWD mastoidectomy with tympanoplasty is our choice of surgery in extensive unsafe variety of CSOM. The first three priorities in the surgery of unsafe type of CSOM are:

1. the elimination of progressive disease to produce a safe and dry ear
2. modification of the anatomy of the tympano-mastoid compartment to prevent recurrent disease
3. reconstruction of hearing mechanism

An adequate and proportionate conchomeato-plasty size in relation to the mastoid cavity size is essential to achieve a dry mastoid cavity. After meticulous canal wall down mastoidectomy, it is essential to fashion a sufficiently large conchomeatoplasty.[3] On the other hand an extremely wide entrance of the outer ear canal is cosmetically unpleasant and air currents in the cavity can cause vertigo.[7]

Before meatoplasty was developed by Stacke (1893) and Schwartze (1893), a postaural fistula was often created intentionally after mastoidectomy to facilitate management of the unsafe and diseased ear. This procedure is no more in pactice, now a days.

Portmann M & Pofrmann D opinioned that, with time depths of the cavity become lined by squms epitlrelium, which must be adequately aerated if it is to remain biologically stable, otherwise there is risk of recerrent cholesteatoma.This is the law of V/S ratio,where'V' represents the volume of circulating air arising from outside,and 'S' represents the surface area of the cavity which is essential to be aerated. If 'S' is very large, then 'V' must also be large[3].

Parisier SC, Levenson MJ & Hanson MB observed, that an adequately large meatus measures about 1.5 cm in diameter and should easily accommodate the surgeon's index finger' We have obtained the good result with size of the Conchomeatoplasty of 1.5 cm or more.[4]

Wormald PJ & van Hasselt CA performed temporal bone dissections to design a surgical technique to minimize the known causes of discharging cavity. They assessed the mean size of the cavity resulting from the new surgical technique to be 2.6 ml. and the mean largest diameter of the meatus 10.1 mm. In our study, the mean size of the cavity after surgery was 4.37 ml. and mean largest diameter of the meatus at surgery was 15.90 mm.[5]

Yetiser S, Kertmen M, Ozkaptan Y et al noted that the diameter of meatoplasty ranged from 1.7 to 2.6 cm in the early post operative period. They observed a decrease of 4 to 6 mm in the diameter within one year. In the present study, the diameter of meatoplasty ranged from 1.3 to 1.8 cm. We observed a decrease of 2 to 5 mm in the diameter within 3 months of the surgery.[6]

Awad Z, Ranganathan B & Patel N used digital photography to assess and record the meatoplasty opening. Digital photography was used to measure the surface area of widened meatus and comparison made with the preoperative and the contralateral meati. A measurable increase in meatal size was observed with repeatable results.[9]

We used otoendoscopy to record our observations regardingthe size of conchomeatoplasty and the status of the operative mastoid cavity immediately after surgery and at each follow-up visit. The mean contraction in the size of meatoplasty was 3.1 mm (19.32%) and the mean reduction in the volume of mastoid cavity was 0.81 rnl (18.64%). The mean time period for attainment of dry cavity was 5.73 weeks.

The study emphasizes the importance of an adequately performed conchomeatoplasty as the key factor in achieving a fast dry ear after a properly performed CWD mastoidectomy operation. The recommended size of concho-meatoplasty should be more than 1.5 cm on an average to achieve acceptable results.

**Conclusion:**

The retrospective and prospective observational study was conducted over one and half year at the Dept of Otolaryngology & Head and Neck Surgery, National ENT Institute, Tejgaon,Dhaka and Bangladesh ENT Hospital, Dkaka. Thirtyfive patients of unsafe CSOM, in the age range of 12 to 50 years were included in the study. Informed consent of all the patients was obtained.

All patients underwent CWD Mastoidectomy with tympanoplasty and conchomeatoplasty by Posterior fixation technique for extensive unsafe CSOM.

The parameters studied were:

1. size of conchomeatoplasty
2. volume of mastoid cavity
3. onset of dry cavity after surgery

The mean size of conchomeatoplasty in our study group was 15.96 mm. The mean decrease in the diameter of the conchomeatoplasty at the 3 month post operative follow up was 3.1 mm (19.32%). Mean volume of the mastoid cavity at the end of the surgery was 4.37 ml. The mean reduction in the volume at the end of 3 months after surgery was 0.81 ml (18.64%). The mean time period for attainment of dry cavity after surgery was 5.7 weeks. The mean time

period for attainment of dry cavity after suigery for small conchomeatoplasty group was 8 weeks, for arrerage conchomeatoplasty group 6 weeks and for large conchomeatoplasty was 5 weeks post surgery. An enlarged external auditory meatus and a dry mastoid cavity were clearly appreciated.

Conchomeatoplasty is an essential part of the anal wall down mastoidectomy. It provides a channel for the epithelialization of the raw post operative mastoid cavity, drainage of the secretions, aeration of the entire cavity and post operative care. Evidently it should be large meatus. The healing of the cavity in terms of reduction in the volume had no correlation with the anatomical outcome profile.

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*ORIGINAL ARTICLE*

# Disease Modifying Anti Rheumatic Drug in Rheumatoid Arthritis – An Interim experience in a Tertiary Care Hospital

AHMED AKMS[1], AFROZ F[2], ABRAR FA[3], UDDIN KN[4], HUQUE HF[5], AFROZE SR[6], RAHIM MA[7]

***Abstract***

***Background: Approaches to the management of rheumatoid arthritis (RA) have evolved as an increasing number of effective disease-modifying antirheumatic drugs (DMARDs) have become available. The early introduction of DMARDs has become standard of care and to see the effectiveness of this principle modality of treatment we have to see the disease activity regularly to guide our management.***

***Aims: The aim of this study was to see the demographic profile, clinical variables and disease activity associated with disease modifying antirheumatic drug (DMARD) therapy in patients with rheumatoid arthritis (RA).***

***Methods: This cross-sectional study was done at rheumatology clinic of Bangladesh Institute of Research & Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM) from January 2017 to July 2017. Patients of both genders aged 18 years or above were included in the study. American College of Rheumatology (ACR) and European League Against Rheumatism (EULAR) criteria supplemented by investigations was used to reach the diagnosis and started DMARD along with NSAIDs and steroid as needed basis. All the patients were on regular followup. Disease activity scores were done using DAS28-ESR method. Results were described in numbers and percentages.***

***Result: Our total number of cases were 82, out of which 72 were female (87.8%) of whom 48.8% were in their 4$^{th}$ and 5$^{th}$ decade. Most of the patients (51.2 %) had a long history of RA with DM (62.2 %). Disease Activity showed the number of patient in remission state were 9 (11%), in low disease activity were 13 (15.9 %), in moderate activity were 20 (24.4 %) and in severe activitity were 40 (48.8 %). Thirty two patients were getting single drug therapy whereas 50 patients were on two or more drugs. Side effects of DMARDs were negligible irrespective of number of DMARDs used; only 2% patients had hepatitis and 3% had gastrointestinal upsets.***

***Conclusion: For better management of RA, it is crucial to gain a detailed understanding of the RA patient's journey and obviously meticulous integrated follow up system comprising both patients and doctors are needed for control of the disease activity.***

***Keywords: rheumatoid arthritis, disease modifying antirheumatic drugs.***

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**Introduction:**

Early diagnosis and treatment have become primary objectives for rheumatologists and clinicians who manage patients with rheumatoid arthritis (RA). Rheumatoid inflammation begins early and is progressive in nature, ultimately resulting in substantial risk of progressive joint damage, disability, and an increased morbidity rate.[1] Arthritis and other rheumatic conditions constitute the leading cause of disability among adult population.[2] Noninflammatory arthritic conditions (e.g. osteoarthritis) are most common, but inflammatory arthritis such as spondylo-arthropathies (e.g. ankylosing spondylitis, psoriatic arthritis), reactive arthritis and rheumatoid arthritis (RA) can be equally or more disabling and it's really a challenge for any rheumatologist or rheumatology clinic. Determining the factors that might lead to late diagnosis and treatment of RA patients could ultimately contribute

to improved outcomes nationally and internationally.[3,4] Approaches to the management of rheumatoid arthritis (RA) have evolved as an increasing number of effective disease-modifying anti rheumatic drugs (DMARDs) became available. The early introduction of DMARDs has become standard of care, and depends upon early diagnosis.[5]

Regardless of whether patients are evaluated in the context of a clinical trial or longitudinal clinical practice, the successful application of DMARD therapy requires that the goals of therapy be specified in advance and that the specific choice of DMARDs be revisited on a regular basis.[6,7]

Therapeutic goals are the achievement of remission (ie, the virtual absence of disease activity) or a state of low disease activity as the second-best option. These goals are consistent with the recommendations of an international task force.[7] However, in the majority of patients with longstanding disease, remission may not be an achievable goal, and therefore low disease activity is an acceptable alternative.

While some progression of damage and residual impairment of physical function may occur in association with low disease activity,[8,9] a state of moderate disease activity, as defined by composite measures, is generally not acceptable, as it leads to much worse outcomes by comparison with low disease activity.

Monitoring disease activity at regular, short-term intervals (not to exceed three months when disease is active) and appropriate modifications of disease-modifying antirheumatic drug (DMARD) therapy to establish and maintain control of disease result in improved radiographic and functional outcomes in patients with RA0.[10-12]

To see the demography of patients of rheumatoid arthritis and the efficacy of its treatment specially with Disease Modifying Anti-rheumatic Drugs (DMARDs) of a rheumatology clinic, we have undertaken this interim analysis of an ongoing cross-sectional study so that we could improve the activity of a rheumatology clinic.

**Methods:**

This cross-sectional study was done at rheumatology clinic of BIRDEM from January 2017 to July 2017. Total number of patients was 82 and patients of both genders aged 18 years or above were included in the study. Patients of known RA (fulfilling the ACR/EULAR criteria) of at least 6 months duration and who already on one or more DMARDs were taken as the study group.

Exclusion criteria were pregnancy, bed ridden patients and the presence of significant co-morbidities, such as malignancies or end stage organ failure. Patients on regular NSAIDS or steroids were also excluded from the study.

A checklist containing questions on demographic data of all subjects along with their treatment details were completed and collected upon enrollment by data collector at the day of their visit to the rheumatology clinic. All patients had their relevant laboratory investigations as per follow up schedule and underwent a medical examination by physicians in the rheumatology clinic who also determined the disease duration and assessed the disease activity score in 28-joints (DAS-28-ESR) and any side effects warranting any temporary or permanent discontinuations of DMARDs. All the patients are getting one or more DMARDs with non-steroidal anti rheumatic drugs(NSAIDs) or steroids as demand basis for the disease flairs. Patients were classified as in remission (<2.6), low (~*2.6 to <3.2), moderate (~*3.2 to }*5.1), and severe (>5.1) disease activity. Extra-articular (EA) manifestations were identified clinically and confirmed using investigations when indicated.

Statistical analysis of data was done by using the Statistical Package of Social Science (SPSS) version 20. Supplemented investigations were used to reach the diagnosis where applicable. DAS 28-ESR score was used to see the disease activity. Patients were grouped considering their sex, age, duration of disease, disease activity, comorbidities, drug therapy and response to drug therapy.

**Results:**

The total number of cases were 82, out of which 72 were female (87.8%) of whom 58.8% were in their 4$^{th}$ and 5$^{th}$ decade. Most of the patients (51.2 %) had a history of RA longer than 2 years. Fifty one patients presented with DM (62.2 %). Eighteen of them had different comorbidities (22 %) like hypertension, asthma, chronic kidney disease etc. Remaining 13 had no comorbidity (15.9%). The frequency of patients suffering from RA for 6-12 months was 25 (30.5%), for 12-24 months was 15 (18.3 %), more than 24 months was 42 in number (51.2 %). Thirty-two patients (39%) had one DMARD whereas 38 (46.34%) and 12 (14.63%) patients were getting two and three drugs respectively. Mostly prescribed single DMARD was methotrexate (n=23) and least was leflunomide (n=2). Methotrexate was also the drug used in most combinations (28 vs 21). The distribution of patients according to sex, age group and disease duration and their response to treatment are shown in Table-I.

**Table I**

*Disease activity according to sex, age group, disease duration*

| Demographic Variables | | Disease Activity (DAS 28-ESR) | | | |
|---|---|---|---|---|---|
| | | Remission | Low | Moderate | Severe |
| Sex | Male(n=10) | 3 (30%) | 3 (30 %) | 2 (20 %) | 2 (20%) |
| | Female (n=72) | 6 (8.33 %) | 10 (13.88 %) | 18 (25 %) | 38 (52.77 %) |
| Age group | 18-30 years (n=2) | 0 (0 %) | 0 (0%) | 1(50%) | 1 (50%) |
| | 31-45 years (n= 25) | 5 (20 %) | 5 (20%) | 8 (32 %) | 7 (28%) |
| | 46-60 years (n= 40) | 4 (10 %) | 6 (15 %) | 8 (20%) | 22 (55 %) |
| | 61-75 years ( n= 14) | (0%) | 2 (14.28 %) | 3 (21.42%) | 9 (64.28%) |
| | 76-90 years ( n=1 | 0 (0%) | 0 (0%) | 0 (0%) | 1 (100%) |
| Disease duration | 6-12 months ( n=25) | 1 (4%) | 1 (4 %) | 6(24 %) | 17 (68%) |
| | 12-24 months ( n=15) | 3 (20%) | 2 (13.33%) | 3 (20%) | 7 (46.66%) |
| | >24 months (n=42 | 5 (11.90 %) | 10 (23.8%) | 11 (26.19%) | 16 (38.09%) |

The table showed that of the 10 male patients (12.2%) presenting in rheumatology clinic, the numbers of severe disease were much lower than the female patients who were 72 in number (87.8%). According to age group, greater the age more severe were the disease. Middle age group (31-45 and 46-60 years group) had more remission than any other group. Interestingly, more the duration of the disease less were the disease severity.

Table II showed the disease activity according to number of drugs. It showed that severity of disease activity decreases when more drugs were used in combinations, but total remission rate was disappointing (only 10.97%). Overall severe disease were 48.78%.

Table III showed the disease activity according to DMARDs used. It showed that severe disease were more in any monotherapy compare to combinations containing methotrexate or not.

**Table II**

*Disease Activity according to Number of DMARDs*

| Number of drugs | Disease Activity | | | |
|---|---|---|---|---|
| | Remission (%) | Low (%) | Moderate (%) | Severe (%) |
| Single Drug (n=32) | 2 (6.25%) | 4 (12.5 %) | 6 (18.75 %) | 20 (62.5%) |
| Two Drug (n= 38) | 7 (18.42%) | 6(15.78%) | 9(23.68%) | 16 (42.10%) |
| Three or More Drug(n=12) | 0 (0%) | 3 (25%) | 5 (41.66%) | 4 (33.33%) |
| Total = 82 | 9 (10.97%) | 13 (15.85%) | 20 (24.39%) | 40(48.78%) |

**Table III**

*Disease activity according to DMARDs*

| DMARDs | Disease Activity | | | |
|---|---|---|---|---|
| | Remission (%) | Low (%) | Moderate (%) | Severe (%) |
| Methotrexate (n=23) | 0(0%) | 3 (13.04%) | 5 (21.74%) | 15 (65.21%) |
| Leflunomide (n=2) | 1 (50%) | 0 | 0 | 1(50%) |
| Sulfasalazine (n=2) | 1 (50%) | 0 | 0 | 1(50%) |
| Hydroxychloroquine (n=5) | 0 | 1(20%) | 1(20%) | 3 (60%) |
| Combination not having Methotrexate (n=21) | 4 (19.04%) | 5(23.80%) | 5(23.80%) | 7(33.33%) |
| Methotrexate with other combination (n=29) | 3(10.3%) | 4(13.79%) | 9(31.03%) | 13(44.82%) |

Though most of the patients had RA with other comorbid conditions like DM, HTN, Asthma and CKD and taking single or multidrug DMARDs, major side effects were rare in the present study. Only 2% patients suffered from hepatitis and 3% from gastrointestinal upset.

**Discussion:**

In this study females were the majority and most patients belong to 45-75 age group. These were consistent with the epidemiology of RA. Regarding the disease activity females had more severe disease than male. It may be due to the less number of male patients seen in our study period (female to male ratio was 7:2), it may also be due to high Global Health (GH) parameter score in woman than male. A study concludes that female scores worse for DAS28 and HAQ, possibly due to higher pain perception and less muscular strength and perhaps because men overestimate their functional capacity.[13] There is another study showing Non-nociceptive pain in rheumatoid arthritis is frequent and affects disease activity estimation.[14]

Overall disease remission and low disease activity rate were 10.9 and 15.85% respectively in our study which were slightly better than a study, where only 10% of patients had low disease activity and only 4% were in a remission state.[15] This study concludes that it was most likely due to underutilization of DMARDs and not using biologics which may be the case in our study also. So, an intensive tight control strategy will improve the outcome of the patients as evidenced by a randomized control study.[16] That study showed a 65% remission rate against 16% of routine care. But the overall poor disease activity outcome (with high percentage of patents belonging to moderate to severe activity score) may be due to the fact that most of our patients were in 4th, 5th and 6th decades of life. This was consistent with many studies showing that late onset of RA presentation and older people age group had worse disease activity score than the younger counter part.[17-21] This later presentation may also indicate delay in diagnosis as the patients present late in rheumatology clinic and already received initial empirical treatment with NSAIDs and steroids which results in delay in starting the DMARDs. This is supported by the findings by Ahmed et al where commonly prescribed medications were non-steroidal anti-inflammatory drugs (93%), disease modifying anti-rheumatic drugs (28.9%) and prednisolone (10.6%).[22]

Our study showed that percentage of severe disease activity decreases as the duration of disease increases. It may due to the many factors such as not starting the intensive regimen using multi drug combinations at the start rather than optimization of DMARDs by step by step method. But interestingly a systemic literature review showed that using tight control principles, clinical outcomes were no better with immediate triple therapy than with 'step-up' therapy.[23]

The mostly used drugs in our study was methotrexate either alone or in combinations, which reflects the increasing trends of its use. Single drug therapy was associated with severe disease activity comparing to combinations therapy. In our study 32 (39%) patients were on monotherapy with either methotrexate, leflunomide, sulfasalazine or hydroxychloroquine and only 6.25 % of them achieved remission, whereas 50 (61%) of our patients were on different combinations and remission rates were also poor (14%) though better than monotherapy group. It may be due to the facts that combinations were used as step-up therapy and optimization of individual drugs also occur as the patients comes for follow up. The reason for this also may be due to non-adherence of therapy and lack of follow-up by the patients upon improvement of their symptoms.

Though methotrexate was the mostly used drugs in our study, it is found that it is apparently not superior either singly or in combination with other drugs. As a matter of facts, no single DMARD drug or combinations were found to be universally superior than other in many studies.[24-29]

In our study, though diabetic patients comprised of 62% of the study population and 22% of them had other co-morbidities like hypertension, asthma, chronic kidney disease etc. they did not show any significant adverse drug reaction relating to their co-morbidities. Only a few patients suffered from hepatitis (2%) and gastrointestinal upset (3%). It may be due to facts that patients with major side effects (anemia or pancytopenia which are the side effects of methotrexate) usually do not present in outpatient follow-up. Patients with major side effects usually got admitted in hospital for their management.

Overall this study showed that most of the patients had high diseases activity score on DAS28-ESR criteria, which may be due to many factors that we have discussed above. So, to improve the disease activity outcome and the quality of life of these RA patients, further meticulous follow-up by available means (like telephone or message) may ensure their presence in the rheumatology clinic for proper assessment of disease activity and ultimately result in better disease outcome in the future.

We had limitations in this study. The present study was cross sectional, single center with small sample. We did

not take into accounts the dose and durations of individual drugs. Most of the patients had comorbidities which did not represent the general populations of Bangladesh. So, the study outcome does not represent the overall disease activity in Bangladeshi RA patients. We need multi center, large population based interventional study to find out the actual outcome of our RA populations.

## Conclusions

There has been a shift in the therapeutic paradigm of RA; it is now generally thought that disease-modifying antirheumatic drug (DMARD) therapy should be started as early as possible, preferably within three months of RA onset. Nevertheless, early treatment is unrealistic for most RA patients in the absence of adequate patient educations, and referral systems as studies analyzing the time from symptom onset to delivery of DMARDs have reported significant delays. A good follow-up system is also mandatory for proper treatment and ultimate disease activity outcome in RA populations.

**Conflict of Interest:** None

**Authors Contribution:**

AKMSA and FA planned the study, did data analysis, literature search and drafted the manuscripts, KNU supervised the study, revised the manuscripts, FAA did data collections, data analysis and revised the manuscripts. HFA, SRA and MAR reviewed the manuscript, edited and had intellectual contribution to the manuscript.

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*ORIGINAL ARTICLE*

# Simple Obesity: Characteristics and Pattern of Presentation in a Tertiary Care Hospital

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*Abstract*

***Introduction:*** *Obesity has become a pandemic health problem. Even developing country like Bangladesh also has to face the obesity related metabolic and other complications. Positive energy balance along with genetic predisposition play role in obesity worldwide. Obesity has major adverse effects on health. It has a strong association with diabetes mellitus (DM), hypertension, coronary artery disease (CAD), stroke, and even increased mortality in all causes. The primary objective of this prospective observational study was to find out the characteristics of simple obesity in adult patients hospitalized in a tertiary care level and secondary objective was to find out the cause of their hospitalization so that we can focus our specific goal of management to reduce the obesity related morbidity of our patients.*

***Methods:*** *This prospective observational study was carried out in a tertiary level hospital on a total of 50 patients with simple obesity. Obesity is defined as body mass index (BMI) ≥ 30 kg/m$^2$, and simple obesity defined after exclusion of pathological causes of obesity, eg, hypothyroidism, Cushing's syndrome, etc. The anthropometric measurement, glycemic status, and obesity related complications of the subjects were recorded. All the relevant collected data were compiled on a master data sheet, and all findings were expressed as frequency with percentage and analysis were done using SPSS for windows version 22.0.*

***Results:*** *Of 46% patients were between 51 to 60 years of age. Females were 82% and 18% were males. Mean body mass index (BMI) was 36.06 (±5.43) kg/m$^2$. The mean waist circumference was 114.36 (±10.56) cm and waist-hip ratio (WHR) was 1.04 (± 0.31). The positive family history in the study subjects were obesity (52%), DM (50%), and hypertension (42%). Major co-morbidities were DM (66%), hypertension (52%), osteoarthritis (OA) of knee joints (22%), hyperlipidemia (20%), and chronic stable angina (14%). Positive family history were obesity (52%), DM (50%), and hypertension (42%). Main reasons of hospitalization were uncontrolled DM (34%), OA of knee joints (28%), low back pain (LBP) (14%), urinary incontinence (8%), and generalized weakness (8%).*

***Conclusions:*** *Simple obesity is much more common in female. But waist circumference and waist-hip ratio (WHR) is more in male than in female. Both genetic predisposition and sedentary life style contribute in causing obesity in our subjects. Obesity is shown to be associated with DM, hypertension, and OA of knee joints. Common causes of hospitalization were uncontrolled DM, OA of knee joints, mechanical low back pain (LBP), urinary incontinence, and generalized weakness.*

***Key words:*** *Simple obesity, Obesity presentation, Tertiary care hospital*

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**Introduction:**

Overweight and obesity are defined as abnormal or excessive accumulation of fat. Lean but very muscular individuals may be overweight by numerical standards without having increased adiposity. Obesity is therefore more effectively defined by assessing its linkage to morbidity or mortality that presents a risk to health. A crude population measure of obesity is the body mass index (BMI), a person's weight (in kilograms) divided by the square of his or her height (in meters). A person with a BMI of 30 or more is generally considered obese. A person with a BMI equal to or more than 25 is considered overweight.[1,2]

Although the molecular pathways regulating energy balance are beginning to be illuminated, the causes of obesity remain elusive. In part, this reflects the fact that obesity is a heterogeneous group of disorders. It is commonly seen in families, and the heritability of body weight is similar to that for height. Inheritance is usually not Mendelian, however, and it is difficult to distinguish the role of genes and environmental factors. Regarding simple obesity, it can result from increased energy intake, decreased energy expenditure, or a combination of the two.[2]

Once considered a problem only in high income countries, overweight and obesity are now dramatically on the rise in low- and middle-income countries, particularly in urban settings.[1] Over the last 33 years, rates of either being overweight or obese doubled among Bangladeshi adults but remained low among children, according to a new, first-of-its-kind analysis of trend data from 188 countries. In 1980, 7% of adults and 3% of children were overweight or obese. In 2013, those rates had climbed to 17% for adults but only 4.5% for children. Of the 17% of overweight or obese adults in Bangladesh, just 4% were obese, and obesity rates in Bangladesh are increasing at a slower pace. From 1980 to 2013 obesity rates in adults grew from 2% to 4%, and rates in children and adolescents remained at about 1.5%.[3]

Obesity has major adverse effects on health. Obesity is associated with an increase in mortality, with a 50–100% increased risk of death from all causes compared to normal-weight individuals, mostly due to cardiovascular causes. Some important complications are coronary artery disease (CAD), stroke, obstructive sleep apnea, urinary incontinence, varicose veins, osteoarthritis, low self-esteem, and even depression.[4]

In this prospective observational study, our target was to see the pattern of obesity (anthropometry, waist-hip ratio, and glycemic status) and the purpose of their hospitalization.

**Methods:**

This prospective observational study was carried out on 50 consecutive obese subjects aged more than 18 years admitted in different units of BIRDEM General Hospital. The primary objective of this study was to find out the characteristics of simple obesity, and secondary objective was to find out the reason of their hospitalization.

At first, we enrolled all obese patients who are more than 18 years of age. After classified them as obese by measuring BMI, every patient was excluded to have pathological cause of obesity (eg, hypothyroidism, Cushings' syndrome, etc) by scrutinizing his/her previous hospital records and doing relevant investigations. After separating the subjects with simple obesity, we took detailed history, along with the help of their previous medical records, about their positive family history of obesity and relevant medical illness, and cause of hospitalization. Clinical examination, and relevant biochemical tests were done and data collected in a pre-designed structured data collection sheets. Demographic information was prospectively recorded and substantiated by means of inspection of medical record. Information included was the subject's age, gender, medical and clinical history followed by conduction of the study. All the relevant collected data were compiled on a master chart first. Then organized by using scientific calculated and standard statistical formulas, percentage was calculated to find out the proportion of the findings, and variable were presented in mean ± standard deviation (SD). Data entry and analysis were done using SPSS for windows version 22.0. Output of data and graphical representation was done using Microsoft Office chart and Microsoft Word. P-value was considered as significant when it was <0.05. The results were presented in tables, figures, diagrams etc.

**Results:**

All subjects under experiment (n=50) were divided into age, sex, positive family history of relevant illness, associated risk factors, and presenting clinical features.

**Table I**

*Distribution of the study patients by age (n=50)*

| Age (in year) | Number of patients | Percentage |
|---|---|---|
| ≥50 | 10 | 20.0 |
| 51-60 | 23 | 46.0 |
| 61-70 | 11 | 22.0 |
| >70 | 6 | 12.0 |
| Mean ±SD | 58.5 | ±8.4 |
| Range (min-max) | 45 | -75 |

**Table II**

*Distribution of the study patients according to sex (n=50)*

| Sex | Number of patients | Percentage |
|---|---|---|
| Male | 9 | 18.0 |
| Female | 41 | 82.0 |

It was shown in our study that majority of the patients were between 51 to 60 years of age (Table I) and among the study subjects, 82% were female and the rest 18% were male (Table II).

Mean BMI was 36.06 (±5.43) kg/m$^2$. Among female the mean BMI was 35.20 (±4.90) kg/m$^2$, and in male it was 39.96 (±6.29) kg/m$^2$.

Major co-morbidities (Figure 1) that the study subjects had were DM (66%), hypertension (52%), OA of knee joints (22%), hyperlipidemia (20%), and chronic stable angina (14%). Most of the subjects had relevant positive family history, such as obesity (52%), DM (50%), and hypertension (42%). Family history of ischemic heart disease (IHD) was only 6%. Duration of daily exercise was quite frustrating. Only 2 females and 2 males do regular exercise (daily walking for at least 30 min).

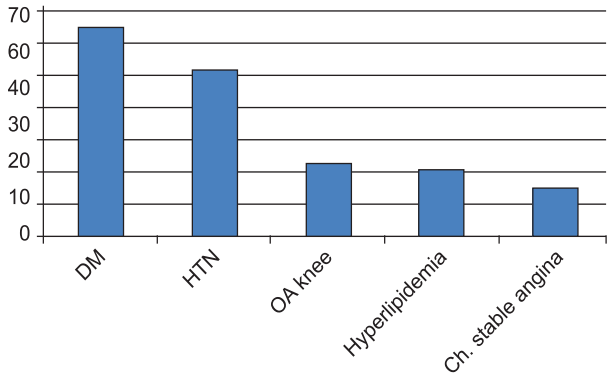


**Figure 1:** *Major co-morbidities of the study population (n=50) (DM = Diabetes Mellitus, HTN = Hypertension, OA = Osteoarthritis, Ch = Chronic)*

The waist circumference of female and male were 113.39 (±10.43) cm and 118.77 (±10.63) cm respectively. The hip circumference of female and male were 109.31 (±10.59) cm and 112.33 (±10.48) cm respectively. Mean circumference of waist was 114.36 (±10.56) cm, and of hip was 109.86 (±10.53) cm (Figure 2).

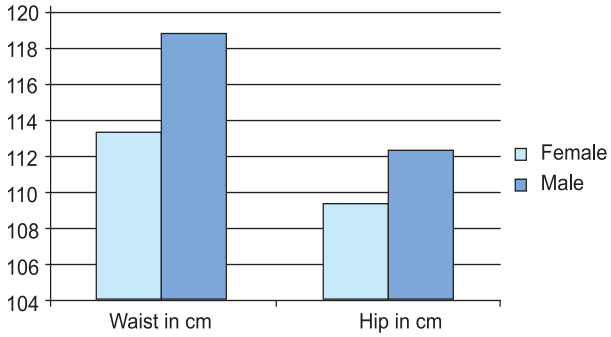


**Figure 2:** Comparison of waist and hip circumference between male (n = 9) and female (n = 41)

Glycemic status of our subjects was poorly controlled. Mean $HbA_1c$ was 9.81% (±2.20). Among females it was 9.7% (±2.23), and in male it was 10.31% (±2.09).

The common causes of hospitalization were uncontrolled DM (34%), mechanical pain in knee joints (28%), LBP (14%), urinary incontinence (8%), and generalized weakness (8%). Less common pattern of presentations were chronic vertigo (8%), easy fatigability (6%), constipation (4%), swelling of both legs (4%), and burning sensation of palms and soles (4%). However much overlaps between presentations were observed.

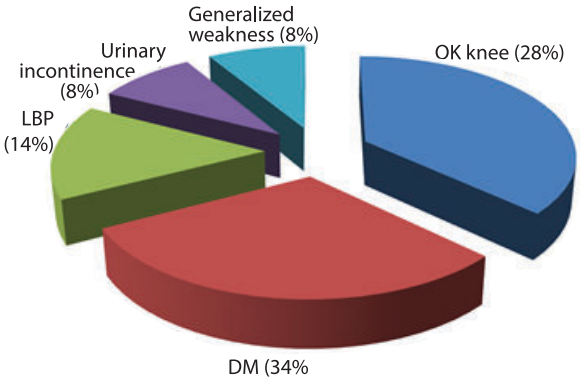


**Figure 3:** *Common causes of hospitalization (DM = Diabetes Mellitus, OA = Osteoarthritis, LBP = Low Back Pain)*

*p* - value was achieved by ANOVA test and was considered as significant when it was less than 0.05. No significant difference was observed between BMI and duration of DM (*p* - value 0.206), BMI and hypertension (*p* - value 0.156).

**Discussion:**

Our institute-based prospective observational study provides us three main findings. First, number of obese subjects is much more in female than in male (82% vs 18%). Second, most of the obese subjects have positive family history of obesity (52%). Third, Obesity has no directly related to the duration of DM and hypertension.

Globally obesity is also more prevalent in women observed for decades, esp in developing countries.[5-8] Nutritional status along with regular physical activity is responsible in many cases. In a number of countries in South Asia, the Middle East, North Africa, Sub-Saharan Africa, and Latin America, men perform a much higher daily amount of physical activity than women.[5,9] From recent decade, in many developing countries, there has been a transition away from agricultural labor to wage labor that has

decreased the physical activity of women more than men.[5] All these factors may play a role in higher rate of obesity in female. And it is now obvious from many epidemiological studies that obesity is not only an epidemic in developed country, it is now also a common problem in developing countries.[5,6,10-12] Even in last 33 years, rates of either being overweight or obese doubled among Bangladeshi adults.[3] Thus, our study results; though a tertiary health center based does go with the global trend of obesity.

In our study it is also indicative that positive family history of obesity may be a strong contributor in causing a subject obese: 52% obese subjects have obesity in their family. Though pattern of physical activity and energy expenditure has an important role in causing obesity,[2] genetic factors are also a strong predictor for running obesity in a family. Many molecular and genetic studies in recent years have proven this unavoidable factor of simple obesity.[13-15] Though there is still uncertainty about which factors, (between life style and genetic factor) have predominant role in obesity, our study shows a strong association between obesity and role of genetic factor.

We have some findings of WHR which is possibly associated with their diabetes. The waist circumference and the WHR are now considered as a major predictor of diabetes mellitus (DM) and metabolic syndrome. In Asian population, the ideal cut off value of waist circumference is 85 cm and 80 cm for male and female respectively. And the corresponding WHRs were 0.88 and 0.81, respectively.[16,17] The risk of metabolic syndrome increases as the waist circumference and WHR increase.[16,18] Most of our subjects have DM and hypertension. So it is easy to assume that the increased waist circumference and WHR may have some role in causing these associated diseases. Moreover, glycemic status also worsen for each step increase in BMI.[18-21] Our study has also same findings: The mean $HbA_1c$ was 9.81% (±2.20). Our perception is that both physical inactivity and the obesity play a major role in uncontrolled diabetes in our subjects.

The purpose of admission was similar for the complication of simple obesity:[4] uncontrolled glycemic status (34%), osteoarthritis of knees (28%), mechanical LBP (14%), urinary incontinence (8%), generalized weakness (8%), chronic vertigo (8%), easy fatigability (6%), constipation (4%), dependent edema (4%), and complications of DM (4%).

There are some limitations in this study. First, it is an institution-based prospective observational study. Second, measurement of calorie intake was not included here. This might show a contributory role in the obesity. Still we have some strength in our study. First, to our knowledge, this is the largest prospective study in our country on simple obesity of adults which addressing the associate co-morbid conditions and biochemical reports to clarify the health status. In our country, most epidemiological studies on obesity are on childhood and adolescent obesity.[3,10] Second, anthropometric measurements are also included to classify the obesity more clearly. Third, it is also clear in this study that the duration of DM or hypertension are not associated with the obesity, rather genetic influence and the sedentary life style have a strong relation with this condition.

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ORIGINAL ARTICLE

# Pattern of Endocrine Diseases among Patients Attending Endocrine Outpatient Department in a Tertiary Care Hospital

PARVEEN S[1], AFSANA F[2]

*Abstract*

***Introduction:*** *Pattern of endocrine diseases is influenced by gender variation. Some endocrine problems are more prevalent in females. This study was aimed to see the pattern of endocrine diseases among women attending endocrine OPD of BIRDEM 2 Hospital (a tertiary care hospital for women and children).*

***Methods:*** *All patients attending outpatient department of Endocrinology in BIRDEM 2 hospital during the period of March 2015 to March 2017 were included in this study. Total 1853 patients were studied to see the pattern of presentation of Endocrine diseases.*

***Results:*** *The mean age of study subjects was found 53.23±11.47 years. Majority 976(52.67%) patients had BMI 23-24.9 kg/m$^2$. Mean fasting blood glucose was found 10.03±4.89 mmol/L, mean $HbA_{1c}$ was 11.04±2.42%. Six(0.32%) patients had hyperglycemic hyperosmolar state, 34(1.83%) had diabetic ketoacidosis, 25(1.35%) had fibrocalcific pancreatic diabetes, 40(2.16%) had osteoporosis,127(6.85%) had hypothyroidism, 07(0.38%) had hyperthyroidism and 50(2.70%) had polycystic ovarian syndrome.*

***Conclusion:*** *The common pattern of endocrine disease among patients attending endocrine OPD was Diabetes Mellitus, Hypothyroidism and PCOS.*

***Key Words:*** *Endocrine disease, outpatient department, BIRDEM.*

***Journal of Green Life Med. Col. 2018; 3(1): 37-40***

**Introduction:**

Bangladesh is a developing country. There is lack of comprehensive compiled data regarding the epidemiology of all endocrine and metabolic disorders. Bangladesh Institute of Research & Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM-2) is a hospital dealing with diabetes and endocrine disease among women and children. Several disorders with clinical and public health significance like diabetes, hypothyroidism, hyperthyroidism, PCOS, obesity, osteoporosis, Cushing syndrome, adrenal insufficiency, dyslipidaemia, short stature, electrolyte imbalance, diabetic ketoacidosis, hypopituitarism, infertility, pituitary adenoma, hyperparathyroidism, genetic and chromosomal disorders are prevalent here. Among them diabetes mellitus is the most common clinical endocrine disorder. But thyroid disorder, PCOS, obesity is gradually appearing with vicious spectacles among the commons.[1] There are many suffering of the patients who remains undiagnosed causing fatal consequences and increase mortality. But timely medical management of endocrine diseases can tailor sufferings of the patients significantly. Endocrine patients should learn to control their crisis and may be trained to maintain normal activities. The prime object of this study was to find out the pattern of endocrine disease and to analyse the socio-demographic profile of the patients attending at outpatient department of Endocrinology of BIRDEM 2, Dhaka.

**Methods:**

This study was based on the study of female patients attending at outpatients department of Endocrinology of BIRDEM 2 hospital during March 2015 to March 2017. A total of 1853 patients were studied.

**Design and setting:**

All adult patients attending Endocrine and Diabetic OPD were selected to do this cross sectional study from March 2015 to March 2017. They had been provided with

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questionnaires designed to include general information, socioeconomic profiles, education, occupation, age, marital status, family member, monthly income etc. Their anthropometric measurements like height, weight, BMI were taken. Informed written consent was taken from every patient. Patient with age 18 years or more and who agreed to enter in this study were included in the study. Patients with missing information and those who were unwilling to take part in the study were excluded. Diagnosis of diabetes mellitus and all endocrine diseases were done by investigations accordingly. In this study fasting blood sugar less than 6mmol/L and post prandial less than 8mmol/L was taken as good control.

**Ethical issues:**
Ethical clearance was taken from the Ethical Review Committee (ERC) of Bangladesh Diabetic Association (BADAS). All patients were explained about the objectives and nature of the study. Informed written consent were taken from al patients.

**Limitations:**
There are several limitations of this study. The study population included only females, so there is a chance of gender bias in the findings. Indoor patients were not included in this study. Also, patients presenting to other outpatient departments were not evaluated, thus having the chance of missing subclinical endocrine disorders.

**Results:**
Total 1853 subjects were studied. Majority 774(41.77%) belonged to age group 51-60 years. The mean age was 53.23±11.47 years (Table-I). About educational status of the study population 370(19.97%) were illiterate, 508(27.42%) patients could read only, 358(19.32%) completed primary education, 485(26.17%) completed SSC, 86(4.64%) were graduate and 46(2.48%) post graduate (Figure-1). Regarding occupational status of the study population, majority 751(40.53%) were unemployed (able to work), 434(23.42%) were self employed, 250(13.49%) were unemployed (unable to work), 161(8.69%) were Govt. employee and 222(11.98%) were non Govt. employee (Table-II). Majority 976(52.67%) patients had BMI 23-24.9 kg/m$^2$ (overweight), 633(34.16%) had BMI 18-22.9 kg/m$^2$, 173(9.34%) had BMI <18 kg/m$^2$ and 71(3.83%) had BMI ≥ 25 kg/m$^2$(Figure-2). Mean fasting blood glucose, mean $HbA_{1c}$, mean s. creatinine, SGPT, mean total Cholesterol, HDL, LDL and triglyceride were found 10.03±4.89 mmol/L, 11.04±2.42%, 1.43±0.87, 35.03±14.40 U/L, 174.54±47.73 mg/dl, 32.93±4.58 mg/dl, 117.64±38.55 mg/dl 145.00±55.29 mg/dl respectively (Table-III). Glycemic status was controlled in 690(37.24%) of the study subjects.

Among the study subjects 440 (23.75%) had newly detected diabetes and hypoglycemia was found in 52(2.81%). It had also been found that 6(0.32%) had HHS (Hyper Glycemic Hyperosmolar state), 34(1.83%) got DKA (Diabetes ketoacidosis), 25(1.35%) had FCPD (Fibro Calcific Pancreatic Diabetes), 40(2.16%) had osteoporosis. 127(6.85%) patients had hypothyroidism, 07(0.38%) had hyperthyroidism and 50(2.70%) had PCOS (Polycystic Ovarian Syndrome) (Table-IV).

**Table I**
*Age distribution of the study subjects (N=1853)*

| Age in years | Number | Percentage |
|---|---|---|
| 30-40 years | 218 | 11.76 |
| 41-50 years | 353 | 19.05 |
| 51-60 years | 774 | 41.77 |
| 61-70 years | 350 | 18.89 |
| > 70 years | 158 | 8.53 |
| Mean ±SD yrs | 53.23(±11.47) | |

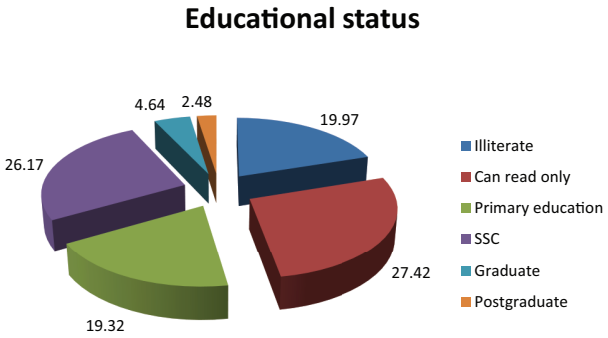


**Fig.-1:** *Educational status of the study subjects (N =1853)*

**Table II**
*Occupational status of the study subjects (N=1853)*

| | Number | Percentage |
|---|---|---|
| Govt. employee | 161 | 8.69 |
| Non Govt. employee | 222 | 11.98 |
| Self employed | 434 | 23.42 |
| Unemployed (able to work) | 751 | 40.53 |
| Unemployed (unable to work) | 250 | 13.49 |
| Other | 35 | 1.89 |
| Total | 1853 | 100% |

**Table III**
*Biochemical parameters of study subjects (N=1853)*

| Parameter | Mean ±SD | Range (Min-max) |
|---|---|---|
| Fasting blood sugar (mmol/L) | 10.03 (±4.89) | 7-18 |
| $HbA_{1C}$ (%) | 11.04(±2.42) | 7-15 |
| Serum creatinine (mg/dl) | 1.43(±0.87) | 0.60-3.2 |
| SGPT (U/L) | 35.03 (±14.40) | 22-65 |
| Total cholesterol (mg/dl) | 174.54(±47.73) | 115-320 |
| HDL (mg/dl) | 32.93(±4.58) | 26-65 |
| LDL cholesterol (mg/dl) | 117.64(±38.55) | 78-195 |
| Triglyceride (mg/dl) | 145.00 (±55.29) | 42-215 |

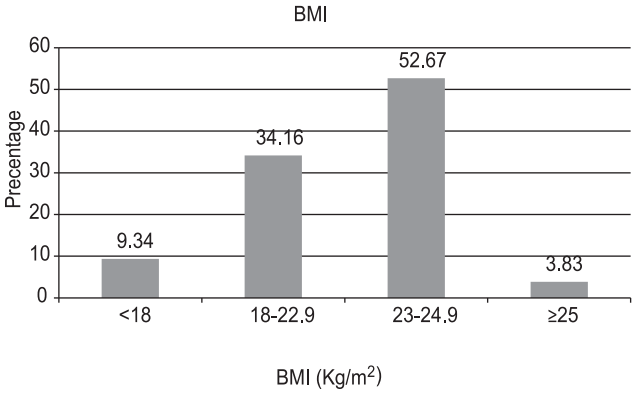


**Table IV**

*Pattern of endocrine diseases among study subjects (N=1853)*

| Endocrine diseases | Number | Percentage |
|---|---|---|
| Diabetes Mellitus | 1161 | 62.66 |
| • Controlled | 690 | 37.24 |
| • Uncontrolled | 471 | 25.42 |
| Hypoglycemia | 52 | 2.81 |
| Newly detected DM | 440 | 23.75 |
| HHS (Hyper Glycemic Hyperosmolar state) | 6 | 0.32 |
| DKA (Diabetic ketoacidosis) | 34 | 1.83 |
| FCPD | 25 | 1.35 |
| Obesity | 80 | 4.31 |
| Osteoporosis | 40 | 2.16 |
| Hypothyroidism | 127 | 6.85 |
| Hyperthyroidism | 07 | 0.38 |
| PCOS (Polycystic Ovarian Syndrome) | 50 | 2.70 |
| Iatrogenic Adrenal insufficiency | 18 | 0.97 |
| Cushing syndrome | 06 | 0.32 |
| Hypopituitarism | 05 | 0.27 |
| Hype parathyroidism | 04 | 0.22 |
| Thyroid malignancy | 04 | 0.22 |
| Obesity | 03 | 0.16 |
| Acromegaly | 02 | 0.11 |
| Thyrotoxic crisis | 02 | 0.11 |
| DSD (Disorder of Sexual Development) | 02 | 0.11 |
| Turner Syndrome | 02 | 0.05 |

**Discussion**

In the present study mean age was 53.23±11.47 years. This data corresponds with other studies like Gautam et al[2] where the majority (87.7%) of the respondents were above 40 years of age. In another study by Hsiao and Chien, mean age of patients was 61.9 ± 12.1 years. [3] In the study of Maiti et al, minimum age recorded among the cases was 37 and the maximum was 58. The mean (±SD) age of cases was 47.7(±5.2).[4] The study by Mannan et al showed that majority of the patients 59.4% (296) were in age range of 41-75 years.[1]

Educational status of study population shows 370(19.97%) were illiterate, others are educated. Hsiao and Chien also found in their study that 63.3% of the patients education below junior high school. [3] In another study by Malathy et al. it was found that 40 (29.2%) subjects were illiterate, whereas 69 (50.4%) had been educated up to secondary school level.[5] In study of Mannan et al. showed only 8.0% of the endocrine patients were found to be graduates and 75% of they had basic education (primary to higher secondary level).[1] This variation of literacy may be due to the fact that BIRDEM is tertiary hospital where people from different socioeconomic categories present.

About employment it was observed that majority 751(40.53%) patients were unemployed (able to work). Similar results was found in study of Al-Maskari et al. which showed that that government employees were 106 (18.6%), private employees 24 (4.2%), private business 04 (0.7%), retired 120 (21.1%), housewives 279 (49%).[6]

Regarding BMI of the study population it was observed that majority 976(52.67%) patients were overweight. Tsai et al. in their study found that the mean BMI of patients was 23.8±4.0 kg/m$^2$, with 28.8% in the overweight category.[7] In the study by Mannan et al. nearly 7% (37) of the studied population were found obese.[1]

In this study glycemic status was satisfactory in majority of the diabetic patients with only 25.42% having uncontrolled blood glucose. It was also found that 25(1.35%) patients had FCPD, 40(2.16%) had osteoporosis. 127(6.85%) had hypothyroidism, 07(0.38%) had hyperthyroidism and 50(2.70%) had PCOS (Polycystic Ovarian Syndrome). In the study of Mannan et al. among 498 patients, 36.9% (184) had been suffering from diabetes mellitus. Nearly 18.0% (90) of them were found to be suffering from hypothyroidism, 6.0% (30) had goiter, more common in female. IGT, hyperthyroidism, hirsutism, infertility, GDM, hyperprolactemia and short stature were also diagnosed in 10(2.0%), 8(1.6%), 8(1.6%), 6(1.2%), 4(0.8%), 4(0.8%), 2(0.4%) and 2(0.4%) respectively. About 30.0% (150) of the patients had been suffering from endocrine diseases with other non endocrine diseases or complications. Among them, 17.1% (n=85) were diabetes mellitus with hypertension in equal prevalence in both men and women patients respectively.[1] Similar

distributions of endocrine diseases were also found in other studies.[8,9] In a study by Ansari et al. subclinical hypo and hyperthyroidisms were included as thyroid disorders adding another 10% population to be dysthyroid, totalling 20% of the population suffering from any type of thyroid disorders.[10] A study done in Nepal observed that regarding endocrine disease pattern; 59.4% had diabetes mellitus, 27.7% hypothyroidism and 8.1% hyperthyroidism. Goiter, (Infertility & hyperprolactinemia), (Autoimmune thyrioditis & osteomalacia) were found in 1.8%, 0.7%, and 0.4% respectively.12.2% had stage I hypertension and 8.5% stage II hypertension.[11]

**Conclusion:**

Knowing the pattern of diseases in a specific population is important for the primary care physician, so that common disorders are not inadvertently overlooked. This study found that Diabetes Mellitus, Hypothyroidism and PCOS were the conditions most frequently found among patients attending endocrine OPD. Therefore, physicians should have high degree of suspicion for these diseases while dealing with female patients with probable endocrine disorder.

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REVIEW ARTICLE

# Omega-3 Fatty Acids: The Essential Nutrient in Pregnancy

ROY JS

*Abstract*

***Omega-3 fatty acids are essential fatty acids with diverse biological effects in human health and disease mitigation. An increased dietary intake of omega-3 polyunsaturated fatty acids (PUFA) from fish fat could exert protective effects against several pathologies such as cardiovascular, metabolic, and inflammatory diseases. Decades of intense preclinical investigation have supported this hypothesis in a variety of model systems. However, particularly in recent years, the role of Omega-3 fatty acids have the different proven benefits for both mother and the fetus. Consumption of Omega-3 polyunsaturated fatty acids during pregnancy reduces the risk of premature birth and improves intellectual development, healthy eyesight of the fetus. On the other hand, it was also proven beneficial for the mother by taking a good role for normal and healthy pregnancy outcome. We need to support the society for ensuring the optimal consumption of DHA in pregnancy for making our upcoming generations strong and competent.***

***Key words: Omega-3 fatty acids, Essential nutrient in pregnancy, Premature birth***

***Journal of Green Life Med. Col. 2018; 3(1): 37-40***

**Introduction:**

The early life nutritional status, environment factors influence fetal development and the subsequent health of the offspring in adulthood. Early maternal nutrition is an important environmental programming stimulus and any nutritional deficiencies during fetal development may alter physiological functions thereby predisposing an individual to develop adult diseases.[1,2] The long chain polyunsaturated fatty acid (LCPUFA) especially Omega-3 fatty acid supplemental nutritional status in early life is known to influence physiological and metabolic pathways relevant to metabolic ''programming''. [3-5] The dietary balance of the omega-3 fatty acids is known to have important metabolic implications.[6] This transition in the omega-6: omega-3 fatty acid ratio may influence placental development and promote the pathogenesis of several chronic diseases.[8,9] In view of the fact that non communicable diseases in adulthood are influenced by nutritional programming, it becomes essential to maintain optimal levels of LCPUFA during early pregnancy which may further help to reduce the risk of adverse pregnancy outcome and chronic adult diseases. This review majorly focuses on the role of omega-3 fatty acid during pregnancy and their association with pregnancy outcome with proven health benefits or controversies.

**Methods:**

PubMed search was done up to October 2017 using the keywords "Omega-3 fatty acid in pregnancy or Omega-3 fatty acids or role of Omega-3 fatty acids" to identify previously published literatures containing information regarding the role of omega-3 fatty acid for fetal development in prenatal and postnatal term. All articles are checked manually for related data for conducted clinical trials. Only review and original articles written in English were considered.

**Discussion**

**What Are Omega-3 Fatty Acids?**

Essential fatty acids are lipids that cannot be synthesized within the body and must be ingested through the diet or from supplements.[7] Two families of essential fatty acids, omega-3 and omega-6, are required for physiologic functions including oxygen transport, energy storage, cell membrane function, and regulation of inflammation and cell proliferation. Humans can synthesize many other fatty acids, such as saturated and monounsaturated fatty acids,

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but are incapable of making fats with the first double bond at the omega-3 and omega-6 position. These polyunsaturated fatty acids are required for normal growth and maturation of many organ systems, most importantly the brain and eye.[8]

The parent fatty acid for omega-3s is Alpha-linolenic (ALA) acid and for omega-6s the parent fatty acid is linoleic acid (LA). LA is converted to the biologically active omega-6 fatty acid, arachidonic acid (AA), which is involved in cell-signaling pathways and functions as a precursor for proinflammatory eicosanoids. ALA is converted to the biologically active omega-3 fatty acid, Eicosapentaenoic acid (EPA), which, in turn, is converted to the omega-3 fatty acid, Docosahexaenoic acid (DHA). DHA is the critical component of cell membranes in the brain and retina, where it is involved in visual and neural function as well as neurotransmitter metabolism.[8] The accumulation of DHA begins in utero and is derived predominantly through placental transfer.[9,10]

**Dietary Sources of Omega-3 Fatty Acids**

As for saturated and monounsaturated fatty acids, the omega-6 and omega-3 polyunsaturated fatty acids (PUFA) are chemically linked to fat structures known as triglycerides in the various foods and oils that are consumed. The natural triglyceride or fat structure consists of a 3-carbon glycerol backbone onto which 3 long-chain fatty acids of varying types and structures are linked or 'esterified'. These are hydrolyzed by enzymes and digested in the small intestine thereby providing for their absorption, transport in the blood, and assimilation into cells and body tissues. Table-I lists some common food sources of both the omega-6 and omega-3 fatty acids.

**Table-1**

*Lists of common foods sources of fatty acid*

| Fatty Acid | Food Sources |
|---|---|
| (i) Omega-6 Types | |
| LA, linoleic acid (18:2 n-6) | Vegetable oils (corn, safflower, sunflower, soybean), animal meats |
| AA, arachidonic acid (20:4 n-6) | Animal sources only (meat, eggs) |
| (ii) Omega-3 Types | |
| ALA , (LNA) alpha-linolenic acid (18:3 n-3) | Flaxseed, canola oil, Olive, English walnuts, Eggs |
| EPA, eicosapentaenoic acid (20:5 n-3) | Fish (salmon, Menhaden, Mackerel, Herring), fish oils, marine sources |
| DHA, docosahexaenoic acid (22:6 n-3) | Fatty fish including (anchovies, salmon, herring, mackerel, tuna and halibut), fish oils, Eggs/dairy products |

**Bio-Synthesis**

**Essential Fatty Acids Synthesis:**

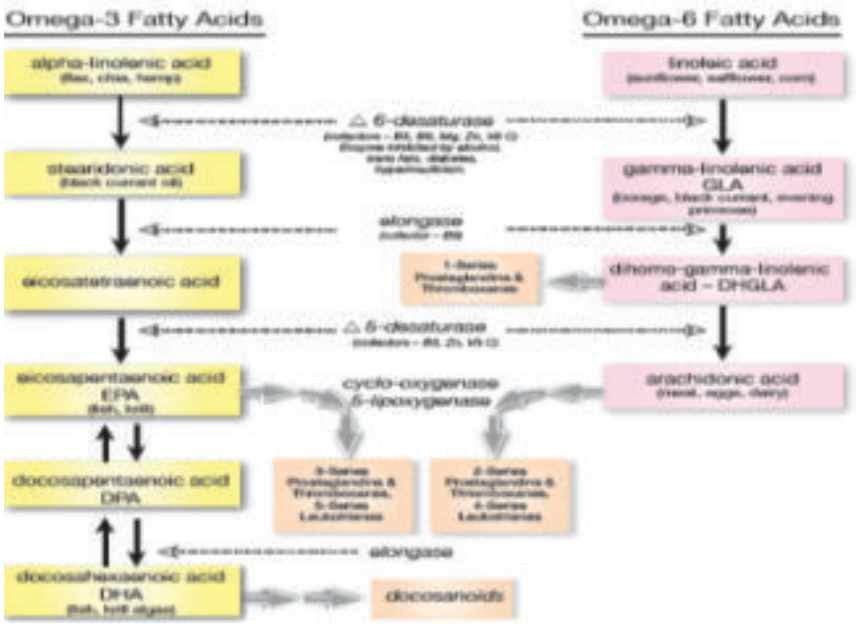


**Fig.-1 :** Biosynthesis of the Principal Polyunsaturated Fatty Acids and Their Metabolites (Adopted from DHA- Monograph in Alternative Medicine Review, Volume-14, Issue: 4, Page-392)

**Importance of Maternal Nutrition**

Maternal nutrition is critical in determining the health and wellbeing of both mother and child.[11] The early life diet in utero increases the vulnerability of the offspring to the development of poor outcomes and disease is now well accepted. Pregnancy is regarded as the most susceptible period which is characterized by accelerated growth and cell differentiation. [12, 13] Nutrients transported to the fetus are known to influence both fetal growth and organ development throughout gestation.[14] Maternal nutrients are critical at every stage of embryonic and fetal development.[15] An inadequate supply of nutrients during this period causes the fetus to down regulate growth and prioritizes the development of essential tissues.[16] Nutrient deficiencies may lead to suboptimal embryonic and fetal nutrition, congenital malformations, serious pregnancy complications and preterm deliveries and is also known to increase the rate of morbidity and mortality.[17-19] There is considerable evidence that maternal nutrition before and during pregnancy is the primary environmental factor that influences fetal growth and development, and increases the risk for postnatal diseases – a concept referred to as **D**evelopmental **O**rigins of **H**ealth and **D**isease (DOHaD).

**Role of Fatty Acids in Pregnancy**

Several studies have established that quantity and quality of dietary fats consumed during pregnancy have profound health implications during and after pregnancy.[20] Omega-3 fatty acids play critical roles during fetal growth and development and higher intakes of omega-3 fatty acids during pregnancy have been associated with decreased maternal depression,[21] reduced rates of intrauterine growth restriction,[22] preterm birth, reduced allergies and asthma in children,[11] and improved neurocognitive outcomes in the offspring.[9, 22]

Despite the importance of these fatty acids in maternal-fetal health, omega-3 fatty acid intake is typically very low. Socioeconomic factors have been shown to impact the overall quality of diet, such as intakes of fruits and vegetables, however the impact of socioeconomic indicators on intake of omega-3 fatty acids is not correlated.

**Table-II**

*Omega-3 Recommendations*

| Country/ Region | Organization | Organization Type | Target Population | Recommendation |
|---|---|---|---|---|
| Global | World Health Organization (WHO) [23] | Authoritative Body | General adult population | n-3 PUFAs: 1-2% of energy/day |
| Global | Food and Agriculture Organization of the United Nations (FAO) [24] | Authoritative Body | Pregnant/Lactating Women | EPA + DHA: 0.3 g/d of which at least should be 0.2 g/d |
| Global | International Society for the Study of Fatty Acids and Lipids (ISSFAL) [25] | Authoritative Body | Pregnant/Lactating Women | EPA + DHA: 0.3 g/d of which at least should be 0.2 g/d |
| Global | World Association of Perinatal Medicine [26] | Working Group | Pregnant and LactatingWomen | 200 mg DHA/ day |
| Australia | Australian & New Zealand Health Authorities (Department of Health & Ageing, National Health & Medical Research Council) [27] | Authoritative Bodies | Pregnancy (14 -18 yrs)<br>Pregnancy (19-50 yrs)<br>Lactating (14-18 yrs)<br>Lactating (19-50 yrs) | 110 mg total LC n-3 (DHA+EPA+DPA) / Day<br>115 mg total LC n-3 (DHA+EPA+DPA) / Day<br>140 mg LC n-3 (DHA+EPA+DPA) /Day<br>140 mg LC n-3 (DHA+EPA+DPA) /Day |
| Europe | European Food Safety Authority [28] | Authoritative Body | Pregnant & Lactating Women | 100-200 mg DHA / day in addition to general adult requirements |
| US | American Academy of Pediatrics [29] | Expert Scientific Organization | Nursing Women | The mother's diet should include an average daily intake of 200 to 300 mg of the Omega-3 long-chain PUFAs (DHA) to guarantee a sufficient concentration of preformed DHA in the milk.<br>Poorly nourished mothers or those on selective vegan diets may require a supplement of DHA as well as multivitamins. |
| US | U.S. Department of Agriculture and U.S. Department of Health and Human Services [30] | Authoritative Body | Pregnant or breast feeding women | Consume at least 8 and up to 12 ounces of a variety of seafood per week or in case of any inconvenience DHA/EPA supplementations needed |

**Maternal and Infant Outcomes**

Poor dietary N-3 long chain polyunsaturated fatty acids (n-3 LCPUFA) consumption processing have been linked with adverse infant and maternal outcomes, including preterm birth, gestational diabetes, obesity, preeclampsia, and postpartum depression and others negative outcomes.[31]

**Preterm Birth**

Related to preterm birth, n-3 LCPUFAs are highly bioactive and play an integral role in the modulation of prostaglandin production, which affects the timing of parturition. Prostaglandins are

important to uterine smooth muscle contraction and cervical ripening in labor and birth. Prostaglandins classified as 2-series are produced to facilitate the birth process. Dietary fat composition can augment prostaglandin production with diets that have greater levels of n-6 LCPUFAs favoring 2-series prostaglandin production. In contrast, greater consumption of n-3 LCPUFAs facilitates the production of 3-series prostaglandins. If production of n-6 LCPUFA–derived 2-series prostaglandins are produced at a level that is too high, with a low level of n-3 LCPUFA–derived 3-series prostaglandins, cervical ripening can occur prematurely, leading to preterm birth.[32] A high level of n-3 LCPUFA–derived 3-series prostaglandins prolong the gestational period and have been associated a reduced risk for preterm birth.[33, 34]

In two recent meta-analyses, researchers supported the role of n-3 LCPUFA during pregnancy in the reduction of the risk associated with preterm birth. Combined results from an extant Cochrane review and several large trials and concluded that evidence to date consistently showed that n-3 LCPUFA supplementation during pregnancy increased the mean duration of gestation by 2 days. Furthermore, n-3 LCPUFA supplementation was associated with a 40% to 50% reduction (relative risk ¼ Q3 0.60; 95% confidence interval [0.44, 0.81]) in early preterm birth (<34 weeks gestation). These findings were corroborated in another meta-analysis in which reviewed six studies on the effects of omega-3 fatty acids on early preterm birth.[33] Consumption of omega-3 fatty acids reduced the risk of early preterm birth by 58% (relative risk ¼ 0.42; 95% confidence interval [0.27, 0.66]) and preterm birth (<37 weeks gestation) by 17% (relative risk ¼ 0.83; 95% confidence interval [0.70, 0.98]). Consumption of omega-3 was also associated with significantly longer mean gestation and greater mean birth weight compared with controls.[33-35]

**Inflammation**

The antioxidant and anti-inflammatory potential of n-3 LCPUFA has important implications for obstetric disorders, specifically gestational diabetes mellitus (GDM), obesity and preeclampsia. [34-37] In each instance, evidence suggested that greater n-3 LCPUFA consumption resulted in better maternal and fetal outcomes compared with cohorts with suboptimal consumption. Likewise, Leghi & Muhlhausler (2016) [38] investigated reduced n-3 LCPUFA transfer through the placenta related to these disorders. Given that n-LCPUFA are highly bioactive, once incorporated into the cellular membrane, they modulate inflammatory signaling pathways through the production of key anti-inflammatory mediators (e.g., resolvins, protectins, and maresins) involved in downregulating the inflammatory response. Collectively, in these high-risk pregnancies, less anti-inflammatory n-3 LCPUFA consumption results in a greater inflammatory load and oxidative stress associated with greater maternal symptom severity and infant outcomes that include infant adiposity, jaundice, and need for extended hospitalization.[39]

**Gestational Diabetes**

The heightened oxidative and inflammatory state in Gestational diabetes mellitus (GDM) is associated with reduced maternal–fetal n-3 LCPUFA transfer, which results in significantly greater levels of maternal n-3 LCPUFA and lower levels of umbilical venous DHA.[40,41] In pregnancies complicated by diabetes, altered fuel metabolism is associated with alterations in placental n-3 LCPUFA metabolism. Hence, GDM compromises the availability of n-3 LCPUFA to the developing fetus. Reduced availability of n-3 LCPUFA, particularly DHA, during fetal development is a concern because of its central role in neuronal cell membrane function affecting membrane fluidity, neurotransmitter release, gene expression, and neural cellular differentiation and growth. Ultimately, low availability of DHA may place infants at risk for altered cognitive and visual development.[41] In the general population, researchers reported robust evidence to support better infant cognitive outcomes and attention in childhood related to maternal n-3 LCPUFA consumption & however, others have reported no difference in cognitive outcomes, warranting further investigation.[42-45] It is currently unclear whether supplementation with DHA at greater dose levels could effectively improve maternal–fetal DHA transfer. In a recent investigation, women with GDM who received omega-3 and vitamin E supplements had greater antioxidant capacity, lesser inflammation state, and lesser incidence of newborn jaundice.[44] However,

further investigation is necessary to evaluate whether altered fuel metabolism is the mechanism behind inadequate DHA transfer or if epigenetic interactions affect the ability of a fetus to form triglycerides and use them for energy. [45, 46]

**Obesity**

Obesity during pregnancy is associated with risk for adiposity (obesity) and cardiovascular and metabolic diseases in offspring.[45] Reduced n-3 LCPUFA uptake across the placenta and maternal–fetal transfer have been reported in obese pregnant women. Supplementation with n-3 LCPUFA in obese women during pregnancy improved maternal–fetal n-3 LCPUFA transfer.[45] Lesser maternal n-3 LCPUFA concentrations during pregnancy were also associated with greater adiposity in offspring during childhood. [46, 47]

**Preeclampsia**

The placenta is vital in the regulation of oxidative stress, angiogenesis, and inflammation for optimal pregnancy outcomes. Preeclampsia is associated with disturbed structural and functional features of the placenta, and these disturbances have been associated with alterations in n-3 LCPUFA metabolism and transport. [48]

**Postpartum Depression**

n-3 LCPUFAs are incorporated into neural cells, which improves cellular membrane function and signaling involved in the release of neurotransmitters associated with mood regulation. Maternal n-3LCPUFA intake has been associated with a reduction in postpartum depression symptoms in multiple reports. [49, 50]

**Fetal Cognitive Functions**

During the last trimester of fetal life and the first two years of childhood, the brain undergoes a period of rapid growth – the "brain growth spurt." Nutrient insufficiency during this period can compromise brain function. DHA is one nutrient absolutely required for the development of the sensory, perceptual, cognitive, and motor neural systems during the brain growth spurt. [49,50] EPA's importance for the brain's development in utero is unclear, but colostrum and breast milk contain EPA, albeit in lesser amounts than DHA. [51] The fundamental importance of DHA for brain development is beyond dispute. The neurons are continually forming axons and dendritic extensions with accompanying cell membranes. Growing membrane must be relatively fluid, and DHA is the most fluidizing element in cell membranes. Even the synapses that are the primary functional units of brain circuits are made from membranes preferentially enriched in DHA. The retina, functionally an extension of the brain, contains rods and cones with the most fluid membranes of all the body's cell types; they are also highly enriched in DHA. Laboratory animals (rodents, primates) with experimentally induced omega-3 deficiencies show deficits in retinal structure, visual acuity development, and cognitive performance. [51, 52]

A good number of clinical research investigating DHA's effects from breast milk and supplements forms of DHA is going on. In a study with full-term, normal sized, nine-day-old infants, researcher (Hart et al) measured maternal breast milk DHA content and assessed in infants' behavior development using the Brazelton-**N**eonatal **B**ehavioral **A**ssessment **S**cale (NBAS) which yields score for orientation, motor skills, range of state (variations in state of arousal), regulation of state (ability to quick change state of arousal) and automatic stability. Infants who's had higher breast milk DHA concentration scored significantly better than those with lower levels of DHA.

From (Drover et al) other investigated feeding infants formula supplement with long-chain polyunsaturated fatty acids including DHA, improves cognitive function of nine-month-old infants. From another clinical study found that maternal supplementation with DHA during pregnancy and lactation improves the intelligence of offspring at age four years.[52, 53]

**Infant Immunity**

Concerning the effect of n-3 LCPUFA supplementation in healthy pregnancies and on the immunological function, positive effects were reported concerning a reduction in food allergy risk and Ig E associated eczema in infants during the first year of life, and reduced proinflammatory cytokines and Th2 promoting prostaglandin E2 in the mother. These results were also supported by Krauss-Etschmann et al. who observed reduced Th2 inflammatory cytokines in cord blood during the NUHEAL study. From the Danish Cohort, a lower rate of allergic asthma was observed in 16 year old children born to mothers receiving supplementation with fish oil compared with olive oil. For infants with a family history of allergic disease, maternal n-3 LCPUFA supplementation during pregnancy also decreased the risk of food allergy and Ig E eczema during the first year of life and improved the cord blood cytokine pattern. [53-59]

**Asthma Risk in Offspring**

According to the results of a randomized trial, children whose mothers were given fish oil supplements during pregnancy had an apparent reduced risk of developing persistent wheeze or asthma. Pregnant women who were

given n-3 long-chain polyunsaturated fatty acid (LCPUFA) supplements during their third trimester of pregnancy had offspring with a significant 31% relative reduction in risk of developing persistent wheeze or asthma as young children compared with a placebo group. This effect was most prominent among children whose mothers had lower levels of omega-3 fatty acids, eicosapentaenoic acid (20:5n-3, EPA), and docosahexaenoic acid (22:6n-3, DHA). For the women in the trial population with the lowest levels of EPA and DHA, there was a 54% relative reduction in risk of offspring in the treatment group developing either of these respiratory conditions compared with the placebo group.[61]

Asthma is one of the most prevalent complications of pregnancy which is associated with an increased incidence of intrauterine growth restriction. Dietary fatty acids (FA) especially polyunsaturated fatty acids (PUFA) are particularly important during pregnancy due to their role in fetal growth and development. Dietary PUFAs also have a role in clinical outcomes for non-pregnant asthmatics. Moderate/severe asthma disrupt lipid metabolism, transport or cellular uptake during pregnancy which subsequently contributes to reduced fetal growth.[62]

**Fatty acids intake habits in Bangladesh**

Based on the people usual food habit, taste pattern, socio-economical condition, cooking procedures sea foods are not popular in Bangladesh except some of the items which are not the abound source of omega-3 fatty acids. Moreover, consumption of sea foods may lead the chance of heavy mental consumption like mercury with other contaminates. Considering the great concern of such heavy metal poisoning specially in pregnancy or lactating condition, most of the inhabitants believed to avoid sea foods intake in that specific time. Heavy metal or other below sea contaminates could hamper the neuro-functional development of the fetus. DHA/EPA are the essential elements of proper brain and neuro-functional development of the fetus. Alpha-linolenic acid (ALA) from plant source, which in the body can convert into EPA, but the process is inefficient and only a small amount is converted. Thus the body don't receive ALA to EPA and DHA conversion related full benefits. Presently we are less likely to have DHA/EPA supplementations whereas enormous use was observed in first world countries. DHA/EPA use has proven clinical benefits in neurocognitive functions in fetus and improved brain functions afterwards.

**Conclusion:**

Omega-3 fatty acids are essential for life and must be obtained from dietary means, either from seafood or fish oil capsules. It is likely that, during pregnancy, omega-3 requirements increase over normal to support fetal growth, particularly of the brain and eyes. Today's world is compact of competition, there we must help our youth group to be in fit condition to win over that situation.

Good food for good life, only quality food system and habit could ensure bright future for our upcoming generations for making our nations more competent, esteemed and prosperous. Focusing that, proper nutrition has no alternative which starts from the womb.

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# Primary Cystic Duct Carcinoma; Report of a Rare Disease

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*Abstract*

***We present the case report of a 48-year-old man with cystic duct adenocarcinoma which is very rare disease. The patient admitted with complaints of a painless right hypochondriac lump for a short duration. After evaluation we diagnosed him as a case of mucocele of the gallbladder. On exploration we found a mass in the cystic duct region producing hugely distended gallbladder and the adjacent common bile duct was involved by the tumor with associated regional lymph node enlargement. We performed en-block excision of gallbladder, common bile duct with regional lymph nodes and completed the operation by Roux-en-Y hepaticojejunostomy reconstruction. Histopathologic examination revealed the presence of cystic duct adenocarcinoma without lymph node metastasis, where the tumor is free from resection margins. The patient had an uneventful course. This case report will be an example of very rare disease which we have encountered recently. The mode of presentation, diagnosis and treatment of a cystic duct carcinoma were discussed.***

***Key words: Cystic duct carcinoma, Adenocarcinoma, Right hypochondriac lump.***

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**Introduction:**

Primary carcinoma of cystic duct is a rare condition; very few cases are reported worldwide. Majority of these cases were reported from East Asia, there is no such case being reported from Bangladesh so far of our knowledge. Farrar's[1] criteria of diagnosis of primary cystic duct carcinoma are (i) growth restricted to the cystic duct, (ii) absence of neoplastic process in the gall bladder, hepatic, or common bile duct, (iii) histological evidence of carcinoma. All these criteria could not fulfill always to all cases as majority of cases reported were advanced. Our patient meets the criteria of Farrar except that the tumor slightly extended to CBD, but the center of the tumor is located to cystic duct which supports the definition of primary cystic duct carcinoma by Ozden et al.[2] As it is rare disease we shall describe the management of this condition in light published literature.

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**Case presentation:**

A 48-year-old male patient admitted to our university hospital with feeling of a lump in right upper quadrant region (RUQ) for one and a half month duration. The lump was painless but he felt discomfort after taking food and it was gradually increasing in size. He did not give any history of fever, jaundice, vomiting, and alteration of bowel habit, hematemesis or melaena. The physical examination revealed a palpable globular lump in RUQ which was non tender, moves with respiration, smooth surface consistent with enlarged gallbladder. His laboratory findings were as follows: total bilirubin 0.4 mg/dl and serum carbohydrate antigen (CA) 19-9 14.3 U/ ml. A marked distention of the gallbladder (GB) was present on abdominal ultrasonography and CT scan. Markedly distended GB with Phrygian cap deformity with mild dilatation of exrahepatic bile duct was noted in MRCP (Fig.-1). Based on these findings, we established the diagnosis as mucocele of gallbladder of unknown etiology. We performed an exploratory laparotomy and found grossly

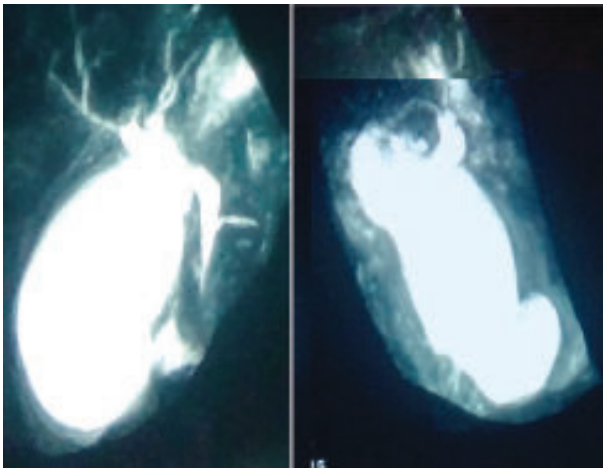

**Fig.-1:** *MRCP Showing distended gallbladder with Phrygian cap deformity of gallbladder.*

distended GB. The cystic duct was obstructed by a solid mass (Fig.-2). The anatomy of Calot's triangle was not clear because of the presence of mass and the mass was firmly adhered with adjacent common bile duct. There were multiple enlarged lymph nodes in pericholedochal, retroduodenal and suprapyloric region. No peritoneal tumor seeding or liver metastases were noted. On the basis of per-operative findings, we performed en-block excision of GB, extrahepatic bile duct and regional lymph nodes and the surgery was completed by end-to-side Roux-en-Y hepaticojejunostomy reconstruction. After opening the GB, clear fluid came out and there was no stone inside. An ill-defined, grayish-white, solid mass 1.0 × 1.0 cm in size was noted in cystic duct extended to the CBD wall but the CBD lumen was not obstructed by the tumor. Eight enlarged lymph nodes were identified with the specimen.

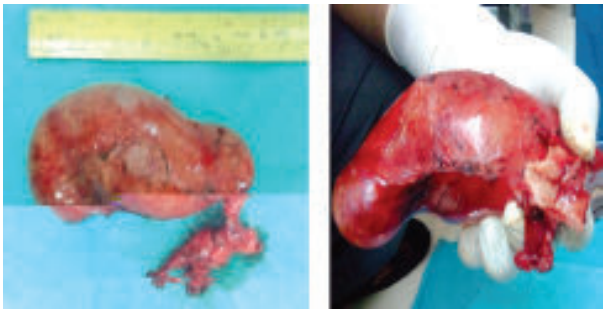

**Fig.-2:** *Gross pathology specimen: an ill-defined stricture in the cystic duct involving CBD wall. The opening of cystic duct to CBD is blocked by the tumour (arrow).*

Histopathological examination revealed a well-differentiated adenocarcinoma invaded to bile duct. The both upper and lower resection margins of CBD were free from tumor and there was no lymph node metastasis among the 8 lymph nodes dissected. The patients' postoperative course was uneventful and he was discharge on 8th postoperative day.

**Discussion:**

We have diagnosed our case as advance cystic duct carcinoma on basis of new classification system[3-5] as the center of tumor is located in cystic duct which invades the CBD. It has been shown that reflux and stasis of pancreatic juice and bile mixture due to pancratobiliary maljunction leads to malignancy in gallbladder and CBD over a period of time.[2,7,10,11] But the etiology of primary cystic duct carcinoma is unclear, because there is less chance of stasis of refluxed pancreatic juice and bile in cystic duct. The primary carcinoma of cystic duct is common in male and the average age of presentation is 65 years (range, 38–79 years).[2,4-6,8,9] Gallstones are not associated with all cases, being found in about 25% of the cases[2,5,10] and 48 and 37% in two other series[2,9]. Our patient is a 48 year old male having no association with gallstone; these findings are similar with above mentioned published reports. The symptoms of primary carcinoma of cystic duct develop earlier than GB cancer as the cystic duct diameter is very small and the tumor easily can produce obstruction and symptoms. The main symptoms are abdominal pain and jaundice, both being equally distributed.[1,2,4,5,8] Baraka et al. reported that 81% patient presented with right upper quadrant abdominal pain, 41% with abdominal mass, and four cases with obstructive jaundice.[6] The palpable gallbladder is found in 86 and 93% cases.[2,5]

We could not make the correct diagnosis before operation. This patient is presented with a lump for short period without any pain, fever or jaundice. Preoperatively we diagnosed the case a mucocele of the gallbladder of unknown etiology on basis of clinical and imaging. The final diagnosis is made on histopathological examination. Our finding was similar with other report that they also discovered the tumor at laparotomy or on histopathological examination of the specimen.[1,2,4-6,11] These findings suggest that neoplasm of the cystic duct can be suspected in patients presenting with distended gallbladder likely due to cystic duct obstruction without evidence of stone impaction in the cystic duct. Most of the tumors reported are microscopically well-differentiated adenocarcinoma, but small cell carcinoma, carcinoid tumor, mucin-producing carcinoma of cystic duct also have been reported.[3,9,13] Bile duct invasion is relatively rare.[1,11,14,15] The incidence of lymph node metastasis is (0–40%) in patients with carcinoma of cystic duct.[2,4,11,15] Histopathological report of the present case was also well differentiated adenocarcinoma, the tumor invades the common bile duct

and out 8 pericholedochal lymph nodes no one is positive. If we put our case in different classification system published in literature, it is seen that the tumor was type 2 of Kim's classification (carcinoma extended to bile duct of cystic duct side without obstructive jaundice), HH type of Yokohama's classification (invaded towards confluence of the cystic duct) and type III of Nakata's classification (the tumor extended to the common hepatic duct or the common bile duct). Meta analysis has been shown that carcinomas of cystic duct extending beyond the cystic duct are more aggressive and associated with a poorer prognosis.[3,4,15] These findings suggest that the present tumor was advance and aggressive in nature having a very poor prognosis. The recommended treatment is radical surgery comprising of cholecystectomy with non-anatomical gallbladder fossa resection and excision of extrahepatic bile duct with regional lymphadenectomy.[3,5,9,10.11] In our case we did not excise the liver bed as tumor was no invaded to gallbladder. We were not planning for adjuvant chemotherapy or radiotherapy as resection margin was clear and lymph node metastasis was absent, but we have kept the patient on proper follow up schedule.

**Conclusion:**

A rare case of primary carcinoma of cystic duct was presented, which included the clinical features, method of diagnosis, discussed the classification system, various surgical treatment of the condition and prognosis. This knowledge may help us in proper identification of problem and management in future.

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CASE REPORT

# Ischemic Stroke in a Young Adult with Protein S Deficiency

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*Abstract*

***Stroke in young individuals poses a major health problem. Globally, stroke is the third commonest cause of mortality and the fourth leading cause of disease burden. This is a leading cause of mortality and morbidity in both developed as well as developing countries like ours. Ischaemic stroke is the most common cerebrovascular disease, most often due to atherothrombotic diseases and uncommonly by disorders of hypercoagulation. Deficiency of protein S can lead to hypercoagulable state and present as a cerebrovascular accident. We describe here a case of an 18-year-old man who presented with ischemic stroke and protein S deficiency.***

***Key words: Cerebrovascular disease, Ischemic stroke, Protein S deficiency.***

***Journal of Green Life Med. Col. 2018; 3(1): 52-54***

**Introduction:**

Cerebrovascular diseases are one of the common causes of high morbidity and mortality all over the world and among those, most common being ischaemic stroke (85%).[1-3] Abraham et al[4] from Vellore, South India reported that 25% of cases of stroke occur in less than 40 years of age. Other Indian studies have highlighted a higher incidence (24-35%) of stroke in young population.[5] Athero-thrombotic diseases are the most common cause of ischaemic stroke; however, disorder of coagulation, although uncommon, can lead to hypercoagulability resulting in ischaemic stroke.

Protein S is a vitamin K-dependant plasma protein involved in the regulation of Protein C anticoagulant pathway. Protein S deficiency (PSD) is a disorder with increased risk of thrombosis. Activated protein C inactivates factor Va and VIIIa in the presence of free protein S and phospholipids, thereby inhibiting the generation of thrombin. Free protein S itself has an anticoagulant effect: it inhibits the prothrombinase complex (factor Xa, Va and phospholipids) that converts prothrombin to thrombin and the tenase complex (factor IXa, VIIIa and phospholipids), which convert factor X to Xa. The reduced activity of protein C and protein S diminishes the control of thrombin generation. Both these mechanisms increase susceptibility to venous thrombosis and rarely arterial thrombosis.[6]

Here, we report a case with arterial thrombosis secondary to protein S deficiency.

**Case presentation:**

A 18 year-old young man presented with sudden, severe headache which was global, continuous associated with neck pain and photophobia. He also had difficulty in maintaining balance and double vision. But there was no history of fever, convulsion, loss of consciousness, fall, swallowing difficulty or weakness of limbs. He had no risk factors such as smoking, obesity, diabetes, hypertension and valvular heart disease. Family history was negative for other vascular events or any predisposing factors for stroke. On examination he was anxious and agitated. All the vital parameters were normal except elevated blood pressure. He had dysarthria, bilateral 6$^{th}$ nerve palsy, diplopia on horizontal gaze, bilateral cerebellar sign, truncal ataxia. Gait could not be evaluated due to ataxia. Other systemic examinations were normal.

On routine investigation, haemoglobin was 14.5 gm/ dL, total leucocyte count 12,800/dL, platelet count 2.82 lac/ mm3 with haematocrit of 37%, erythrocyte sedimentation rate 20 mm in 1$^{st}$ hour, prothrombin time 13 s (control 12 s), International Normalised Ratio 1.1 and activated partial thromboplastin time 21 s (control 20 s). Urine analysis,

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chest X-ray, kidney and liver function tests were within normal range. CT scan of brain revealed cerebral infarction involving bilateral cerebellum, pons & thalamus (Fig: 1). MRI of brain revealed acute infarction in both cerebellar hemispheres, Pons, Thalamus (Fig: 2, 3). Transthoracic echocardiography & ultrasonography of the abdomen did not reveal any abnormalities. CT angiogram of neck vessels

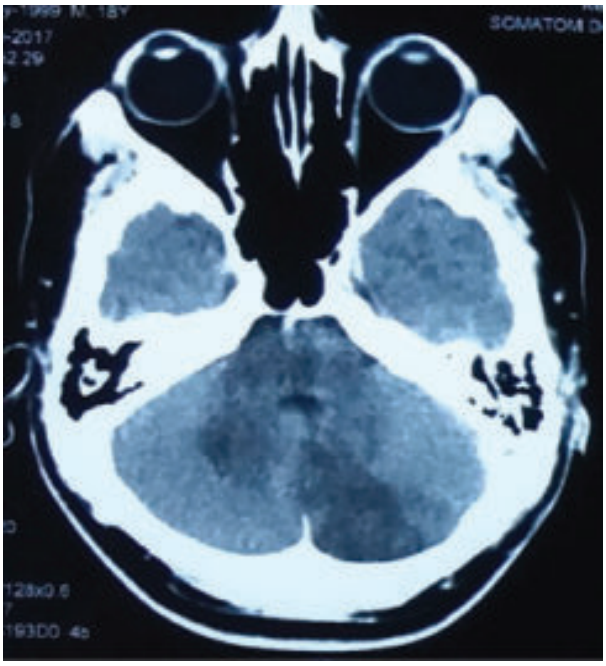

**Fig: 1:** *Cerebral infarction involving bilateral cerebellum, pons*

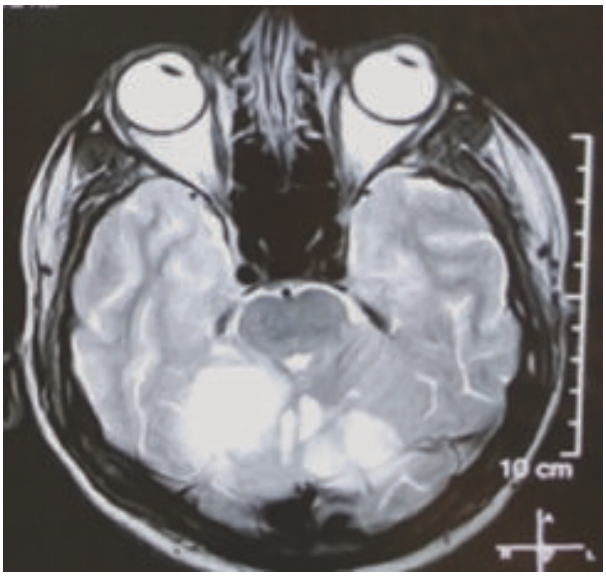


**Fig: 2:** *Acute infarction in both cerebellar hemispheres*

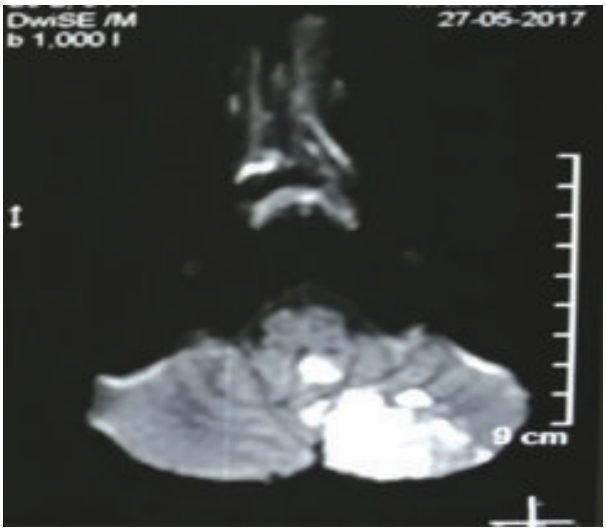


**Fig: 3:** *Acute infarction in cerebellar hemispheres, Pons*

revealed total occlusion left vertebral artery (Fig: 4). Protein C level was 95 units/mL (normal 71–190 units/mL), protein S level was 20 units/mL (normal 55– 123 units/mL) and antithrombin III level was 110 units/mL (normal 70–122 units/mL). Serum homocysteine level, lipid profile, antinuclear factor, antiphospholipid antibodies, VDRL, TPHA, p-ANCA, c-ANCA were within normal limits. Finally, the patient was diagnosed as ischemic stroke due to protein S deficiency. He was discharged home on oral warfarin and aspirin and was advised a target INR between 2.0 and 3.0. He had mild gait & speech difficulty during follow up.

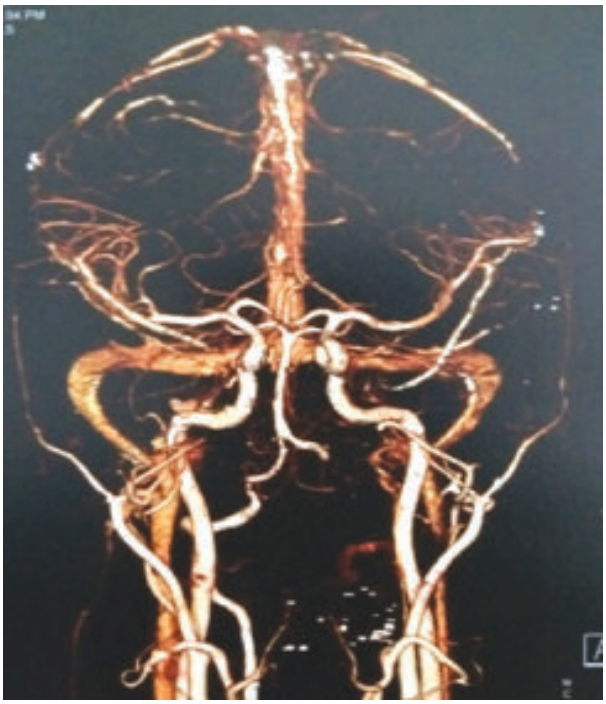

**Fig: 4:** *CT angiogram of neck vessels revealed total occlusion left vertebral artery*

**Discussion:**

Ischaemic stroke is uncommon in young age, and despite extensive investigations a large proportion of ischaemic strokes are of undetermined aetiology. Among the patients with ischaemic stroke, a number of different pathological processes, such as cardioembolism, large artery disease with arteriolosclerosis, thromboembolism and small artery disease, are responsible. Young ischaemic stroke needs extensive diagnostic tests, mainly searching for an underlying thrombophilic state.

Thrombophilic disorders can be broadly divided into two groups: inherited and acquired condition. Inherited thrombophilic disorders are far less commonly observed in young ischaemic strokes. These are caused due to deficiencies of natural anticoagulants such as protein C, protein S and AT III deficiency, polymorphism causing resistance to activated protein C (factor V Leiden mutation) and disturbance in the clotting balance (prothrombin gene 20210 G/A variant). Acquired thrombophilic disorders are more common such as the antiphospholipid antibodies syndrome, associated with lupus anticoagulant and anticardiolipin antibodies.[7]

Stroke in young adult population has a high incidence of approximately 24–35%, according to some studies in India. Abraham *et al*[8]. from Vellore reported an incidence of 25% in population less than 40 years of age. Munts *et al*[9] reported that idiopathic coagulation disorders were found in about a quarter of young stroke patients, Carod- A *et al*[10] studied about ischemic stroke subtypes and prevalence of thrombophilia in Brazilian stroke patients. They examined 130 consecutive young and 200 elderly patients. Prevalence of thrombophilia was, respectively: protein S deficiency (11.5% versus 5.5%), protein C deficiency (0.76% versus 1%). They concluded that prothrombotic conditions were more frequent in stroke of undetermined causes.

Ischemic stroke has been reported as a rare manifestation of protein S deficiency. Girolami *et al*.[1] and Sie *et al*.[12] were among the first who reported the association of familial deficiency of protein S as a cause of ischemic stroke in young. Wiesel *et al*[13] studied 105 patients with protein S deficiency, out of which had 14 arterial thrombotic accidents involving the central nervous system or the myocardium, while most studies revealed a weaker association between the two.[14]

We have reported an unusual case protein S deficiency resulted in arterial ischaemic stroke. On the basis of available data, special laboratory screening for prothrombotic states contributing to stroke is recommended only for selected patients. The cause and imminent precipitant of ischaemic strokes remain unexplained in many patients. The potential contributory role of prothrombotic states warrants further investigations.

**Conclusion:**

Stroke, being one of the most common cerebrovascular diseases, has drawn attention of researchers all over the world. Epidemiological aspects and risk factors associated with stroke remain as important as ever. Inherited protein S deficiency is rare cause of ischemic stroke and has tendency for further thromboembolic events, proper evaluation and treatment plan can save life and prevent further events.

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# Conservative Management of Placenta Increta: A Case Report

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*Abstract*

***Morbid adherent placenta is mostly managed surgically, now a days a conservative approach should be consider where appropriate. A 28 years old third gravid woman was undergone LSCS due to 38 weeks pregnancy with scar tenderness. During 3rd stage management the placenta was found morbidly adherent to uterus (placenta increta). Any antenatal 2D-USG did not give any lead towards diagnosis. The umbilical cord was ligated near it's insertion at placenta and placenta was kept as it was. Post-operatively patient was stable and per- vaginal bleeding were less. Two dose of Methotrexate 50mg were given intramuscularly at 2nd and 4th day of puerperium along with prophylactic antibiotic coverage and uterotonic drugs and on 18th post-operative day most of the part of the placenta was expelled out. Her ²-hCG levels were diminishing and ultra-sonogram was promising. At 6th week of puerperium USG shows bulky uterus with empty uterine cavity and no abnormal vascularity was seen on colour Doppler. Conservative management of this case, not only help to preserve the menstrual and reproductive function of a young lady, but also help her psychologically. So, during management of a case of morbidly adherent placenta, conservative approach should give a thought when possible.***

***Key words: Placenta acreta, Methotrexate, Conservative management.***

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**Introduction:**

Placenta accrete in general term used to describe the clinical condition when part of the placenta, or the entire placenta, invades and inseparable from uterine wall.[1] The probable cause is due to absence of decidua besalis and poor development of fibrinoid layers.[2] Overall incidence of placenta accrete or its variations is 1 in 550 deliveries. The three subtypes are placenta accreta Vera (attachment to the myometrium without invasion), placenta increta (subtotal invasion into the myometrium), and placenta percreta (total invasion into the myometrium including perforation through the uterine serosa and occasionally into adjacent organ such as bladder). About 80% of cases are placenta accreta vera, 15% increta, and 5% percreta.[3] Clinically, placenta accreta become problematic during delivery when the placenta does not completely separated from the uterus and is followed by massive obstetric haemorrhage, leading to disseminated intravascular coagulopathy; the need for hysterectomy, which inevitably leads to loss of fertility. Here we report a case of placenta increta diagnosed intrapartum and managed conservatively, thereby, preserving fertility.

**Case presentation:**

A 28 years old women of third gravida with a history of previous one cesarian delivery was admitted as a case about of 38 weeks pregnancy history of with lower abdominal pain. Her pregnancy was dated by LMP and early ultra-sonogram, and she was on regular antenatal checkup. Her pregnancy was uneventful up to 38 weeks 3 days, then she developed moderate lower abdominal pain. On examination it was found $38^{3+}$ weeks pregnancy with one previous caesarian section with scar tenderness. She has undergone emergency cesarian section and a healthy male baby of 3.1 kg was delivered per abdominally. During 3rd stage management the placenta could not be delivered by control cord traction and during attempted of manual removal of placenta, no plane could be found between the placenta and uterine wall. Per-operatively it was found a case of bicornuate uterus and placenta increta in left cornue. Any antenatal 2D-USG did not diagnosed or gave any suspicion on morbid adherent placenta. So at that moment patient and her husband were counselled and

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with their consent decision was taken for conservative management. The umbilical cord was ligated near it's insertion at placenta and placenta was kept as it was. After proper haemostasis uterus was closed in two layers and abdomen in layers. Post-operative vital signs of patient were stable, per vaginal bleeding were average and abdomen was soft. Then she was referred to a tertiary care hospital and there they were counselled again and go in favors of conservative management with methotrexate. Methotrexate 50mg was given intramuscularly after 24 hours and repeat after 72 hours. She was on prophylactic antibiotic coverage and uterotonic drugs. She was admitted into hospital for 3 weeks and was monitored very closely. There was irregular per-vaginal bleeding but no rise of temperature. Two units of blood was transfused at 2nd and 5th post-operative period. Most of the part of the placenta was expelled out at 18th post-operative day. Following expulsion patient became comfortable with minimal bleeding and no pain. Her ²-hCG levels were diminishing and ultra-sonogram was promising. But she could not breast feed her child. Then she was discharged with proper advised on 21st post-operative day. Ultra-sonogram at 6th week of puerperium shows bulky uterus with empty uterine cavity and no abnormal vascularity was seen on colour doppler.

**Discussion:**

The incidence of abnormal placentation has increased and seems to parallel the caesarean delivery rate. Researcher have reported the incidence of placenta accreta as 1 in 533 pregnancies for the period of 1982 to 2002.[4] The specific cause of placenta accreta is unknown, but it can be related to placenta previa and previous cesarean deliveries. Placenta accreta is present in 5% to 10% of women with placenta previa. Multiple cesareans were present in over 60% of placenta accreta cases.[2] Other risk factors include prior uterine surgery (dilatation and curettage, manual removal of placenta, synaecolysis, thermal ablation[5] or myomectomy), increasing maternal age over 35 years[6], prior intrauterine infections, elevated maternal serum alpha-fetoprotein, multiparty >6 and uterine artery embolization.[7] However, our patient have history of previous one caesarean delivery and dilatation and curettage after incomplete abortion.

It is often asymptomatic antenatally and the diagnosis is only established after unsuccessful attempts to remove the placenta at delivery as happened in our patient. The most important complication of invasive placentation is massive hemorrhage, as a result of attempted manual placental separation, which opens up large-caliber spiral vessels and sinuses[8] where uterus could not contract and retract effectively. Hence, Manual removal of densely adherent placental areas should not be tried because forceful separation may result in severe bleeding.[4,9] Imaging modalities like USG and MRI, during antenatal evaluation may detect the presence of morbidly adherent placentae. Comparisons between ultrasound and Magnetic resonance imaging (MRI) have shown a sensitivity and specificity for ultrasound 77% and 96% and for MRI 88% and 100% respectively, highlighting the complementary role of the two imaging modalities.[10]

The mainstay of management in cases of placenta accreta is abdominal hysterectomy bringing an end to fertility and may cause serious social and psychological consequences. Leaving the placenta *in situ* is possibly the most important aspect of conservative treatment and there has been a gradual shift toward its management, which involves uterine conservation and leaving the adherent placenta *in situ* with either:

a. adjuvant treatment with methotrexate[13] in some cases or
b. by simply awaiting for its spontaneous resorption.

It is also possible to do wedge resection of the area where the placenta is adherent. Bilateral uterine artery embolization, argon beam coagulation of the placental bed and uterine artery or anterior division of internal iliac artery all have been mentioned with varying success.[14]

In 1986, the use of methotrexate, a folate antagonist, was first described in association with successful conservative treatment of placenta accrete.[15] It has been hypothesized that methotrexate affects placental tissue by reducing its vascularity, leading to placental necrosis and thus rapid involution of the placenta.[15] The placenta may be expelled after 5-13 days following intravenous methotrexate and 18 days following high-dose oral methotrexate. In cases where methotrexate was not administered, placental resorption was complete by 6 months. In bladder invasions the use of methotrexate may reduce the need for extensive bladder resection.[10] However, one study suggest that methotrexate may not facilitate placental degeneration after term delivery.[16] Thus, there is controversy as to the effectiveness of methotrexate as an adjuvant treatment. Also, there is a lack of consensus regarding optimal dosing, frequency, or route of administration. In this particular case, two doses of 50 mg were used, similar to the protocol used in the management of ectopic pregnancy at our centre. Follow-up to ensure the resolution of placental tissue was done with a combination of clinical assessment, ultrasound examination and serum β-hCG assay.[17,18,19] Significant

reduction of β-hCG to low levels does not guarantee that uterine hemorrhage will not occur, and it has been omitted with no apparent deleterious effects in a number of cases.[17,18,19] USG is useful in assessing the placental involution[18,19,20] and has been combined with color Doppler imaging to determine placental vascularity.[20,21]

Failure rate of conservative management was 22% which required hysterectomy, either primary or delayed, mostly for severe haemorrhage.[22] Although conservative treatment is successful in uterine preservation but there are chances of severe maternal morbidity in the form of sepsis including septic shock, peritonitis, uterine necrosis, fistula, injury to the adjacent organs, acute pulmonary oedema, acute renal failure, deep vein thrombophlebitis, pulmonary oedema and death. Most common complication is fever which is due to endometritis or disseminated sepsis. Fever may also be due to tissue necrosis due to inflammatory response in the absence of infection.[22] Prophylactic broad spectrum antibiotic therapy may reduce incidence of infectious morbidity.[23,24,25] In our case we gave prophylactic antibiotic coverage and patient was monitored by blood count, electrolytes, creatinine, coagulation profile, β-hCG and USG with colour Doppler. And fortunately she did not develop any major complication.

**Conclusion:**

This case has been reported for the rarity of conservative management of placenta increta by leaving placenta in situ and adjuvant methotrexate. Conservative approach has always risk of complications. Hence, patient selection, close observation for the development of any complications or toxicity of methotrexate and informed consent from patient and party is extremely important. Also, experience in the literature suggests that conservative management of morbidly adherent placenta, can help women avoid hysterectomy in selected patients where fertility preservation is of concern.

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# College News January 2018

*Journal of Green Life Med. Col. 2018; 3(1): 59*

| Date | Topics | Department |
|---|---|---|
| 02.08.17 | Chikungunya and update | Depatment of Paediatrics |
| 09.08.17 | Morbidity following a ceasarean section | Department of Gynaecology and Obstetrics |
| 13.09.17 | Acne | Department of Dermatology |
| 20.09.17 | Refaractive error,presbyopia & LASIK | Department of Ophthalmology |
| 27.09.17 | Bone marrow analysis | Department of Pathology |
| 04.10.17 | Sinusitis its conventional surgery versus FESS | Department of ENT |
| 11.10.17 | Acute abdomen ( rapid onset of abdominal pain – a ticking time bomb) | Department of Surgery |
| 18.10.17 | Blood grouping | Department of Physiology |
| 25.10.17 | Love for the heart | Department of Medicine |
| 08.11.17 | Quality assurance scheme for the accreditation and standard of medical education | Medical Education Unit (MEU) |
| 22.11.17 | Critical presentation of human conception | Department of Gynae and Obs |
| 13.12.17 | New Delhi metalo B-lactamase and multidrug resistance | Department of Microbiology |
| 20.12.17 | Muskuloskeletal pain and its management | Department of Orthopaedics |

# GREEN LIFE MEDICAL COLLEGE JOURNAL

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