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Chattagram International Medical College Journal

Editorial Board

INFORMATION TO AUTHORS

Focus

Chattagram International Medical College (CIMC) established on 2013 is one of the famous and reputed Medical College among the Private Medical Colleges in Bangladesh as reflected by the performances of students in examinations of Chittagong Medical University. A very good number of academicians and researchers are performing in this institute.

Chattagram International Medical College commenced to publish a peer reviewed scientific Journal from 1st January 2016 which is recognized by BMDC and having International Standard Serial Number (ISSN) 2520-484X. The journal publishes article of authors from any part of the globe, but has a special interest in publishing research articles of authors from Bangladesh and of relevance to developing countries. It publishes Editorial, Original (Research) articles, Special articles, Review articles, Short Communications, Case report and letters on new findings of Medical Science.

Chattagram International Medical College journal is published in english, biannually eg. January and July with prior approval of Editorial board.

Appropriate measures has been taken to make the journal indexed / abstracted in major international indexing systems including the PubMed/MEDLINE, Index Medicus, Google Scholar, DOAJ, Hinari and Scopus etc. The theme of Chattagram International Medical College Journal is

"Excellence Through Peer Review"

Submission of Manuscript

Manuscript (Papers) are submitted to the Editor-In-Chief or authorised persons at any time. Papers accepted for publication are subjected to peer review and editorial revision. With full title (Title should be concise and informative) two copies of papers (Along with CD) accompanied by a covering letter signed by Principal and Co-authors including name, academic degrees, designation, the departmental and institutional affiliation. Complete address, Cell number including Email address of Corresponding author should be mentioned. Not more than 7 (Seven) authors will be accepted for all manuscripts.

Manuscript should be typed in English (Font size and style : 12, Times New Roman) on one side of white bond paper of A4 size with margins of at least 2.5 cm, using double space throughout.

Manuscript may be additionally submitted by email also. Email : info.cimchbd@gmail.com (MS word).
Rejected manuscript will not be returned.

Abstract

A structured abstract should not be of more than 250 words. It should be a factual description of the study performed organized with the heading of Background (Includes aim or objectives) Methods (Includes patient population, procedures and data analysis) Result and Conclusion. The abstract should contain the data to support the key findings or conclusions of the study and this should be self explanatory without references to the text. the first time an abbreviated term is used it should be spelled out in full form and follow with the abbreviation in parentheses for example :- BPH (Benign Prostatic Hyperplasia). Please do not cite any references in the abstract.

3 (Three) to 10 (Ten) key words may be provided below the abstract using terms from the medical subject heading (Index Medicus, NLM, USA).

Types of Manuscripts

Editorial : Its a invited article. Based on current affairs of Medical Science with any disciplines. Maxium length of the editorial may be with in 1000 words and number of references maxium in 10 (Ten).

Original Article : A research, observational and experimental article should be devided into the following sections with headings :
- Introduction
- Materials and methods
- Result
- Discussion
- Conclusion
- Recommendation (If any)
- Acknowledgements (If any)
- Limitation (If any)
- Disclosure

Single digit numbers used in the text should be in words except datas and reference numbers. Maximum length of text may be with in 2500 words (Excluding abstract, table, figure and references). The total number of reference should not be less than 15 (Fifteen) for the original article.

Special Article / Short Communication

Its a medical based text of any disciplines. Maximum length of the Special article / Short Communication may be with in 2500 words (Excluding abstract, table, figure and references). The total number of reference should not be less than 10 (Ten).

Review Article

Review Article

Its a prestigious article, which is divided into the following sections with headings

- Introduction
- Search Strategy
- Discussion
- Conclusion
- Disclosure

Review article should not generally exceed 3500 words, including illustrations and the number of references should not be more than 30 (Thirty).

Case Report

Text of Case report with the following section

- Introduction
- Case Report
- Images (If any)
- Discussion
- Figure / Legends (If any)
- Conclusion
- Disclosure

Maximum length of the text may be with in 1500 words (Excluding abstract and references). The total number of reference should not be less than 10 (Ten).

Letter

Letter should be brief and to the point with in 500-600 words only.

It is noted that standard abbreviations should be used whenever. The full form for which the abbreviations stands followed by the abbreviation in parenthesis should preceede the use of the abbreviation in the text except for standard ones like $45^{O}c$, 35mg/L etc in all types of text.

References

Regarding references please follow the Vancouver style (Uniform requirements for manuscripts submitted to biomedical journals prepared by the International Committee of Medical Journal Editors (ICMJE guideline http://www.icmje.org).

Reference citations in the text should be numbered in arabic numerals at the end of the sentence eg [1,2] consecutively in order in which they are mentioned in the text.

Book references should have the name of the authors, chapter title, editors, Book name, the edition, place of publication, the publisher, the year and the relevant pages.

Journal references should have the name of the authors, title of the article, editors, name of the journal volume and issue number, place of publication, the publisher, the year and relevant pages.

The first six authors of a work should be named, followed by 'et al' if there are more than six. If less than six authors the name of the all authors may be mentioned.

Examples

Book reference : Meltzer PS, Kallioniemi A, Trent JM. Chromosome alterations in human solid tumors. In : Vogelstein B, Kinzler KW, editors. The genetic basis of human cancer. New York, USA : McGraw Hill. 2002; 6:93-113.

Journal reference : Halpern SD, Ubel PA, Caplan AL. Solid organ transplantation in HIV infected patients. N EngL J Med. 2012; 34(4) : 284-287.

Citation from a website : Cancer - Pain.org [Internet]. New York : Association of Cancer Online Resource, Inc, c 2000 - 2001 Available from : http : //www.cancer-pain.org/.

Table

- All tables should be numbered using Roman numerals (I, II).
- Table should always be cited in text in consecutively using Roman numericals (eg Table I, II).
- Mentioned the caption at the top of table. Table should be planned as brief as possible.
- Significance values and other statistical data should be included beneath the table.

Figures / Graphs

- All Figures / Graphs are to be numbered using Arabic numerals (1, 2).
- Figures / Graphs always to be cited in text in consecutively using Arabic numerical (eg figure 1, 2).
- Provide a caption at the bottom for each figures / graphs.
- Reduce figures / graphs to fit either in one column or within the two column width of the journal page.

According to guidelines of the International committee of Medical Journal Editors (http:// www.icmje.org) please provide only 4/5 table with Roman numerical I, II with caption at the top of the table and only 4/5 figures / graphs with Arabic numerical 1, 2, with caption at the bottom of the figures / graphs.

Images / Photographys / Legends

Unmounted glossy print, B-2 size with good contrast (600 pixels). 3 Images / Photographys / Legends are allowed for whole text.

Declaration

The article should accompany a declaration signed by author and co-authors which includes a statement that neither the article nor any part of its essential subtance table or figures is published in any journal nor submitted elsewhere for consideration of publication before appearing in this journal. The declaration form must be collected from the office of Editor-In-Chief

Competing Interests

Chattagram International Medical College Journal requires authors to declare any competing financial or other interest in relation to their work. Where an author gives no competing interests, the listing will read the author (s) declare that they have no competing interests.

Health Economics for Medical Graduates

M Jalal Uddin[1*]

Background and Objective

New course curriculum for medical graduates in Bangladesh (BMDC 2021) has included 'Health Economics'. It is in the chapter Biostatistics, which will be taught in 4th year[1]. It is important for a medical graduate but most of the teachers are not oriented about 'Health Economics'. To focus into the subject we have written this small article.

Definition of health economics

The subject 'Economics' is the study of mechanism of satisfying unlimited wants with limited resources[2]. It deals with demand, supply, goods, services, allocation of resources etc. 'Health economics' is the branch of economics which is concerned with healthcare. Three questions are pertinent here: What goods and services are to be produced, How to be produced and for whomto be produced. Health economics help doctors in decision making considering limited resources and optimum benefit for the consumers. Now a day's consumers are conscious and empowered. They can contribute in choosing option for medical management.

Mankiw's ten principles of economics

These principles are relevant to Health Economics[3].

1. People face Tradeoffs

It means you have to give up something to gain something. So, if a person is not ready to sacrifice, he can not achieve his object.

2. The cost of something is what one gives up to get it. Cost may be explicit and implicit. As for example for an educational degree one has to pay money as well as hard labor for study.

3. Rational people think at the margin. It is known as 'marginality approach'. Here benefit of action is greater than cost of action. As for example a person has purchased a commodity. Utility of that commodity must exceed disutility created by purchase of utility.

4. People respond to incentives

Reward encourages activities. It may be in cash or in kind. It is universal and only irrationals do not respond to incentives.

5. Trade can make everyone better off.

Mutual trade is always beneficial. For example a manager is not expert in computing. He needs an assistant who is expert in computer operation. Mutual good relation between two officers may bring optimum benefit for the organization.

6. Markets are usually a good way to organizes economic activity. Free operation of market i.e interaction between demand and supply without interruption of third party should be encouraged.

7. Government can sometime improve market.

Role of government is very broad in controlling monopoly, price hike etc. government can provide subsidy for the benefit of the consumers.

8. Standard of living depends on production of goods and services. High production increases aggregate income which increases standard of living of common people of the country.

9. Price rises when government prints too much money. This is the most important cause of inflation in the market.

10. Society faces a short run tradeoff between inflation and unemployment. Here inflation increases employment.

Types of Economic evaluation

There are different types of economic evaluation in choosing option forHealthcare management.These are: [4]

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1. Cost minimization analysis:

Here outcomes of different options of Management are equivalent.So cheapest Option is chosen.

2. Cost effectiveness Analysis:

Here inputs and outputs are calculated and different options are compared.This analysis is commonly used.Here cheapest is not the option.

3. Cost utility analysis:

Here cost and benefits of intervention are assessed.Both quality and quantity of benefits are considered. The most frequently used measure is 'Quality Adjusted Life Year(QALY)'

4. Cost benefit analysis:

Here cost and consequences of intervention are valued in monetary terms. If cost are less than consequences of intervention than intervention is acceptable.

Conclusion

Health economics helps decision making by the doctor at all levels of Healthcare. This is particularly important in the countries with limited resources.Though there are some methodological limitation in evaluation process even then basic principles of health economics must be understood by the medical practitioners which will help their decision making process. Before that orientation on health Economics for teachers is a prerequisite.

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Knowledge, Attitude and Practice of Health Care Workers towards COVID-19: Study in a Non-Government Medical College Hospital of Bangladesh

Mehrunnissa Khanom[1*] Shamim Ara[2] Omma Tahara[3] Hasina Nasreen[4]

Abstract

Background: According to World Health Organization (WHO) the health care workers comprised 11% of total COVID-19 cases in Bangladesh within 1st May 2020. The current study assessed the Knowledge, Attitude and Practice (KAP) of health care workers of a non-government medical college in Chattogram, Bangladesh towards COVID-19.

Materials and methods: It was a cross-sectional study conducted on health care workers (HCW) of Chattagram International Medical College Hospital from 01 April to 31 July 2022. A validated, structured KAP questionnaire using WHO guideline was used for this study.

Results: The data from 561 forms were analyzed; 256 (45.6%) were male and 305 (54.4%) were female. Majority (63.1%) of participants were in the age range of 30–39 years. The remarkable findings in knowledge questionnaire included nearly 100% correct knowledge on mode of transmission of COVID-19 droplets among physicians and nurses; however, poor knowledge among support staff and others (4.7% to 38.9%). There was strikingly poor knowledge about hand hygiene among support staff and others (0% to 17.8%). Response to the attitude questions revealed that 25.5% respondents strongly agreed on adequatepreparedness to deal with COVID-19 patients, 26.9% strongly agreed that they would still treat a COVID-19 patient even in face of unavailability of required personal protective equipments. Regarding practice questionnaire, 24.6%respondents had access to surgical masks in own department and only 2.7% respondents had undergone occupational health and safety training.

Conclusion: The results of this study generate a baseline level of KAP that will help to measure predicted changes or interventions. This study may also assist in finding out the gaps and barriers to prevent as well as handle the COVID-19 pandemic.

Key words: Attitude; COVID-19; Healthcare worker; Knowledge; Practice.

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Introduction

The World Health Organization (WHO) declared Coronavirus Disease 2019 (COVID-19) a pandemic on March 11, 2020, following its outbreak as a cluster of pneumonia cases with unknown cause in Wuhan City, Hubei Province, China, in December 2019.[1] As of July 2, 2021, there had been 182,319,261 confirmed cases of COVID-19 worldwide, including 3,954,324 deaths.[2] In Bangladesh, on 8 March 2020 Institute of Epidemiology, Disease Control and Research (IEDCR) proclaimed the first-ever confirmed case of the COVID-19 in Bangladesh. As of July 2, 2021, there had been 930,042 confirmed cases of COVID-19 with 14,778 deaths.[3] Bangladesh was one of the most vulnerable countries due to high population density (170 million people in 147,570 km^2) poor health care systems, poverty and the weak economy. Healthcare workers (HCWs) stayed at the frontline of the COVID-19 pandemic response, and as such, they were highly exposed to threats such as psychological distress, stigma, burnout that increased their risk of being infected.[4,5] According to WHO, the HCWs including doctors, nurses and others health stuffs comprised 11% of the total COVID-19 cases in Bangladesh by 1st May 2020.[6] A study conducted in the United

Kingdom as well as in the United States found that frontline healthcare workers are more likely to test positive for COVID-19 than the general community. Infection prevention and control at healthcare facilities is critical in limiting transmission of COVID-19 to health workers and patients. The World Health Organization (WHO) identified a number of strategies to reduce the risk of transmission of COVID-19 in health settings, including isolation of suspected cases, the application of standard precautions to all patients and the implementation of additional precautions for suspected COVID-19 cases.[7,8] In order to expedite outbreak containment and management, it is essential to know frontline HCWs adherence to Infection Prevention Control (IPC) measures, which mostly is affected by their Knowledge (i.e. What is known) Attitudes (i.e. What is thought) and Practices (i.e. What is done).[9-12]

Chattagram International Medical CollegeHospital (CIMCH) a non-Government Medical College Hospital in Chattogram, Bangladesh had been receiving and serving suspected as well as confirmed COVID-19 patients since April 13, 2020. As per the hospital policy, the COVID-19 cases were managed at the isolation ward under close supervision of department of medicine. At the beginning, the number of beds allotted at the isolation ward was 27; however, the abrupt, steep expansion of pandemicled to occupancy of all beds under medicine by COVID-19 cases with allocation of extra beds. The highest documented COVID-19 beds served at a time at indoor of this hospital was 107.

The current study assessed the Knowledge, Attitude and Practice (KAP) of HCW of CIMCH towards COVID-19.

Materials and methods
It was a cross-sectional study conducted on health care workers of Chattagram International Medical College Hospital (CIMCH) from 01 April to 31 July 2022. As per operational definition, HCW was defined as those in primary contact with patients. So, all specialists, physicians, nurses, admin and support staffs serving at emergency, outdoor, indoor, laboratory, administration office and entry points of Chattagram International Medical College Hospital, aged 18 years or above, and who gave informed written consent were enrolled. Those on leave during the period of data collection and those who did not give consent were excluded

from the study. Structured KAP questionnaire using the World Health Organization guideline was used as research instrument; this questionnaire had been reproduced with permission from Moodley SV, Zungu M, Malotle M, Voyi K et al.[9]

After taking ethical clearance, a sampling frame was generated to include all the HCWs of study centre with assistance from human resource division. The investigators formed survey teams with contractual recruitment of interviewers. There were three survey teams: team 1 for HCWs of emergency and outpatient departments, team 2 for indoor patients, team 3 for laboratory, cash counter, report delivery, administrative section, lift, entry points at hospital gate. Date and time for data collection was carefully fixed by the research team with consideration of incidences that might affect data collection such as holidays, weather, vaccination program, lockdown etc. Data was collected in an interviewer-administered questionnaire. After signing in the consent form, interviewer assisted in the whole procedure wherever necessary. Data collection was done following all the infection prevention measures and, in a way, not to interfere official activities. After completion of data collection in the defined time, data checking, entry and analysiswas performed. Microsoft excel was used for data analysis.

Results
A total of 572 health care worker completed the questionnaire; 11 forms were discarded due to incomplete data and the data from remaining 561 forma were analyzed. Among 561 participants, 256 (45.6%) were male and 305 (54.4%) were female. Age distribution of participants demonstrated that majority (63.1%) of participants were in the age range of 30-39 years (Table I). Table II demonstrates occupational distribution of participants; physicians and nurses contributed 50.8% of the total participants.

Table I Age distribution of participants (n=561)

Age group	Frequency	Percentage (%)
18 – 29 years	100	17.8
30 – 39 years	354	63.1
40 – 49 years	77	13.7
50 – 59 years	27	4.8
60 – 69 years	3	0.5
Total	561	100

Table II Occupation distribution of participants (n=561)

Occupation	Frequency	Percentage (%)
Physician	136	24.2
Nurse	149	26.6
Admin officer	53	9.4
Support staff	180	32.2
Other	43	7.7
Total	561	100

Knowledge of the Respondents Regarding COVID-19

Table III demonstrates response of participants to the knowledge questionnaire, according to occupational category. The remarkable findings in knowledge questionnaire include nearly 100% correct knowledge on mode of transmission of COVID-19 droplets among physicians and nurses, however, poor knowledge among support staff and others (4.7% to 38.9%). There was strikingly poor knowledge about hand hygiene among support staff and others (0% to 17.8%).

Table III Summary of correct answers to the knowledge items by occupational category (Correct responses in parenthesis)

	Physician n=136	Nurse n=149	Admin officer n=53	Support staff n=180	Other n=43	All n=561
1. COVID-19 is transmitted during close contact through respiratory droplets (Agree).	136 (100%)	149 (100%)	50 (94.3%)	70 (38.9%)	15 (34.9%)	420 (74.9%)
2. A person can become infected with COVID-19 by touching surfaces where COVID-19 droplets have landed and then touching their face (Agree).	136 (100%)	123 (82.5%)	32 (64%)	51 (28.3%)	13 (30.2%)	355 (63.3%)
3. Droplet and contact precautions are required for confirmed cases of COVID-19 but not for suspected cases (Disagree).	129 (94.9%)	98 (65.8%)	9 (16.9%)	34 (18.9%)	3 (6.9%)	273 (48.7%)
4. Airborne transmission of COVID-19 droplets is usually of distances of 3 metres or more (Disagree).	132 (97.05%)	123 (80.12%)	19 (35.9%)	15 (8.3%)	2 (4.7%)	291 (51.9%)
5. Hand hygiene with alcohol-based hand rubs is always preferred over soap and water (Disagree).	87 (63.9%)	76 (51%)	12 (22.6%)	32 (17.8%)	0 (0%)	207 (36.9%)
6. Boots, coveralls and aprons are required in the routine care of COVID-19 patients (Disagree).	92 (67.6%)	72 (48.3%)	11 (20.8%)	45 (25%)	12 (27.9%)	232 (41.3%)
7. Surgical masks should be used during the routine care of COVID-19 patients (Agree).	123 (90.4%)	133 (89.3%)	12 (22.6%)	54 (30%)	11 (25.6%)	205 (36.5%)
8. N95 respirators should be used for procedures in COVID-19 patients that are aerosol-generating (Agree).	129 (94.9%)	104 (69.8%)	4 (7.6%)	0 (0%)	0 (0%)	333 (59.4%)
9. Healthcare workers should use gloves during the routine care of COVID-19 patients (Agree).	125 (91.9%)	99 (66.4%)	6 (11.3%)	52 (28.9%)	13 (30.2%)	295 (52.58%)
10. Patients with suspected COVID-19 infection should be given N95 respirators to prevent transmission to healthcare workers (Disagree).	118 (86.76%)	98 65.77%)	7 (13.20%)	2 (1.11%)	0 (0%)	225 (40.1%)

Attitude of the Respondents Regarding COVID-19

Figure 1 demonstrates response to the attitude questions about COVID-19 among respondents; 25.5% respondents strongly agreed that they were adequately prepared to deal with patients of COVID-19, 26.9% strongly agreed that they would still treat a COVID-19 patient even in face of unavailability of personal protective equipments. A psychologically challenging question was asked as a last question in attitude assessment; whether the participant would resign from job in order to avoid contact with COVID-19 patients, nearly 91% participants disagreed on that statement.
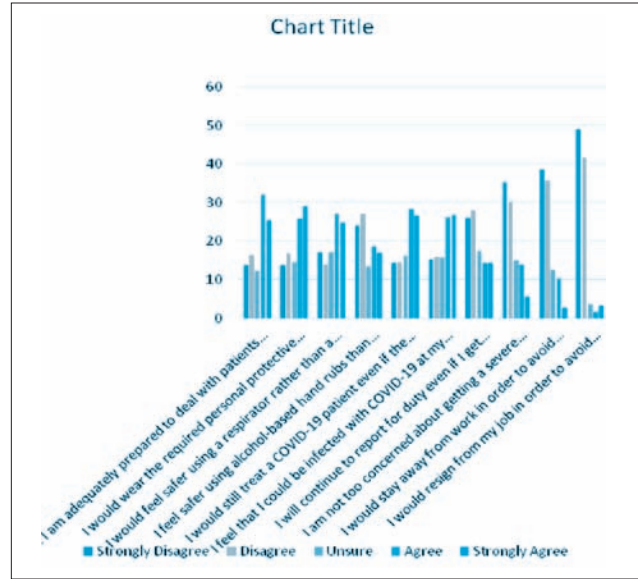
Figure 1 Answers to the attitude questions about COVID-19 among respondents

Practice of the Respondents Regarding COVID-19

Regarding practice questionnaire, only 2.7% respondents underwent occupational health and safety training, 3.7% respondents underwent training on correct use of personal protective equipment and 24.6% respondents had access to surgical masks in own department (Table IV).

Table IV Answers to the practice questions about COVID-19 among respondents

		Yes	No	Unsure	Not applicable
1.	Have you undergone occupational health and safety training?	15 (2.7%)	353 (62.9%)	94 (16.8%)	99 (17.6%)
2.	Have you undergone infection prevention and control training?	21 (3.7%)	342 (60.9.%)	102 (18.2%)	96 (17.2%)
3.	Have you undergone training on correct use of personal protective equipment?	144 (25.7%)	165 (29.4%)	151 (26.9%)	101 (18%)
4.	Are infection prevention guidelines on COVID-19 available in your department?	146 (26%)	154 (27.5%)	153 (27.3%)	108 (19.3%)
5.	Are infection prevention posters on COVID-19 available in your department?	162 (28.9%)	141 (25.1%)	137 (24.4%)	121 (21.6%0
6.	Do you have access to surgical masks in your department?	138 (24.6%)	176 (31.4%)	148 (26.4%)	99 (17.6%)
7.	Do you have access to respirators in your department?	152 (27.1%)	156 (27.8%)	143 (25.5%)	110 (19.6%)
8.	Do you have access to gloves in your department?	168 (29.9%)	148 (26.45)	146 (26%)	99 (17.6%)
9.	Do you have access to soap and water in your department?	156 (27.8%)	136 (24.2%)	147 (26.2%)	122 (21.7%)
10.	Do you have access to alcohol-based hand rubs in your department?	146 (26%)	158 (28.2%)	134 (23.9%)	123 (21.9%)
11.	Do you always practice hand hygiene (soap and water or alcohol based handrubs) after touching a patient?	140 (25%)	142 (25.3%)	178 (31.7%)	101 (18%)
12.	Do you always practice hand hygiene (soap and water or alcohol based hand rubs) after touching a patient's surroundings?	159 (28.3%)	138 (24.6%)	138 (24.6%)	126 (22.5%)
13.	Do you clean and disinfect equipment that is usually used for multiple patients (e.g. stethoscopes) prior to it being used on each new patient?	149 (26.6%)	157 (28%)	139 (24.8%)	116 (20.7%)

Discussion

This KAP study revealed satisfactory knowledge and attitude but lapses in practice towards prevention COVID-19. Though the physicians had fair knowledge about the mode of transmission and use of masks (91.9% to 100%), there was some knowledge gap among physicians regarding issues of hand hygiene and use of personal protective equipment (63.9% to 67.6%). The correct knowledge related answers of admin officers ranged from 7.3% to 94.3%, the most correct answers were related to transmission of COVID-19 and use of surgical masks. Support staffs and others demonstrated remarkably poor performance on all components of knowledge assessment (0% to 38.9%); however, this finding might be consistent with the academic background and lack of proper training as well knowledge sharing facilities among them.

Majority of participants demonstrated a positive attitude and preparedness toward prevention of COVID-19. The questions about staying away from work or resigning from work to avoid contact with COVID-19 patient revealed confident positive attitude in 75% to 90% of all participants. The fear of being contact with COVID-19 threatened attendance to the workplace for 2% to 10% participants.

Regarding practice questionnaire, there was remarkable reflection of scarcity of training among the participants on occupational health and safety, infection prevention and correct use of personal protective equipment. Scoring on accessibility to mask, respirator, gloves, soap and alcohol-based hand rub in the department reflected the resource constrains during ongoing pandemic. The practice of maintaining hand hygiene during and after patient care or touching an infected surface was proved to be an area that required special attention.

In Bangladesh, a self-administered questionnaire-based study through online platform was conducted between May 5 and May 3, 2020 by Patwary MM, Hossain MR, Sultana R, Dazhamayar AR, et al. upon 203 physicians and other health care workers who had licenses from the Bangladesh Medical and Dental Council or the Bangladesh Nursing and Midwifery Council. Nearly half (47.78%) were female, most (99.01%) had good knowledge of the COVID-19 infection. More than half of respondents (54.19) showed negative attitudes toward COVID-19, nearly half (45.32%,) were highly willing to treat COVID-19 patients if they got the opportunity. Only 9.85% stated unwillingness to treat any COVID-19 patients.[9]

In a multi-centered study conducted by Moodley SV, Zungu M, Malotle M, Voyi K et al. at four provinces of South Africa, a total of 286 health workers from 47 health facilities at different levels of care participated, only half of participants (50.7%) felt themselves adequately prepared to deal with COVD-19 pandemic, only 55.6% of total participants received infection prevention and control training. Some participants indicated that they did not have access to medical masks (11.8%) and gloves (9.9%) in their departments.[10]

In a multinational, cross-sectional online KAP study conducted July 5th to July 11th, 2020 at different primary health care centres of Dubai by Albahri AH, Alnaqbi SA, Alnaqbi SA, Alshaali AO et al. a total of 176 HCWs completed the questionnaire, with a 91.2% (176/193) response rate. 57.4% (101/176) of participants had a sufficient overall level of knowledge. Nurses, compared to physicians and non-Emiratis compared to Emiratis' HCWs, had statistically higher mean scores for attitude. Overall, 88.6% reported acceptable infection control practices.[12]

A cross-sectional questionnaire-based study conducted on 1,429 HCWs at different health centres of India revealed that ghe participants answering right to knowledge questions ranged between 60.0 and 99.7% . Overall, adequate knowledge was documented among 82.9% of the participants. The participants with positive responses to the attitude questions ranged between 16.2 and 96.6%. Senior HCW aged 51–60 years had more appreciable attitude scores. In practice items, the percentage of participants following safety practices ranged between 77.5 and 96.1%.[13,14]

Conclusion

This study collected information on the Knowledge (i.e. What is known) Attitudes (i.e. What is thought) and practices (i.e. What is done) of health care workers of study centre towards COVID-19 pandemic. The results of this study might generate baseline levels of KAP that will help to measure changes that might result from interventions Given the gaps identified the major recommendations from this study include proper training to health

care workers at all levels with special attention to support staffs, availability of soap, sanitizer, mask and hand wash facilities at all primary contact points and most importantly, motivation as well as positive re-enforcement of health care workers at institutional level.

Disclosure

All the authors declared no conflicts of interest.

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Hematological Profile of Patients with Type II DM on Metformin

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Abstract

Background: Over the last decades, long term treatment with metformin has been recognized as a possible cause of alterations in hematological parameters of type II diabetic patients. Metformin can affect the absorption of vitamin B12 and folic acid which ultimately results in neurological and hematological complications.

Materials and methods: The prime of the study to assess Hb%, PCV, MCV and MCHC of type II diabetic patients on metformin. This hospital based cross sectional study was conducted in Department of Physiology, Chittagong Medical College in collaboration with Department of Medicine and Department of Endocrinology, Chittagong Medical College Hospital from July 2021 to June 2022. Total 70 diagnosed type II diabetic patients were included in the study among which 35 patients aged between 45-55 years and on metformin therapy for more than 2 years were taken as case group and in control group age and sex matched 35 diagnosed diabetic patients not treated with metformin were included. Hb%, PCV, MCV and MCHC were measured in all patients. Collected data was analyzed by SPSS-26. Comparison of continuous and categorical data between two groups was done by Student's

unpaired 't' test and Chi-square test respectively as test of significance. Pearson's correlation test was done to observe the correlation of dose and duration of metformin with Hb%, PCV, MCV and MCHC.

Results: Values of Hb%, PCV were significantly lower and values of MCV, MCHC were significantly higher in metformin exposed diabetic patients compared to metformin unexposed patients (p<0.001). These hematological parameters were not correlated with dose and duration of metformin use. Conclusion: The results of this study conclude that long term use of metformin can alter some hematological parameters (Hb%, PCV, MCV, MCHC) in patients with type II Diabetes Mellitus.

Key words: Diabetes Mellitus (DM); Hemoglobin (Hb%); Mean corpuscular volume (MCV); Mean corpuscular hemoglobin concentration (MCHC); Metformin; Packed cell volume (PCV).

Introduction

Diabetes Mellitus is recognized as a serious public health concern that considerably influences human life and health expenditures.[1] It is a clinical syndrome characterized by hyperglycemia due to absolute or relative insulin deficiency.[2] Type I and type II diabetes are

two general types of diabetes mellitus. Type II diabetes, accounting for about 90% to 95% of all cases of diabetes, is initially caused by insulin resistance.[3] Obesity, physical inactivity, ethnicity and genetic factors act as important determinants of insulin resistance.[4] According to the World Health Organization, the number of type II diabetic patients is expected to double within the next 25 years.[5]

Metformin is one of the most extensively used antidiabetic agents which is taken by almost 120 million people worldwide.[6] It is being used as monotherapy or in combination with other medications. Metformin, a biguanide, has been

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established as first line therapy for treatment of type 2 diabetes due to its efficacy, safety, multiple metabolic and cardiovascular benefits.[7] Metformin reduces hepatic glucose production by inhibiting gluconeogenesis as well as glycogenolysis and improves peripheral glucose utilization.[8] Common side effects of metformin are gastrointestinal symptoms like nausea, abdominal discomfort, soft stool, diarrhoea etc.[6] Patients on long term metformin therapy were found to be at risk of macrocytic anemia and peripheral neuropathy.[9,10,11]

14% to 29% diabetic patients on long term metformin therapy had suffered from macrocytic anemia in which abnormal and fragile RBCs are produced from the bone marrow.[12,13,14] Decreased level of Hb% (Hemoglobin), PCV (Packed cell volume) along with increased level of MCV (mean corpuscular volume) and MCHC (Mean corpuscular hemoglobin concentartion) were reported in multiple cases of megaloblastic anemia due to long term metformin use.[15,16] Insignificant changes in Hb% or MCV level of metformin users were also observed by some other investigators.[17,18] Long term treatment of type II diabetic patients with metformin increases the risk of vitamin B12 and folic acid deficiency.[19,20,21] Deficiency of these vitamins ultimately leads to neurological and hematological abnormalities.[22,23]

Vitamin B12 is essential for synthesis of DNA as well as myelin sheath.[23] Association of metformin treatment with low level of vitamin B12 was found in type II diabetic patients.[24,25,26] Worldwide 3.9% to 51% diabetic patients on metformin had suffered from borderline to severe vitamin B12 deficiency.[17,27,28,29,30,31] Exposure to metformin for more than 2 years was observed as potential risk factor for developing B12 deficiency in diabetic individuals.[27,30]

Folic acid is also an essential vitamin for human. Folate reduces to tetrahydrofolate and acts as one carbon donor for methylation and DNA synthesis.[22] 7% to 34% diabetic patients receiving metformin showed significant decrease in plasma folic acid level in different studies.[22,32] Maturation failure in the process of erythropoiesis either due to vitamin B12 or folic acid deficiency results in producing fragile and larger than normal RBCs from bone marrow known as macrocytes.[12]

Cases of metformin associated anemia can be remained undiagnosed and untreated due to lack of proper monitoring.[33] Routine assessment of hematological parameters (Hb%, PCV, MCV, MCHC) needs to be considered during long term metformin treatment for the well being of diabetic patients.[19] Therefore this study has been designed to assess Hb%, PCV, MCV and MCHC of type 2 diabetic patients on metformin.

Materials And Methods

This hospital based cross sectional study was conducted in Department of Physiology, Chittagong Medical College in collaboration with Department of Medicine and Department of Endocrinology, Chittagong Medical College Hospital from July 2021 to June 2022. Total 70 type II diabetic patients were included in the study among which 35 patients aged between 45-55 years and on metformin therapy for more than 2 years were taken as case group. 35 age and sex matched diabetic patients not treated with metformin were taken as control group. Patients having prior gastrectomy, gut resection, inflammatory bowel disease, liver disease, chronic kidney disease or malignancy were excluded. Vegetarians, alcoholics, pregnant and lactating mothers were also excluded. Ethical clearance of this study was given by Ethical Committee of Chittagong Medical College. Administrative permission from Hospital Authority, Medicine Department and Endocrinology Department of Chittagong Medical College was taken prior to conduct this study. After screening by inclusion and exclusion criteria, 70 patients were recruited into this study. Informed written consent was taken from everyone and all the participants were interviewed by researcher. Then data was recorded in a predesigned case record form. Values of Hb%, PCV, MCV and MCHC were measured in all patients. Analysis of liver enzyme (SGPT) and serum creatinine was done for detection of liver and kidney pathology to exclude the subjects. Data was analyzed by SPSS-26. Comparison of continuous and categorical data between two groups was done by Student's unpaired 't' test and Chi square test respectively as test of significance. Pearson's correlation test was done to observe the correlation of dose and duration of metformin with Hb%, PCV, MCV, MCHC. In the interpretation of results, p value <0.05 was considered as statistically significant.

Results

Table I Comparison of age, sex, S. Creatinine and SGPT level between metformin exposed (Case) and metformin unexposed (Control) diabetic patients (n=70)

Attributes		Exposed Patients (n=35)	Unexposed Patients (n=35)	p value (Test statistics)
Age (Years)		50.9±4.1 (45-55)	49.6±4.3 (45-55)	0.210^{ns} (t=1.267)
Sex	Male	7 (20%)	7 (20%)	1.0^{ns} (χ^2= 0.0)
	Female	28 (80%)	28 (80%)	
S. Creatinine (mg/dl)		0.96±0.24 (0.48-1.3)	0.87±0.18 (0.52-1.3)	0.09ns (t=1.704)
SGPT (IU/L)		27.42±12.29 (10.0-50.0)	28.71±11.02 (10.0-50.0)	0.647^{ns} (t=.461)

Unpaired student's 't'- test was done for age, S.Creatinine and SGPT. Values are expressed as Mean ± SD (Standard Deviation), n= number of subject, ns= statistically not significant ($p>0.05$), values in parenthesis indicate range. Chi-square test was done for sex. Values in parenthesis indicate percentage.

Table I shows both groups were similar in age with similar proportion of male and female. There was insignificant difference between S. Creatinine and SGPT level of metformin exposed diabetic subjects and metformin unexposed subjects ($p >0.05$).

Table II Comparison of Hb%, PCV, MCV, MCHC between metformin exposed (Case) and metformin unexposed (Control) diabetic patients (n=70)

Attributes	Exposed Patients Mean±SD (Range) (n=35)	Unexposed Patients Mean±SD (Range) (n=35)	p value (t value)
Hb (gm/dl)	10.7±1.7 (7.6-14.0)	12.4±1.9 (9.0-15.8)	<0.001** (.4.099)
PCV (%)	31.9±5.5 (21.6-43.0)	37.9±4.8 (28.5-46.9)	<0.001** (.4.825)
MCV (fl)	86.2±6.0 (77.9-102.0)	80.0±7.1 (58.9-91.2)	<0.001** (3.911)
MCHC (gm/dl)	34.1±2.0 (30.8-41.0)	31.8±1.3 (29.0-34.0)	<0.001** (5.847)

Unpaired student's 't'- test was done. Values are expressed as Mean ± SD (Standard Deviation) n= number of subject, ** = statistically significant ($p<0.001$).

Hb= Haemoglobin, PCV= Packed Cell Volume, MCV= Mean Corpuscular Volume, MCHC= Mean Corpuscular Haemoglobin Concentration.

Table II shows significantly lower Hb%, PCV and significantly higher MCV, MCHC in metformin exposed (Case) diabetic subjects compared to metformin unexposed (Control) subjects ($p<0.001$).

Table III Correlation of duration and dosage of metformin use with hematological parameters. (n=35)

Attributes	Hb% p value (r value)	PCV p value (r value)	MCV p value (r value)	MCHC p value (r value)
Duration of metformin use	0.810^{ns} (0.042)	0.564^{ns} (0.101)	0.355^{ns} (0.161)	0.106^{ns} (-0.278)
Dosage of metformin	0.575^{ns} (0.098)	0.279 ns (0.188)	0.596^{ns} (0.093)	0.054^{ns} (-0.329)

r= Pearson Correlation coefficient, ns= statistically not significant ($p>0.05$)

Table III shows that duration and dosage of metformin have no correlation with Hb%, PCV, MCV and MCHC.
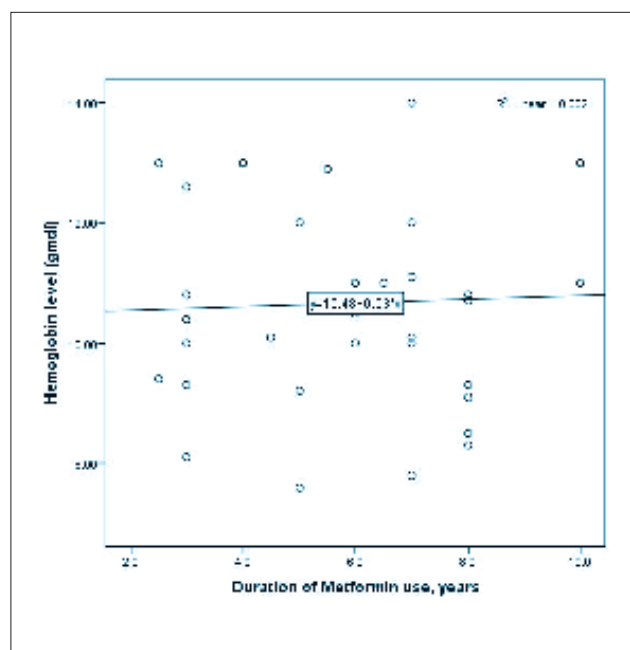
Figure 1 Correlation between duration of metformin use and hemoglobin
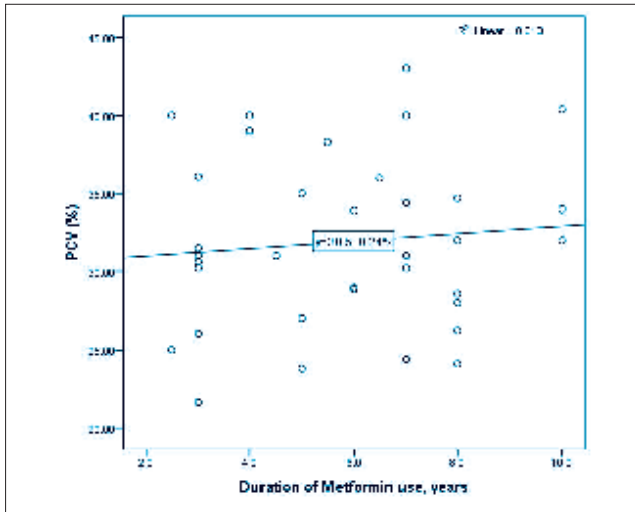
Figure 2 Correlation between duration of metformin use and PCV

Figure 3 Correlation between duration of metformin use and MCHC

Figure 4 Correlation between duration of metformin use and MCV

Figure 5 Correlation between dosage of metformin use and hemoglobin

Figure 6 Correlation between dosage of metformin use and PCV
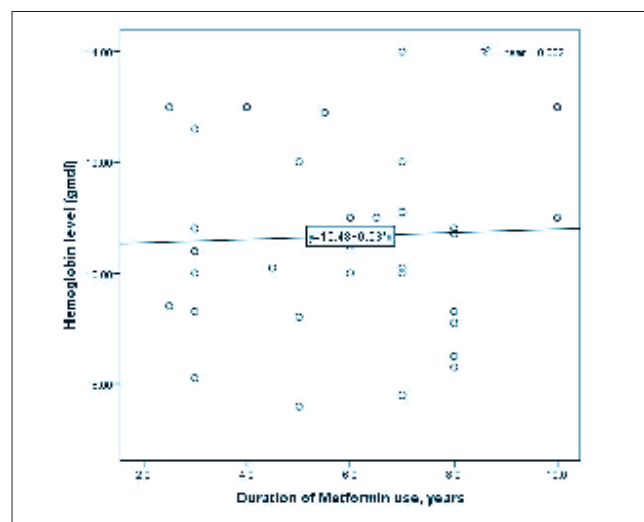
Figure 7 Correlation between dosage of metformin use and MCV
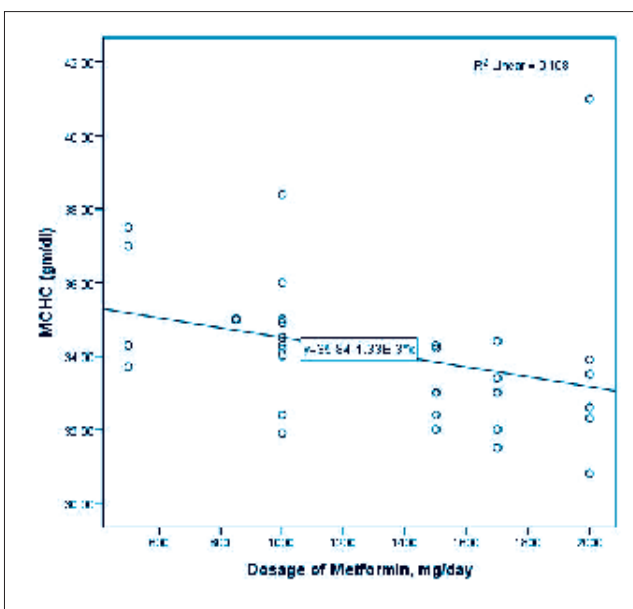
Figure 8 Correlation between dosage of metformin use and MCHC

Discussion

Age and sex matched (p>0.05) 70 diabetic patients were enrolled in the study among which 35 subjects were exposed to metformin and 35 subjects were not on metformin (Table I). Values of serum creatinine and serum glutamate pyruvate transaminase (SGPT) were within normal range in all participants (Table I).

In this study Hb% was significantly lower in metformin treated diabetic patients compared to non users of metformin (p<0.001) (Table II). Similar finding was observed by some investigators where metformin users for more than 2 years were found having significant lower level of Hb% than the control groups.[27] This study finding was not similar with some other observers who found insignificant alteration of Hb% in diabetic patients taking metformin.[34,35] They supposed that short duration of metformin use could be responsible factor behind the result.[34] Value of Packed Cell Volume (PCV) was significantly lower in metformin receiving diabetic individuals of this study compared to subjects who were not on metformin (p<0.001) (Table II). Aroda et al. revealed similar type of result through their study.[20] Improvement in PCV level of metformin users was noticed after treatment with cyanocobalamin.[16]

Type II diabetic patients on metformin showed significantly increased levels of MCV (p<0.001) in comparison with the patients not on metformin (Table II). Some other researchers also documented similar findings by their studies.[13,17] The study result regarding MCV was not similar with the observation of Ko et al. who found insignificant alteration in mean corpuscular volume of metformin exposed diabetic individuals.[18] Diabetic patients on metformin for minimum 3 months were included in their study which was explained as a probable factor for their result.[18]

Significant increase in mean corpuscular hemoglobin concentration (MCHC) of diabetic subjects using metformin compared to participants of control group was found in present study (p<0.001) (Table II). This result matched with the finding of Albai et al. in which increased MCHC level was noticed in patient receiving metformin.[16] Duration and dosage of metformin use were not correlated with Hb%, PCV, MCV and MCHC value of diabetic individuals of this study (Table III, Figure 1-8).

In present study, it is observed that long term use of metformin affects hematological parameters (Hb%, PCV, MCV, MCHC) of type 2 diabetic patients. As this is an observational study, further longitudinal studies are necessary to establish the fact. Thus metformin mediated hematological changes can be halted at initial stage.

Limitations

The limitations of this study are short period of study, small sample size and it is conducted in only one tertiary level hospital.

Conclusion

The result of this study concludes that Hb%, PCV levels are significantly decreased and MCV, MCHC levels are significantly increased in metformin exposed diabetic individuals. Duration and dose of metformin are not related to the changes of these parameters in diabetic people. Therefore hematological parameters should be routinely checked among type II diabetic patients for proper management and reduction of further complications.

Disclosure

All the authors declared no conflicts of interest.

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Disease Profile of Patients Attending Cardiology Outpatient Department of Chattagram International Medical College Hospital

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Abstract

Background: The World Health Organization (WHO) evaluations that 17.7 million mortality worldwide in 2015 were attributable to CVDs, or 31% of all deaths. Cardiovascular Diseases (CVDs) rank no 1 among the top causes of death of the world. The aim of the study was to assess the disease profile of patients attending cardiology OPD of Chattagram International Medical College Hospital.

Materials and methods: This cross-section observational study was carried out in the OPD of Cardiology, Chattagram International Medical College Hospital. The duration was from June 2022 to May 2023. A total of 959 patients were participate in the study. Statistical analysis wasdone using Statistical Packages for Social Sciences (SPSS-24) a program.

Results: The populationsmean (± SD) of age was 41.02 ± 3.73. Maximum patients were within the age group of 60-80 years of age. Among all the patients 46% were male and 54% were female. Regarding disease profile of the patients 11.9% had Hypertension, 40.5% had IHD of which 5.6% had ACS(AMI, UA), 7.8% had HF (CHF/ LVF) 18.8% had Atypical Chest Pain, 3.2% had COPD/ ACOS and 12.20% had Arrhythmia. Regarding comorbidities 43.6% had Hypertension, 23.6% had DM, 8.4% had Dyslipidemia, 0.7% had obesity and 3.9% had CKD.

Conclusion: Equality of gender having CVD, more prevalence of HTN, IHD and higher comorbidity of DM and HTN are the highlights of this study.

Key words: CVD (Cardiovascular Diseases); Comorbidities; OPD (Outpatient Department); SIHD (Stable Ischemic Heart Disease).

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Introduction

Globally, Cardiovascular Diseases (CVDs) rank number 1 among the top causes of death. The World Health Organisation (WHO) estimates that 17.7 million deaths worldwide in 2015 were attributable to CVDs or 31% of all deaths.[1] Despite a remarkable drop in age-specific cardiovascular mortality in Western countries over the past few decades, Cardiovascular Disease (CVD) is still the leading cause of death worldwide.[2] Cardiovascular events and case fatalities have decreased as a result of improved primary prevention and pharmaceutical therapy of cardiovascular risk factors.[3] The majority of those afflicted are from Bangladesh and other low- and middle-income nations, where 80% of these fatalities take place.[4] From 2011 to 2025, these nations' total expected economic losses from all noncommunicable diseases will be $7.28 trillion, with CVD accounting for almost half of this total.[5] In light of this, CVD is regarded as a serious global public health risk. According to recent studies, 15.5% of Bangladeshis between the ages of 40 and 69 are at risk for CVDs.[6] Over the past few decades, Bangladesh has seen a notable rise in the prevalence of chronic non-communicable diseases and the associated mortality rate.[7,8] Bangladesh's swift economic expansion has caused it to rapidly urbanize over the past few decades, and it has lately become a developing nation. The effects of this growth and urbanization heighten worries that a sedentary lifestyle-which includes shifting eating habits like increasing access to and demand for processed food, irregular meal schedules and decreased physical activity-may lead to a further

increase in the burden of chronic disease.[9] Bangladesh currently lacks a population-based surveillance system to monitor chronic non-communicable diseases.

In addition, the absence of central administrative health statistics or national population-based surveys makes it difficult to find reliable information on the prevalence of diseases in Bangladesh. There have only been a few researches done on the prevalence of CVD in Bangladeshi people.[10-13] COPD is the major comorbidity for CVD. CVDs are related to an increased risk of death in addition to being among the most common comorbidities in COPD patients.[14] In fact, the average patient with COPD has an equal chance of dying from a cardiovascular cause as from a respiratory one.[15] Thus the aim of the study was to assess the characteristics of disease profile of patients attending Cardiology OPD of Chattagram International Medical College Hospital.

Materials and methods

This cross-section observational study was carried out in the Department ofCardiology, ChattagramInternational Medical College Hospital. The duration of the period from June 2022 to May 2023. A total of 959 patients were participate in the study. Patients attending at Cardiology OPD, both male and female irrespective of any age and gave consent and had a confirmed diagnosis or consultation related to cardiovascular health to be included in the study. Patients not willing to give consent were excluded.Blood pressure measurements using a sphygmomanometer, Combination of patient history, physical examination, Electrocardiography (ECG) imaging studies (e.g. Echocardiography, stress tests) and cardiac biomarker analysis (e.g. Troponin levels) to assess for myocardial ischemia or infarction, Clinical symptoms (e.g. Chest pain) ECG changes (ST-segment elevation in AMI, ST-segment depression or T-wave inversion in UA) and cardiac biomarker levels (e.g. Troponin) to differentiate between AMI and UA and for risk factor leveled, assessment of traditional risk factors (e.g. Smoking, hypertension, diabetes, dyslipidemia), as well as non-traditional risk factors (e.g. Family history, obesity, sedentary lifestyle). The diagnosis of DM, HTN and SIHD conditions often involves a comprehensive evaluation, including patient history, physical examination, and potentially laboratory tests or imaging studies. Face to face interview was done to collect data with a semi-structured questionnaire. Cardiovascular Diseases (CVDs) are widely regarded as the most significant of the numerous comorbid conditions seen in individuals with Chronic Obstructive Pulmonary Disease (COPD). Disease were diagnosed by the consultant cardiology followed by proper evaluation and investigation.After collection, the data were checked followed by editing, compiling, coding and categorizing according to the objectives and variable to detect errors and to maintain consistency, relevancy and quality control. Statistical evaluation of the results used to be obtained via the use of a window-based computer software program devised with Statistical Packages for Social Sciences (SPSS-24).

Results

Table I Distribution of the patients by age group (n=959)

Age group	n=959	%
10-15	8	0.83
15-25	37	3.86
25-30	74	7.7
30-40	183	19.1
40-60	185	19.3
60-80	295	30.8
80-100	177	18.5
Mean ± SD	41.02 ± 3.73	

The mean (±SD) age of the patients was 41.02 ± 3.73. 0.83% patients were within the age group of 10-15 years, 3.86% were within 15-25 years, 7.7% were within 25-30 years, 19.1% were within 30-40 years, 30.8% were within 60-80 years and 18.5% were within 80-100 years of age. Maximum patients were within the age group of 60-80 years of age.
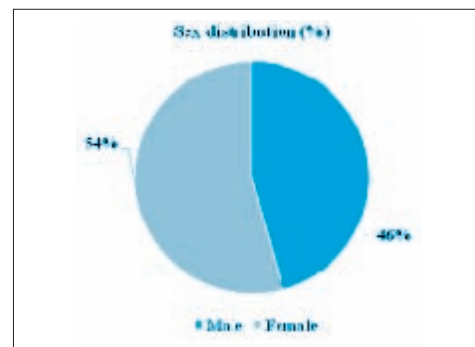
Figure 1 Distribution of the patients by sex (n=959)

Among all the patients 46% were male and 54% were female.

Table II Distribution of the patients'disease profile attending at cardiology OPD

Disease profile	n=959	%
Hypertension	114	11.88
SIHD	388	40.45
ACS(AMI, UA)	65	6.77
HF (CHF/ LVF)	75	7.82
Atypical Chest pain	169	17.62
Arrhythmia	117	12.20
COPD/ACOS	31	3.23
Total	959	100

Regarding disease profile of the patients 11.9% had Hypertension, 40.5% had IHD/SIHD, 5.6% had ACS (AMI, UA) 7.8% had HF (CHF/ LVF) and 12.20% had Arrhythmia.
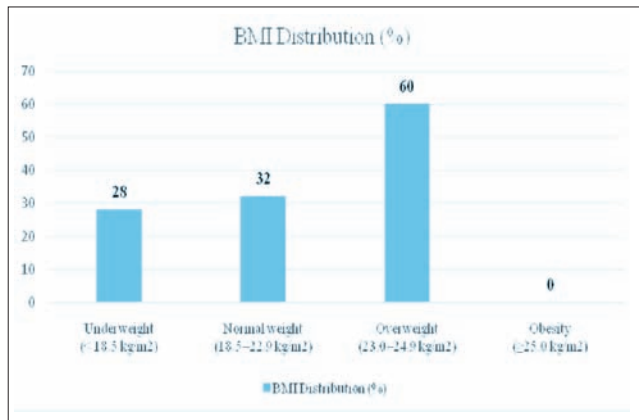
Figure 2 Distribution of the patients by BMI (n=959)

By WHO Asian-BMI classification, 28% of the patients were underweight, 32% were within normal range and 60% had overweight and there was no obesity.

Table III Distribution of the patients by risk factors (n=768)

Risk factors	n=768	%
Hypertension	418	54.4
DM	226	29.4
Dyslipidaemia	80	10.4
Obesity	7	0.9
Total	768	100

Regarding risk factors 54.4% had Hypertension, 29.4% had DM, 10.4% had Dyslipidaemia, 0.9% had obesity and 4.8% had CKD.

Table IV Comorbidities of patients attending in the cardiology OPD (n=441)

Disease profile	Co-morbidities			
	DM n(%)	Dyslipidaemia n(%)	Obesity n(%)	CKD n(%)
Hypertension	2(1.8) *	1 (0.9) *	1 (0.9)	1 (0.9)
IHD/SIHD	88(22.7)	16(4.1) *	1(0.3)	13(3.4)
ACS (AMI, UA)	6(11.1) *	0	0	0
HF (CHF/ LVF)	17(22.7)	2(2.7) *	1(1.3)	4(5.3)
Arrhythmia	70(18.56)	10(2.56)	1(0.4)	1(0.4)

p value was obtained by chi square test.*shows the significant value.

Table IV shows association between disease profile of the cardiology OPD patients with comorbidities. A significant relationship between DM and Dyslipidaemia was found. HF is also statistically significant with Dyslipidaemia that we found. Atypical Chest Pain is significantly associated with DM and Dyslipidaemia. There is a significant association between ACS and DM.

Discussion

In this study the mean (± SD) age of the patients was 41.02 ± 3.73. 0.83% patients were within the age group of 10-15 years, 3.86% were within 15-25 years, 7.7% were within 25-30 years, 19.1% were within 30-40 years, 30.8% were within 60-80 years and 18.5% were within 80-100 years of age. Maximum patients were within the age group of 60-80 years of age. A non-laboratory based Cardiovascular Disease (CVD) risk chart has been produced by the World Health Organisation (WHO) that takes into account the following parameters: systolic blood pressure, body mass index, age, sex, and current smoking status. A previous study showed that, the median age (IQR) was 59.0 (48.0–64.7) years. Overall prevalence of CVD risk ranging from very low, low, moderate, high and very high was 34.7%, 37.8%, 25.9%, 1.6% and 0.1% respectively.[15] Our study showed that, among all the patients 46% were male and 54% were female. A previous study showed that, 46.0% were female and rest of them are male.[16,17] In our study, regarding disease profile of the patients 11.9% had Hypertension, 40.5% had IHD/CAD, 5.6% had ACS (AMI, UA), 7.8% had HF (CHF/ LVF) 18.8% had Atypical Chest Pain, 3.2% had COPD/ ACOS and 12.20% had Arrhythmia. According to certain research findings, the population of Bangladesh

has a rather high pooled prevalence of cardiovascular diseases (24%–26%).[18,19] The average estimates are higher in Bangladesh than those of India (12%–27%) and Pakistan (Around 20%) but considerably lower than those of Sri Lanka (31%-44%).[20] In our study 28% of the patients were underweight, 32% were within normal range and 60% had overweight. Regarding comorbidities 43.6% had Hypertension, 23.6% had DM, 8.4% had Dyslipidaemia, 0.7% had obesity and 3.9% had CKD. There was a significant association between disease profile of the cardiology OPD patients with comorbidities (p=0.000). All cardiovascular comorbid conditions were more common in patients with a cardiovascular index disease than in patients without the corresponding cardiovascular condition in age- and sex-adjusted analyses.[21]

Conclusion

Most of the patients were young adult with almost equal gender distribution (Female 54%) unlike the previous studies may be an observation of rising CVD risk among female population as HTN is the highest comorbidities, it demands special attention in our country. Multi-centric, larger study representing whole Bangladesh may confirm the findings of this study.

Disclosure

All the authors declared no conflicts of interest.

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Health Problems among Urban Slum Dwellers in Chattogram City

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Abstract

Background: Communities in urban slums confront numerous threats to their healthbut a little is known about the magnitude, distribution, and risk factors for these illnesses. Gaining a clear understanding of these determinants is a prerequisite for developing interventions to reduce the health consequences of slum population.The aim of the study was to explore the health problems among adult population of urban slums in Chattogram city.

Materials and methods: The cross-sectional study was conducted among 140 slum dwellers. Face to face interview method was applied for data collection by using questionnaire. After that, data were analysed and results were presented according to variable.

Results: More than 70% of the respondents belonged 21-40 years age group.57.8% respondents were male followed by 42.2% were female.35 % were found illiterate and 32.15% completed primary level of education.In drinking purposes, the data showed that 86.67% respondents consumed unboiled water supplied from Chattagram WASA. 80% of the respondents had no access to hygienic latrin.70.71% respondents did not wash hands frequently before eating. 72.14% of them did not use soap/hand wash after defecation. 82.14% respondents were suffering from illness frequently. 47.86% of dwellers are suffering from diarrhoeal diseases, 25% from helminthic infestation, 29.29% generalized body ache followed by 20% from skin diseases.

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Conclusion: People living in slums are unaware of the determinants of health that increase their vulnerability to ill health. They are also unable to identify protective factors. The disease burden among the slum community can be reduced by understanding the determinants of ill health at all levels and by implementing appropriate interventions with the combined efforts of the government, NGOs and the local people.

Key words: Health problems; Health seeking behaviour; Slum; Urban slum.

Introduction

Globally, 828 million people are projected to live in slums, accounting for almost one-third of the global urban population. This proportion is expected to increase, notably in South Asia, where urban populations are expected to expand from 45% to 62% by 2050.[1] While China and India dominate these data and our attention, the entire Asian continent provides insights into the difficulties and prospects for urban health.

Bangladesh paints a vivid depiction of urbanization .According to the Census 2022, the total population in rural areas is 113,063,587 and 52,009,072 in urban areas.[2] Since, population density of Bangladesh is approximately 1101 per square kilometre and there is no other country in the world holding this kind of high density.[3] One-third of the current population lives in cities, up from 5% in the 1960s, and forecasts indicate that it will reach 50% by 2050.[4] This trend has led to an increase in urban slum settlements. Slum settlements have developed as a result of this trend, with a recent census estimating 14,000 slum settlements across the country.[5]

UN- Habitat defines a slum household as one or a group of individuals living under the same roof in an urban area and lacking one or more of the following five amenities:

i) Durable housing

ii) Sufficient living area

iii) Access to clean water

iv) Access to improved sanitation

v) Secure tenure.[6]

The urban slum population is the percentage of the urban population that lives in slum households. While the sizes of these settlements vary, they all have some things in common, such as a constant influx of impoverished people from rural areas (Who make up half of slum dwellers) overcrowding, growing inequality, environmental risks, poor infrastructure, and a fragmented and unreliable health care system.

Chattogram is the second-biggest city in Bangladesh. With 41 wards and 238 mahallas, Chattogram City has a total size of 155.40 sq. km.[7] It serves as the hub for business, industry, and trade. The city of Chattogram's slum dwellers were drawn to the area by both urban and rural pull factors. In Bangladesh, Chattogram City Corporation is home to 15.90% (Two thousand two hundred sixteen) of the country's slums, where 127,585 households reside.[8]

Global poverty is a serious problem in and of itself, and slum residents are definitely more susceptible to unfavorable medical consequences.[9] There has been an increase in interest lately in the health of slum inhabitants. In order to guarantee that the health results of the urban poor sustain the so-called urban advantage, attention must be paid to the disparities in health between slum and non-slum areas.[10]

If the world's urban slum populations are ignored, they will eventually become more numerous and health care resources will be directed toward treating avoidable diseases and late-stage squeal. Health interventions often target a single ailment or risk factor, however, the high burden of sickness and mortality in slums is a result of the combination of several risk factors. This study will assist us in investigating the health issues among the Chattogram City slum populations in order to create a suitable solution and comprehend any obstacles.

Materials and methods

This descriptive type of study was conducted at 3 selected urban slums named at 100 colony, Billa Colony, Borbari colony at Shamsherpara Chattogram from June 2023-September 2023. Slum dwellers who have been residing at selected slums for at least 1 year and aged > 18 years were our target population.By using statistical formula and through non-probability type of purposive sampling 140 slum dwellers were enrolled in this study following the inclusion and exclusion criteria.

The study participants were interviewed by using pretested mixed type of questionnaire. All the respondents were informed verballyabout objectives, patterns of questionnaires and ethical issues concerned with the study. For open-ended questions, the respondents were asked in a manner that they could speak freely and explain their opinion in a normal way. No leading question was asked. After that, data were compiled, tabulated, processed in the computer according to the key variables, using statistical software IBM-SPSS version 26. During the whole process, a good standard of trust was taken care of. Wearing masks, safe distancing and proper hygiene were maintained strictly.

Results

Table I Distribution of respondents according to Gender, Age, Sex, Educational level and occupation, Family type, Marital Status

Variables (n=140)	Frequency	Percentage (%)
Gender		
Male	81	57.8
Female	59	42.2
Age group (Years)		
21-30	55	39.28
31-40	50	35.71
41-50	19	13.57
51-60	13	9.28
61-70	03	2.14
Education		
Illiterate	49	35.00
Primary complete	45	32.15
Secondary incomplete	28	20.00
SSC	11	7.85
HSC	7	5.00
Occupation		
Garment worker	50	35.71
Day labor	46	32.86
Farmer	28	20.00
Others	16	11.43
Type of family		
Nuclear	93	66.43
Joint	28	20.00
Extended	19	13.57
Marital status		
Married	111	79.28
Unmarried	13	09.29
Others	16	11.43
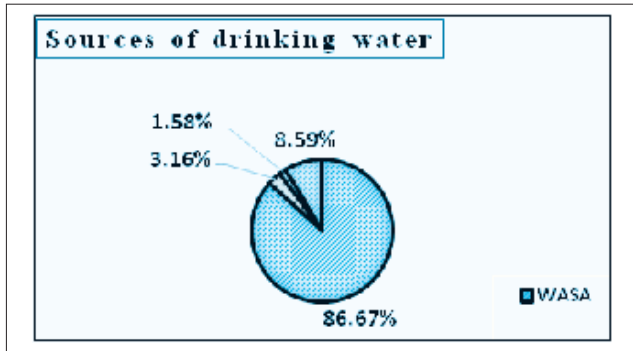
Figure 1 In drinking purposes, the data showed that 86.67% respondents use unboiledwater from Chattogram WASA for drinking purpose
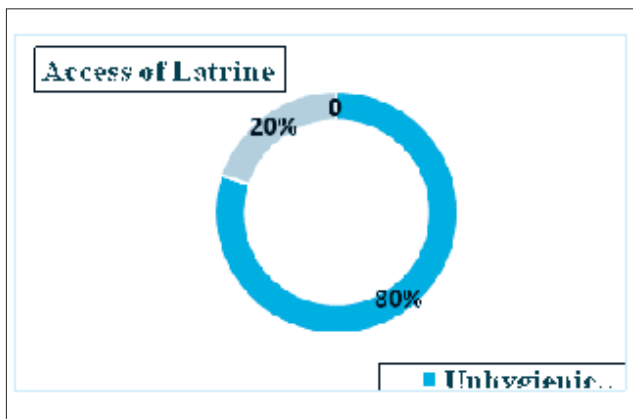
Figure 2 80% of the respondents had no access of hygienic latrine and 20% use hygienic latrine

Table II Distribution of respondents according to hygienic practices

Practices	Yes	No
Regular brushing teeth	110(78.57%)	30(21.43%)
Frequent Hand wash before eating	41(29.29%)	99(70.71%)
Frequent Hand wash after eating	79(56.43%)	61(43.57%)
Hand wash after using toilet with soap/hand wash	39(27.86%)	101(72.14%)
Use of Sandal in toilet	09(06.43%)	131(93.57%)

From the survey, it was clearly visible that near 70.71% respondents were not habituated with frequent hand wash before eating. 72.14% of them did not use soap/hand wash after defecation. Majority of the respondents 93.57% did not use Sandal in toilet.

Table III Distribution of the respondents by suffering from illness

Variables	Frequency	Percentage (%)
Frequency of illness (n=140)		
Yes	115	82.14
No	25	14.17
Health Problems (n=140)		
Diarrhoea	67	47.86
Helminthic Infestation	35	25.00
Generalized Body ache	41	29.29
Skin Diseases	28	20.00
Idea about illness (n=140)		
Yes	128	91.43
No	12	8.57

From the Table, it is shown that 82.14% respondents were suffering from illness frequently. 47.86% of dwellers are suffering from diarrhoeal diseases, 25% from helminthic infestation, 29.29% from generalized body achefollowed by 20% from skin diseases.

Discussion

It was observed in the study that, more than 70% of the respondents were found between 21-40 years age group. The findings are similar to a study.[11] 35% of the respondents were illiterate followed by 32.15% had completed primary, 20% did not complete secondary, 7.85%completed SSC and only 5% of them completed HSC exam. The study finding is not similar to another study.[12] 35.71% respondents were garment worker, 32.86% were day labour, 20% were farmer and rest of them were involved in different occupations. From the survey, it was found that 86.67% of slum people consumed watersupplied from Chattogram WASA and 8.59% from deep tube well, 3.16% boiled water and only 1.58% filtered water which is different to a study where majority slum dwellers used deep tube well water.[13] But a study conducted in Dhaka slum showed that 87 % slum dwellers used unboiled WASA water which is similar to our study.[14] From the survey, 80% of the respondents had no access to hygienic latrine. Similar observations were recorded in same settings.[15] From the survey, it is clearly visible that near 70.71% respondents are not habituated with frequent hand wash before eating. 72.14% of them do not use soap/hand wash after defecation. Majority of the respondents 93.57% did not use Sandal in toilet From the

survey, it is shown that 82.14% respondents were suffering from illness frequently. 47.86% of dwellers were suffering from diarrhoeal diseases, 25% from helminthic infestation, 20% from skin diseases followed by 29.29% from generalized body ache. From the survey, we found that 91.43% of the respondents had no accurate idea behind their health sufferings.

Limitations

The small portion doesn't reflect the overall status of the slum community. Due to a shortage of time, some of the important aspects were not included in the study.

Conclusion

Bangladesh has made substantial progress in improving socioeconomic and health indicators over the past 50 years, but data on national disease burden are scarce. The lack of such data hampers adequate health care resource allocation and provision of appropriate disease prevention services. The formal health sectors encounter slum dwellers only when they have end-stage complications of their chronic illness. They encounter these complications at a tremendous cost to their health care resources. Concerted effort is urgently needed to assess health burden and determinants of disease morbidity among slum residents at the community level.

Recommendations

Awareness should be created by effective training program and slum dwellers should be educated about the importance of safe water, use of sanitary latrine, hygienic practices for the prevention of diseases and necessity of timely seeking health care services from medical professional. Anthelminthic drugs and vitamin A capsule should be provided on a regular basis to the target age group in slum area.

Disclosure

Both the authors declared no conflicts of interest.

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Identifying Non-Communicable Disease Risk Factors among Non-Academic Male Staff at Chittagong Medical College, Bangladesh

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Abstract

Background: Non-Communicable Diseases (NCDs) pose a significant health burden globally, particularly in low- and middle-income countries like Bangladesh. However, there is limited research focusing on NCD risk factors among non-academic staff within academic medical institutions, such as Chittagong Medical College (CMC). This study aimed to investigate the pattern of risk factors of NCDs among non-academic staff at CMC, Bangladesh.

Materials and methods: A cross-sectional study was conducted from June to September 2023, involving 150 non-academic staff members from various departments and administrative units at CMC. Data on NCD risk factors including hypertension, obesity, diabetes and lifestyle behaviors were collected through structured interviews and physical examinations. Chi-square tests were used to analyze the associations between socio-demographic variables, risk factors and NCDs.

Results: The study revealed significant associations between certain socio-demographic variables and NCDs. Notably, age over 40 was strongly associated with hypertension (chi-square = 11.75, p 0.002) and diabetes mellitus (Chi-square = 19.42, p 0.0002). Additionally, alcohol consumption showed a significant association with hypertension (Chi-square = 33.06, p < 0.0001) and diabetes mellitus (Chi-square = 9.70, p=0.002). Conversely, smoking was significantly associated with diabetes mellitus (Chi-square = 6.67, p=0.01) but not with hypertension (Chi-square = 1.14, p=0.29). Physical exercise and BMI did not exhibit significant associations with either hypertension or diabetes mellitus (p > 0.05). Excessive fatty food intake showed significant associations with both hypertension (Chi-square = 33.75, p < 0.0001) and diabetes mellitus (Chi-square = 20.00, p < 0.0001).

Conclusion: This study underscores the importance of targeted interventions to address modifiable risk factors among non-academic staff at CMC, aiming to mitigate the burden of NCDs within this population. Efforts to promote healthier lifestyles, reduce alcohol consumption, and improve dietary habits are crucial for enhancing the overall health and well-being of non-academic staff members.

Key words: Non-academic staff; Non-communicable disease; Risk factors.

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Introduction

Non-Communicable Diseases (NCDs) have emerged as a significant public health challenge globally, contributing to a substantial burden of morbidity and mortality. These diseases, which include cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes, are characterized by their chronic nature and typically result from a combination of genetic, environmental, and behavioral factors. In Bangladesh, as in many other Low and Middle-

Income Countries (LMICs) the prevalence of NCDs has been steadily increasing over the past few decades, posing a considerable threat to population health and economic development.[1-3]

While much attention has been given to understanding the risk factors for NCDs among various population groups, there has been relatively limited research focusing specifically on non-academic staff within academic medical institutions. Chittagong Medical College (CMC) in Bangladesh represents one such institution where non-academic staff, including administrative personnel, maintenance workers, and support staff, form an essential part of the workforce. Despite their integral role in the functioning of the medical college, there is a paucity of data regarding the prevalence of NCDs and associated risk factors among this demographic group.

Understanding the risk factors for NCDs among non-academic staff at CMC is crucial for several reasons. First, this group may face unique occupational and environmental exposures that could contribute to the development of NCDs. For example, prolonged sitting, irregular working hours and exposure to workplace stressors may increase the risk of obesity, hypertension and mental health disorders. Second, non-academic staff members may have limited access to healthcare services and health promotion initiatives compared to academic faculty and students, further exacerbating their risk of NCDs.[4-6]

Moreover, addressing the NCD burden among non-academic staff aligns with the broader goal of promoting health equity and inclusivity within academic institutions. By identifying and addressing the unique risk factors faced by this population group, interventions can be tailored to mitigate these risks and improve overall health outcomes. This study aims to fill this gap in the literature by investigating the prevalence of NCDs and associated risk factors among non-academic staff at CMC, Bangladesh. By doing so, it seeks to inform targeted interventions and policies aimed at promoting the health and well-being of this important demographic within the institution.[7,8]

Materials and methods

This study employed a cross-sectional design to investigate the prevalence of NCDs and associated risk factors among non-academic staff at CMC, Bangladesh. The study was conducted at CMC, encompassing non-academic staff members from various departments and administrative units. A sample size of 150 non-academic staff was be selected using a convenience sampling technique. Data collection took place from June to September 2023. Data were collected through structured interviews and physical examinations, with a focus on assessing NCD risk factors such as hypertension, obesity, diabetes, and lifestyle behaviors. The data collection tools included standardized questionnaires adapted from validated instruments, as well as physical measurements such as blood pressure, Body Mass Index (BMI) and waist circumference. Descriptive statistics were used to analyze the prevalence of NCDs and risk factors among the study population. Ethical considerations were ensured throughout the study, including obtaining informed consent from participants, ensuring confidentiality of collected data, and obtaining ethical approval from the Institutional Review Board (IRB) of CMC prior to the commencement of the study. Additionally, participants were provided with information about the study objectives, voluntary participation, and their right to withdraw from the study at any time without consequence.

Result

Table I Bivariate association between sociodemographic variables, risk factors and any NCD

Variables	Numbers	%	Hypertension				χ^2	p Value	Diabetes Mellitus				χ^2	p Value
			Yes 65	%	No 85	%			Yes 60	%	No 90	%		
Age in years														
<30	30	20	5	7.69	25	29.41	11.75	.002	3	5	27	30	19.42	.0002
30-40	80	53.33	30	46.15	50	58.82			30	50	50	55.56		
>40	40	26.67	30	46.15	10	11.76			27	45	13	14.44		
Monthly Income														
<30000 Taka	95	63.33	50	76.92	45	52.94	2.42	.12	50	83.33	45	50		
>30000 Taka	55	36.67	15	23.08	40	47.06			10	16.67	45	50	.25	.62
Smoking														
Yes	105	70	55	84.62	50	58.82	1.14	.29	50	83.33	55	61.11	6.67	.01
No	45	30	10	15.38	35	41.18			10	16.67	35	38.89		
Alcohol consumption														
Yes	35	23.33	30	46.15	5	5.88	33.06	.0001	25	41.67	10	11.11	9.70	.002
No	115	76.67	35	53.85	80	94.12			35	58.33	80	88.89		
Physical Exercise														
Yes	30	20	10	15.38	20	23.53	2.00	.16	12	20	18	20	1.64	.20
No	120	80	55	84.62	65	76.47			48	80	72	80		
BMI														
≤24.9	45	30	15	23.08	30	35.29	3.39	.07	10	16.67	35	38.89	1.79	.18
≥25.0	105	70	50	76.92	55	64.71			50	83.33	55	61.11		
Excessive Fatty food Intake														
Yes	120	80	60	92.31	60	70.59	33.75	.0001	50	83.33	70	77.78	20	.0001
No	30	20	5	7.69	25	29.41			10	16.67	20	22.22		
Family H/O Hypertension														
Yes	60	40	45	69.23	15	17.65	20	.0001	40	66.67	20	22.22	.31	.58
No	90	60	20	30.77	70	82.35			20	33.33	70	77.78		
Family H/O Diabetes														
Yes	65		45		15		20	.0001	50		15		20	.0001
No	85		20		70				10		75			

Table I shows that the analysis of various factors about hypertension and diabetes mellitus reveals noteworthy insights. Firstly, concerning age, a significant chi-square value of 11.75 (p= 0.002) for hypertension and 19.42 (p =0.0002) for diabetes mellitus underscores strong associations. Specifically, individuals aged over 40 show a higher likelihood of both conditions. Additionally, income level shows no significant association with hypertension (Chi-square = 2.42, p =0.12) or diabetes mellitus (Chi-square = 0.25, p=0.62). However, smoking demonstrates a significant association with diabetes mellitus (Chi-square = 6.67, p=0.01) but not with hypertension (Chi-square = 1.14, p=0.29). Moreover, alcohol consumption shows a strong association with hypertension (Chi-square = 33.06, p < 0.0001) and a significant but weaker association with diabetes mellitus (Chi-square = 9.70, p=0.002). Furthermore, physical exercise exhibits no significant association with either condition (p > 0.05). Regarding BMI, while there's no significant association with hypertension (Chi-square = 3.39, p= 0.07), there's a marginal one with diabetes mellitus (Chi-square = 1.79, p=0.18). Lastly, excessive fatty food intake shows a significant association with both hypertension (Chi-square = 33.75, p < 0.0001) and diabetes mellitus (Chi-square = 20.00, p < 0.0001).

Discussion

The findings of this study provide valuable insights into the prevalence of NCDs and associated risk factors among non-academic staff at CMC, Bangladesh. The significant associations observed between certain sociodemographic variables and NCDs highlight the importance of targeted interventions to address these health concerns within this population group. Age emerged as a significant predictor of both hypertension and diabetes mellitus, consistent with existing literature demonstrating an increased risk of NCDs with advancing age.[8] Individuals aged over 40 were found to be at a higher likelihood of developing these conditions, underscoring the need for age-specific interventions aimed at early detection and management of NCDs among older non-academic staff members. Interestingly, income level did not show a significant association with hypertension or diabetes mellitus in this study, contrary to findings from some previous research.[9] This suggests that factors beyond income, such as lifestyle behaviors and access to healthcare services, may play a more substantial role in determining NCD risk among this population. Smoking was found to be significantly associated with diabetes mellitus but not with hypertension, highlighting the differential impact of smoking on various NCDs. These findings corroborate existing evidence linking smoking to an increased risk of diabetes mellitus.[10]

Alcohol consumption emerged as a significant risk factor for both hypertension and diabetes mellitus among non-academic staff at CMC, consistent with findings from other studies demonstrating the adverse effects of alcohol on cardiovascular health and metabolic outcomes.[11] This underscores the importance of targeted interventions to address alcohol consumption behaviors within this population. Physical exercise did not show a significant association with either hypertension or diabetes mellitus in this study, contrary to expectations based on the established benefits of regular physical activity in preventing NCDs.[9-11] Further exploration is needed to understand the barriers to physical activity among non-academic staff and to develop effective strategies for promoting exercise habits in this population. BMI showed a marginal association with diabetes mellitus but not with hypertension, suggesting that while obesity may increase the risk of diabetes, its impact on hypertension risk among non-academic staff may be less pronounced. These findings align with previous research highlighting the complex relationship between obesity, hypertension and diabetes.[10]

Excessive fatty food intake emerged as a significant risk factor for both hypertension and diabetes mellitus, consistent with the well-established role of dietary factors in the development of NCDs[8]. This underscores the importance of promoting healthy dietary behaviors among non-academic staff to reduce their risk of these conditions.

Conclusion

Overall, this study contributes to our understanding of NCD risk factors among non-academic staff at CMC and highlights the need for targeted interventions to address modifiable risk factors such as smoking, alcohol consumption, and dietary habits within this population. Future research should explore the effectiveness of interventions tailored to the unique needs and challenges faced by non-academic staff in academic medical institutions.

Disclosure

All the authors declared no conflicts of interest.

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Impact of Smoking on Serum Creatinine and Urea Levels among the Elderly Individuals

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Abstract

Background: Tobacco consumption is a significant public health concern worldwide, with detrimental effects on various organ systems, including the kidneys. Despite extensive research on the health impacts of tobacco, its specific effects on renal parameters, such as serum creatinine and urea levels, particularly in elderly individuals, remain understudied, especially in the context of Bangladesh. This study aimed to assess the impact of smoking on serum creatinine and urea levels in elderly individuals in Bangladesh.

Materials and methods: A cross-sectional study was conducted at Bangladesh Medical College from January to April 2022. The study included 70 participants, comprising 35 smokers and 35 non-smokers, aged 60 years and above. Purposive sampling was employed, and participants underwent clinical examinations and provided fasting venous blood samples. Serum creatinine and urea levels were measured using enzymatic colorimetric methods, and statistical analysis was performed using the independent sample "t" test.

Results: The analysis revealed significantly higher mean serum creatinine levels in smokers (1.3128 ± 0.14903 mg/dL) compared to non-smokers (0.8320 ± 0.12913 mg/dL) ($p < 0.001$). Similarly, the mean serum urea levels were significantly elevated in smokers (42.1000 ± 8.58716 mg/dL) compared to non-smokers (28.0000 ± 7.24245 mg/dL) ($p < 0.001$).

Conclusion: The study findings indicate a clear association between smoking and alterations in serum creatinine and urea levels in elderly individuals. Prolonged smoking appears to induce renal dysfunction, as evidenced by elevated serum creatinine and urea levels. These findings underscore the importance of tobacco cessation efforts in mitigating the risk of renal dysfunction and related complications among elderly individuals.

Key words: Elderly; Serum creatinine; Serum urea; Smoking.

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Introduction

Smoking, a prevalent habit worldwide, poses significant health risks, including adverse effects on renal function. The term "Smoking" encompasses the inhalation of smoke from burning tobacco, which contains numerous harmful substances, such as nicotine and various chemicals detrimental to health. The detrimental effects of smoking on respiratory and cardiovascular systems are well-documented, but its impact on renal parameters, particularly in elderly individuals, remains an area of growing concern.[1-3] In Bangladesh, where tobacco consumption rates are notably high, understanding the effects of smoking on renal function is paramount due to its implications for public health. Despite efforts to reduce tobacco use, both smoking and smokeless tobacco products remain prevalent, contributing to the burden of tobacco-related illnesses in the country.[4,5] Therefore, investigating the specific effects of smoking on renal parameters, such as serum creatinine and urea levels, is crucial for enhancing awareness and guiding preventive measures.

Materials and methods

This study was conducted at Bangladesh Medical College and Hospital, Dhaka from June to December 2022, aiming to assess the impact of smoking on serum creatinine and urea levels in elderly individuals. The sample size consisted of 70 participants, divided into two groups: 35 smokers and 35 non-smokers. Elderly individuals aged 60 years and above were included in the study. Participants were recruited through purposive sampling, ensuring representation from both smoker and non-smoker groups. Exclusion criteria encompassed individuals with a history of chronic systemic diseases, including liver, heart and lung conditions, as well as obesity, diabetes mellitus, hypertension, pregnancy and lactation. This selection criterion aimed to minimize confounding variables and facilitate the investigation of smoking's specific impact on renal parameters. After obtaining informed written consent, participants underwent clinical examinations. Fasting venous blood samples were collected under aseptic conditions from the antecubital vein of each participant. The serum was separated via centrifugation and stored for subsequent biochemical analysis. Biochemical tests, including serum creatinine and urea levels, were performed using enzymatic colorimetric methods in the Department of Biochemistry, Bangladesh Medical College. Statistical analysis was conducted using the independent sample "t" test with SPSS-17.0 software, allowing for comparison between smoker and non-smoker groups to elucidate the impact of smoking on renal parameters in elderly individuals.

Results

Serum creatinine and serum urea levels of tobacco users were higher than the tobacco non-users, and the differences were highly significant statistically (Table I).

Table I Comparison of serum creatinine and urea levels between two groups (n=70)

Variables	Control (Non-tobacco chewers nonsmokers) Mean ± SD Range (Min- max)	Tobacco chewers and smokers Mean ± SD Range (Min- max)	p value
Serum Creatinine	0.8320 ± 0.12913 (0.70 – 1.10)	1.3128 ± 0.14903 (1.00 – 1.60)	.000***
Serum Urea	28.0000 ± 7.24245 (18.00 - 44.00)	42.1000 ± 8.58716 (22 – 52)	.000***

A = Healthy subjects of non-tobacco chewer non-smoker (Control).

B = Healthy subjects of tobacco chewers and smokers (Experimental). n= Number of subjects.

*** = p 0.001.

Normal range of serum creatinine level is 0.6 – 1.3 mg/dl.

Normal range of serum urea level is 15 – 45 mg/dl.

Discussion

In this cross-sectional study, the analysis of serum creatinine and urea levels revealed a significant elevation in tobacco chewer smoker subjects compared to healthy control subjects. This finding aligns with previous research, indicating similar trends in other studies. However, it's noteworthy that some researchers have reported contrasting results, finding no significant changes in serum creatinine and urea levels among tobacco chewers and non-smokers.[6,7]

The observed elevation in serum creatinine and urea levels among tobacco chewer non-smoker subjects can be attributed to various mechanisms associated with tobacco consumption. Tobacco contains toxic components, such as heavy metals like Cadmium (Cd) and Lead (Pb) which are nephrotoxic and can induce alterations in kidney function, including glomerular dysfunction leading to renal damage. Furthermore, tobacco chewing contributes to the synthesis of free radicals, leading to lipid and protein peroxidation, DNA damage and carcinogenesis, all of which can impact glomerular function and elevate serum creatinine and urea levels.[8]

Additionally, nicotine and Reactive Oxygen Species (ROS) present in tobacco can damage cellular constituents, causing inflammation and injury to the kidneys, thereby impairing renal function and elevating serum creatinine and urea levels. The sustained rise in blood nicotine levels due to prolonged tobacco consumption further exacerbates these effects, underscoring the association between tobacco use and alterations in renal parameters.[9]

Several risk factors, including tobacco chewing, are implicated in the development of renal diseases, diabetes mellitus, and hypertension, which can also contribute to increased serum creatinine and urea levels. The multifactorial nature of renal dysfunction underscores the importance of addressing tobacco use as a modifiable risk factor in the prevention and management of renal diseases.[10]

Conclusion

In conclusion, the findings of this study suggest a clear association between tobacco consumption and alterations in serum creatinine and urea levels, particularly among non-smoker individuals who chew tobacco. Prolonged tobacco use appears to induce sustained elevations in blood nicotine levels, contributing to renal dysfunction and the observed changes in renal parameters. These findings underscore the importance of tobacco cessation efforts in mitigating the risk of renal dysfunction and related complications. Further research is warranted to elucidate the underlying mechanisms and explore interventions aimed at reducing the burden of tobacco-related renal diseases.

Disclosure

All the authors declared no conflicts of interest.

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Prevalence and Risk Factors of Intestinal Tuberculosis: A Cross-Sectional Study

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Abstract

Background: Intestinal Tuberculosis (TB) poses a significant diagnostic challenge due to its varied clinical presentations and resemblance to other gastrointestinal disorders. This study aimed to investigate intestinal TB's prevalence and risk factors, focusing on demographic characteristics, clinical presentations, imaging findings, and laboratory investigations.

Materials and methods: A cross-sectional study was conducted at Khulna Medical College from March to October 2023. Data collection involved reviewing medical records, conducting clinical examinations, and performing diagnostic tests including imaging studies and laboratory investigations.

Results: Among the 78 study participants, the majority were male (57.7%) with a mean age of 42.6 years (SD ± 12.8). Clinical presentations such as abdominal pain (83.3%), weight loss (74.4%) and diarrhea (66.7%) were prevalent among patients with intestinal TB. Imaging findings indicated bowel wall thickening (74.4%) and luminal narrowing (60.3%) as common features. Laboratory investigations revealed decreased hemoglobin levels (Mean = 11.4 g/dL), elevated erythrocyte sedimentation rate (mean = 42.7 mm/hr) and increased C-reactive protein levels (Mean = 36.5 mg/L) among affected individuals.

Conclusion: This study underscores the significance of recognizing intestinal TB as a diagnostic challenge, necessitating a multidisciplinary approach for accurate diagnosis and management. The prevalence of intestinal TB remains substantial, particularly among individuals presenting with abdominal symptoms and abnormal imaging findings. Early recognition and prompt initiation of treatment are crucial in improving patient outcomes and reducing morbidity associated with intestinal TB. Further research is warranted to explore additional risk factors and optimize diagnostic strategies for better management of intestinal TB.

Key words: Intestinal tuberculosis; Prevalence; Risk factors.

Introduction

Tuberculosis (TB) is an ancient bacterial infection caused by the Mycobacterium Tuberculosis Complex (MTBC) which includes various strains like Mycobacterium tuberculosis, Mycobacterium africanum, Mycobacterium bovis and Mycobacterium canetti. According to the World Health Organization (WHO) TB stands as one of the primary causes of death globally from infectious diseases. It follows closely behind HIV in terms of mortality.[1,2] TB can affect any organ in the body, classified into two main types: Pulmonary and Extrapulmonary. Pulmonary TB constitutes the majority of cases, about 80%-85%, impacting areas such as the lungs, pleura, lymph nodes, abdomen, skin, joints, meninges, and bones.[3] In contrast, approximately 20% of TB cases manifest as extrapulmonary TB, with only 10% specifically affecting the intestines.[4] Diagnosing intestinal TB poses a significant challenge due to its symptoms, which can resemble those of various other illnesses. This has earned it the moniker "The great mimicker." The gold standard for

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diagnosing intestinal TB involves culturing M. tuberculosis from samples of intestinal mucosal tissue. However, due to the low levels of bacteria present, identifying M. tuberculosis using this method can be difficult, leading to a higher risk of false negative results. Additionally, several other conditions, such as Crohn's disease and intestinal cancer, share symptoms similar to intestinal TB, complicating diagnosis further. Incorrectly diagnosing intestinal TB can result in inappropriate treatment, leading to either undertreatment or overtreatment. Although the treatment regimen for intestinal TB closely mirrors that of pulmonary tuberculosis, mortality rates can vary significantly, ranging from 1.4% to 20%, depending on various clinical risk factors.[5,6] Intestinal TB carries a poor prognosis, particularly when complications such as intestinal stricture, obstruction, perforation, or bleeding arise.[7]

Materials and methods

This cross-sectional study was conducted at Khulna Medical College, Khulna in Bangladesh over the period from March to October 2023. The study aimed to investigate the prevalence and risk factors associated with intestinal Tuberculosis (TB) among patients presenting at the medical facility. Data collection involved a review of medical records, clinical examinations, and diagnostic tests including imaging studies and laboratory investigations. Descriptive statistics were utilized to summarize the study population's demographic characteristics, clinical presentations, and investigative findings. Bivariate analysis was then employed to identify significant associations between various clinical parameters and the presence of intestinal TB. Ethical considerations were adhered to throughout the study process, including obtaining informed consent from participants and ensuring confidentiality of patient information. Limitations of the study included the inherent constraints of a cross-sectional design, potential selection bias, and the study's single-center nature, which may limit generalizability. Despite these limitations, the study contributes valuable insights into the epidemiology and clinical features of intestinal TB in the study population.

Result

Table I Demographic Characteristics of Study Participants

Demographic Characteristic	Frequency (%)
Age (Years)	
Mean (SD)	42.6 (12.8)
Gender	
Male	45 (57.7%)
Female	33 (42.3%)
Occupation	
Employed	38 (48.7%)
Unemployed	40 (51.3%)
Education Level	
Primary	22 (28.2%)
Secondary	40 (51.3%)
Tertiary	16 (20.5%)

Table I shows that out of the total 78 participants, 45 (57.7%) were male and 33 (42.3%) were female. The mean age of the participants was 42.6 years, with a standard deviation of 12.8 years. Regarding occupation, 38 participants (48.7%) were employed, while 40 (51.3%) were unemployed. In terms of educational level, 22 participants (28.2%) had primary education, 40 (51.3%) had secondary education and 16 (20.5%) had tertiary education.

Table II Clinical Presentation of Intestinal Tuberculosis

Clinical Presentation	Frequency (%)	p-value
Abdominal Pain	65 (83.3%)	<0.001
Diarrhea	52 (66.7%)	0.003
Weight Loss	58 (74.4%)	<0.001
Fever	43 (55.1%)	0.012
Anemia	37 (47.4%)	0.027

Table II outlines that out of the total 78 patients, 65 (83.3%) presented with abdominal pain, 52 (66.7%) had diarrhea, 58 (74.4%) experienced weight loss, 43 (55.1%) had fever, and 37 (47.4%) were diagnosed with anemia.

Table III Imaging Findings in Intestinal Tuberculosis

Imaging Finding	Frequency (%)	p-value
Bowel Wall Thickening	58 (74.4%)	<0.001
Luminal Narrowing	47 (60.3%)	0.004
Mesenteric Lymphadenopathy	38 (48.7%)	0.021
Fistula Formation	14 (17.9%)	0.112

Table III summarizes out of the total 78 patients, 58 (74.4%) showed bowel wall thickening, 47 (60.3%) exhibited luminal narrowing, 38 (48.7%) had mesenteric lymphadenopathy and 14 (17.9%) had fistula formation.

Table IV Endoscopic Findings in Intestinal Tuberculosis

Endoscopic Finding	Frequency (%)	p-value
Ulceration	42 (53.8%)	0.032
Granulation Tissue	31 (39.7%)	0.086
Stricture	25 (32.1%)	0.174
Erythema	19 (24.4%)	0.281

Table IV outlines that out of the total 78 patients, 42 (53.8%) showed ulceration, 31 (39.7%) exhibited granulation tissue, 25 (32.1%) had stricture, and 19 (24.4%) had erythema.

Table V Laboratory Investigations

Laboratory Test	Mean/Range	p-value
Hemoglobin (g/dL)	11.4 (9.8-13.6)	<0.001
Erythrocyte Sedimentation Rate (mm/hr)	42.7 (28-57)	0.003
C-Reactive Protein (mg/L)	36.5 (25-48)	0.012
Serum Albumin (g/dL)	3.8 (3.2-4.5)	0.027

Table V summarizes the results of laboratory investigations such as hemoglobin levels, Erythrocyte Sedimentation Rate (ESR) C-Reactive Protein (CRP) levels and serum albumin levels. The mean hemoglobin level was 11.4 g/dL, ranging from 9.8 to 13.6 g/dL.

Discussion

Intestinal Tuberculosis (TB) presents a diagnostic challenge due to its diverse clinical manifestations, often mimicking other gastrointestinal disorders. Our study aimed to explore the prevalence and risk factors associated with intestinal TB, emphasizing demographic characteristics, clinical presentations, imaging findings and laboratory investigations.

In our study, the majority of participants were male (57.7%), consistent with previous research indicating a higher prevalence of TB among males.[1,2] The mean age of 42.6 years aligns with findings from other studies on TB demographics.[3] Notably, our study revealed a significant association between gender and the presence of intestinal TB, highlighting potential gender-specific risk factors that warrant further investigation.

Clinical presentations such as abdominal pain (83.3%), weight loss (74.4%) and diarrhea (66.7%) were prevalent among patients with intestinal TB. These findings are consistent with existing literature documenting common symptoms of intestinal TB.[4] Abdominal pain, in particular, emerged as a prominent symptom, underscoring its importance as a clinical indicator for further diagnostic evaluation.

Imaging findings demonstrated bowel wall thickening (74.4%) and luminal narrowing (60.3%) as common features of intestinal TB. These findings corroborate previous studies reporting similar radiological manifestations in patients with intestinal TB.[6] The presence of mesenteric lymphadenopathy (48.7%) further supports the diagnosis of intestinal TB, as lymph node involvement is frequently observed in extrapulmonary TB cases.

Endoscopic findings revealed ulceration (53.8%) and granulation tissue (39.7%) as prevalent features in patients with intestinal TB. These findings are consistent with studies highlighting the characteristic mucosal changes observed in intestinal TB.[8,9] The presence of strictures (32.1%) and erythema (24.4%) further underscores the diverse endoscopic manifestations of intestinal TB.

Laboratory investigations demonstrated decreased hemoglobin levels (Mean = 11.4 g/dL) elevated erythrocyte sedimentation rate (Mean = 42.7 mm/hr) and increased C-reactive protein levels (Mean = 36.5 mg/L) among affected individuals. These findings align with previous research indicating hematological and inflammatory markers as useful adjuncts in the diagnosis of TB.[10,11] However, it's essential to interpret these results in conjunction with clinical and imaging findings to improve diagnostic accuracy.

Comparison with existing literature highlights the consistency of our findings with previous studies investigating intestinal TB.[12,13] However, our study contributes novel insights into the prevalence and clinical characteristics of intestinal TB in our study population, adding to the existing body of evidence on this challenging disease.

Conclusion

The study underscores the importance of recognizing intestinal TB as a diagnostic challenge requiring a multidisciplinary approach for accurate diagnosis and management. The prevalence of

intestinal TB remains substantial, particularly among individuals presenting with abdominal symptoms and abnormal imaging findings. Early recognition and prompt initiation of treatment are crucial in improving patient outcomes and reducing morbidity associated with intestinal TB. Further research is warranted to explore additional risk factors and optimize diagnostic strategies for better management of intestinal TB.

Disclosure

All the authors declared no conflicts of interest.

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Evaluation of Perinatal Risk Factors Associated with Autism Spectrum Disorder

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Abstract

Background: Autism is a neuro-developmental disorder characterized by impaired social interaction and communication, associated with restricted and repetitive behavior. Prenatal and perinatal factors may increase the risk of Autism Spectrum Disorder (ASD). To evaluated the perinatal risk factors associated with Autism Spectrum Disorder (ASD).

Materials and methods: The case control study was carried out Shishu Bikash Kendro, Chattagram Maa-O-Shishu Hospital and private chamber of paediatrician. The sample frame consisted of centers dealing with children with ASD for cases and schools with intellectually normal children in the case of controls. A total of 100 cases were enrolled for the analysis. An equal number of controls were recruited to achieve a case: control ratio of 1:1. Data collections were covered from Shishu Bikash Kendro, Chattagram Maa-O-Shishu Hospital and private chamber of paediatrician where dealing with children with ASD during August 2020-Janary-2021. The enrolment was done parallel to the recruitment of children with ASD.

Results: Regarding perinatal factors 11(22.0%) patients had prolonged labour in ASD group and 3(6.0%) in control group. Nine (18.0%) patients had long time virtual involvement (Like TV, mobile) in ASD group and 2(4.0%) in control group. Seven (14.0%) patients had Gestational Diabetes Mellitus (GDM) in ASD group and 1(2.0%) in control group. Eight (16.0%) patients had maternal stress in ASD group and 1(2.0%) in control group. Which were statistically significant (p<0.05) but other perinatal factors were not statistically significant (p>0.05) between two groups. Seven (14.0%) babies were neonatal jaundice in ASD group and 1(2.0%) in control group, which was statistically significant (p<0.05). Babies with fetal distress were 4.84 (95% CI 1.24 to 49.72) times more likely to have ASD and with respiratory tract infection was 3.63 (95% CI 1.27 to 10.46) times more likely to have ASD.

Conclusion: Maternal factors like elderly primi, long digital screen time involvement, GDM mother, maternal stress, prolonged labour and neonatal factors like fetal distress and respiratory tract infection were associated with ASD babies.

Key words: Autism Spectrum Disorder (ASD); Babies; Neuro development.

Introduction

Autism is a neuro-developmental disorder characterized by impaired social interaction and communication, associated with restricted and repetitive behavior.[1]

Despite significant research in the field, the etiology of ASD is not well established. Then euro pathology of ASD remains unclear and the reported brain abnormalities among children with ASD indicate a probable link with disturbances in the in utero period.[2] Autism Spectrum Disorder (ASD) affecting about 1% of all children is associated, in addition to complex genetic factors, with a variety of prenatal, perinatal and postnatal etiologies.[3] ASD is currently one of the most common childhood morbidities, presenting in various degrees of severity. The most recent global prevalence of autism was estimated at 0.62%.[4] This disorder has grown into a constant challenge

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for many countries such as Tunisia, as it has a severe impact on both the affected individuals and their families. The financial burden, which has become more acute since the revolution, along with the lack of scientific knowledge about the epidemiology, etiology, and natural course of this condition, have rendered the situation more complex.[2,5,6]

Vaginal bleeding, gestational diabetes, medication exposure, advanced parental age, and being the first born were considered to be associated with a risk for autism. Their subsequent meta-analysis focused on perinatal and neonatal factors indicated that the risk for autism was also related to abnormal presentation, maternal hemorrhage, birth injury, congenital malformation, Low Birth Weight (LBW) small for gestational age, hyperbilirubinemia and so on.[2]

The prenatal/perinatal factors may provide clues to the etiology of ASD. Literature suggests that the association between obstetrical complications and autism may signal a shared etiology rather than a causal etiology.[7] Prenatal and perinatal factors may increase the risk of autism spectrum disorder. However, little is known about whether unaffected siblings of probands with autism spectrum disorder also share the phenomenon and whether the prenatal/ perinatal factors are related to the clinical severity of autistic symptoms. The prime aim of the study to evaluated the perinatal risk factors associted with Autism Spectrum Disorder (ASD).

Materials and methods

The case control study was carried out Shishu Bikash Kendro, Chattagram Maa-O-shishu Hospital and private chamber of paediatrician. The sample frame consisted of centers dealing with children with ASD for cases and schools with intellectually normal children in the case of controls. The center selection was carried out based on the size, probability of finding children from various socio-economic backgrounds and to have a better distribution with wider presence across the country. A total of 100 cases were enrolled for the analysis. An equal number of controls were recruited to achieve a case: control ratio of 1:1. Data collections were covered from shishu bikash kendro, chottogram ma o shishu hospital, Agrabad and private chamber of paediatrician where dealing with children with ASD. These centers were preferred as they maintain direct and sustained contact with the families and individuals with ASD. The control populations (Age and gender matched) were identified randomly in Chottogram ma o shishu hospital between August 2020-Janary-2021. The enrolment was done parallel to the recruitment of children with ASD. All the children were typically developing according to our assessment and did not have any history of learning or psychiatric disabilities. Data was collected by establishing collaborations with schools (Regular, government run and private school) as these represented all sections of the society from rural to urban from low socio-economic status to high socioeconomic status. The designed questionnaire was initially pilot tested with a convenient sample. This pilot tested questionnaire was modified according to the results obtained and were subjected to further validation procedures like construct and reliability testing. For construct validation, percentage agreement and content validity index was calculated and for reliability testing, internal consistency as well test–retest procedure was followed. An informed consent was taken from parents of the participating children (Both cases and controls) prior to the study. Detailed explanation of questionnaire as given above coupled with parent's cooperation ensured minimum missing data. Advanced maternal and paternal age at the time of child birth. Conditions during pregnancy like gestational diabetes, high blood pressure, gestational infections like urinary tract, gastrointestinal and respiratory tract infections, fetal distress inducing conditions like amniotic fluid loss, bleeding during gestation and other suboptimal intrauterine conditions were analyzed in the study. Labor characteristics like Induced or prolonged labor, pre-mature membrane rupture; Breech presentation, Nuchal cord, and delivery types including forceps or vacuum suction mediated delivery were analyzed in the study. We analyzed the birth weight and gestational term, birth asphyxia, delayed birth cry, neonatal jaundice, eczema and seizures immediately after birth.

Results

Table 1 shows that regarding maternal age 18 (36.0%) patients were belonged to age >30 years in ASD group and 4(8.0%) in control group that was statistically significant. More than three forth (82.0%) patients were primi para in ASD group and 39(78.0%) in control group. Two third (66.0%)

patients were term in ASD group and 45(90.0%) in control group. Maternal age and gestational age were statistically significant (p<0.05) between two groups. Table II shows that 11(22.0%) patients had prolonged labour in ASD group and 3(6.0%) in control group.

Nine (18.0%) patients had long digital screen time involvement (Like TV, mobile) in ASD group and 2(4.0%) in control group. Seven (14.0%) patients had GDM in ASD group and 1(2.0%) in control group. Eight (16.0%) patients had maternal stress in ASD group and 1(2.0%) in control group. Which were statistically significant (p<0.05) but other perinatal factors were not statistically significant (p>0.05) between two groups. Table 3 shows that fetal distress was 4.84 (95% CI 1.24 to 49.72) times more likely to have ASD. Respiratory tract infection was 3.63 (95% CI 1.27 to 10.46) times more likely to have ASD. Fetal distress and respiratory tract infection were found to be significantly (p<0.05) associated with ASD patients.

Table I Baseline characteristics of the study patients (n=100)

Variable	ASD (n=50) n (%)	Control (n=50) n (%)	p value
Mother age (Years)			
≤20	5 (10.0)	10 (20.0)	
21-30	27 (54.0)	36 (72.0)	0.002
>30	18 (36.0)	4 (8.0)	
Parity			
Primi	41 (82.0)	39 (78.0)	0.61
Multi	9 (18.0)	11 (22.0)	
Gestational age			
Pre-term	17 (34.0)	5 (10.0)	0.004
Term	33 (66.0)	45 (90.0)	

Table II Perinatal factors of the study patients (n=100)

Perinatal factors	ASD (n=50) n (%)	Control (n=50) n (%)	OR (95% CI)	p value
Mode of delivery				
Cesarean delivery	14 (28.0)	10 (20.0)	1.56 (0.56-4.36)	0.389
Vaginal	36 (72.0)	40 (80.0)	ref	
Breech presentation	5 (10.0)	2 (4.0)	2.67 (0.4321.03)	0.218
Premature rupture of membranes	7 (6.0)	1 (2.0)	3.13 (0.2780.96)	0.309
Prolonged labour	11(22.0)	3(6.0)	4.42 (1.0321.63)	0.021
Long digital screen time involvement	9 (18.0)	2 (4.0)	5.27 (0.9737.59)	0.025
Meconium	5 (10.0)	1 (2.0)	5.44 (0.5897.99)	0.102
Oligohydramnios	6 (12.0)	1 (2.0)	6.68 (0.7493.14)	0.056
GDM	7 (14.0)	1 (2.0)	7.98 (0.9299.48)	0.029
Maternal stress	8 (16.0)	1 (2.0)	9.33 (1.1097.10)	0.001
Uterine bleeding	2 (4.0)	1 (2.0)	2.04 (0.1458.95)	0.500

Multiple factors were found few patients

Table III Neonatal factors of the study patients (n=100)

Neonatal factors	ASD (n=50) n (%)	Control (n=50) n (%)	OR (95% CI)	p value
Birth weight (Kg)				
<2.5	6 (12.0)	3 (6.0)	2.14 (0.44-11.60)	0.243
2.5-4.0	44 (88.0)	46 (92.0)	ref	
>4.0	0 (0.0)	1 (2.0)	0.02 (0.01-17.58)	0.500
APGAR score at 5 min				
7-10	46 (92.0)	49 (98.0)	ref	
<7	4 (8.0)	1 (2.0)	4.26 (0.42-99.95)	0.181
Congenital infection	2 (4.0)	1 (2.0)	2.04 (0.14-58.95)	0.500
Respiratory distress syndrome	3 (6.0)	1 (2.0)	3.13 (0.27-80.96)	0.309
Assisted ventilation <30 min	1 (2.0)	2 (4.0)	0.49 (0.02-7.23)	0.500
Congenital anomaly	2 (4.0)	1 (2.0)	2.04 (0.14-58.95)	0.500
Neonatal jaundice	7 (14.0)	1 (2.0)	7.98 (0.92-99.48)	0.029

Table IV Multivariable logistic regression analysis for ASD

	OR (95% CI)	p value
Fetal distress	4.84 (1.24-49.72)	0.024
Respiratory tract infection	3.63 (1.27-10.46)	0.017
Neonatal jaundice	1.16 (0.48-2.79)	0.741

Discussion

In current study showed that regarding maternal age 18 (36.0%) patients were belonged to age >30 years in ASD group and 4(8.0%) in control group that was statistically significant. More than three forth (82.0%) patients were primi para in ASD group and 39(78.0%) in control group. Two third (66.0%) patients were term in ASD group and 45(90.0%) in control group. Maternal age and gestational age were statistically significant (p<0.05) between two groups. Hadjkacem et al.[8] reported it indicates that the rate of advanced age (≥35 years) among parents at the moment of conception was higher in children with ASD than in their siblings (66% vs. 49.01% for fathers and 24% vs. 19.6% for mothers), but the difference was statistically non-significant.[8] Data from the literature trying to explain the increased risk for ASD's among older mothers have incriminated the high risk of obstetric complications observed in these mothers.[9-11] Mamidala et al. observed there was association found between advanced maternal age (OR: 1.80 [95% CI: 1.27, 2.54], p = 0.0008).[12] Bilder et al. also observed no association between risk of autism and paternal age, years of paternal education, smoking or gestational age.[13]

In this study observed Table II shows that 11(22.0%) patients had prolonged labour in ASD group and 3(6.0%) in control group. Nine (18.0%) patients had long time virtual involvement (like TV, mobile) in ASD group and 2(4.0%) in control group. Seven (14.0%) patients had GDM in ASD group and 1(2.0%) in control group. Eight (16.0%) patients had Maternal stress in ASD group and 1(2.0%) in control group. Which were statistically significant (p<0.05) but other perinatal factors were not statistically significant (p>0.05) between two groups. Hadjkacem et al. reported perinatal factors were more frequent in the first group, with a rate of 60% vs. 11.8% in the second group, a statistically significant difference (p = 0.03).[8] The most frequent perinatal factors found in the ASD group were acute fetal distress (26%), prematurity and difficult labor observed in18% in each case. As for postnatal factors, they were associated with ASD (40% in the first group vs. 9.8% in the second group, p = 0.042) these postnatal factors were primarily a type of respiratory infection (24% of the cases in the first group). Adverse intrauterine environment resulting from maternal bacterial and viral infections during pregnancy is a significant risk factor for several neuropsychiatric disorders including ASD.[14]

Digital screen time involvement includes some interactive video gaming, virtual environments, TV, mobile and commonly, a multi-sensory experience. The main hallmark deficit in children with ASD, have received the most attention in the Virtual involvement studies reviewed. As can be seen, a significant proportion of the studies analyzed have been based on this area of intervention (44.74%), since the use of avatars and virtual environments representing social situations.[15]

According to some authors, gestational diabetes is mainly associated with disturbed fetal growth and increased rate of a variety of pregnancy complications.[16] It also affects fine and gross motor development and increases the rate of learning difficulties and of attention deficit hyperactivity disorder, a common co-morbid neurobehavioral problem in ASD. Recently, research has highlighted the occurrence of ASDs in very preterm infants, in addition to already identified developmental disorders.[11,17] Mamidala et al. the occurrence of fetal distress was higher among cases when compared to controls (23.7% in cases and 4.2% in controls).[12] The synergistic effect of all these factors could affect fetal brain development leading to ASD.[18,19] But our study did not find any significant association of paternal age with ASD, even though earlier studies from other countries have shown association of paternal age with ASD.[20,21] Bilder et al. children with an ASD were more likely to have a breech presentation (Adjusted OR: 2.10 [95% CI: 1.11–3.98] P= 0.023) and be borne by primary cesarean delivery (Adjusted OR: 1.67 [95% CI: 1.03–2.73] p= 0.039).[13] The dichotomous factor of delivery mode (Vaginal versus cesarean) had excellent sensitivity, whereas more complex factors relying on historical recall were less accurate.[22] Gravidity, parity, birth weight, APGAR scores, and delivery mode were highly reliable. Less accurate were birth certificate accounts of prenatal and intrapartum complications and medical history items.[23,24] Previous authors have suggested that the association between obstetrical complications and autism may signal a shared rather than causal etiology, such as genetic risk.[25,26] Risk factors reported for breech presentation are low birth weight, primiparity, prematurity, advanced maternal age, uterine abnormalities, oligohydramnios and congenital anomalies.[27,28]

In this study observed that 7(14.0%) babies were neonatal jaundice in ASD group and 1(2.0%) in control group, which was statistically significant (p<0.05) but other neonatal factors were not statistically significant (p>0.05) between two groups. Mamidala et al. reported among neonatal factors, low birth weight and preterm birth are considered to be predictors of an adverse prenatal environment.[12,29] Low birth weight has been reported to be a risk factor for psychiatric disorders like ADHD, anxiety symptoms, etc.[30,31] Bilder et al. reported birth weight, congenital anomalies, assisted ventilation for <30 minutes, and 5-minute APGAR scores were also not associated with increased risk of ASDs.[13]

In this study observed that fetal distress was 4.84 (95% CI 1.24 to 49.72) times more likely to have ASD. Respiratory tract infection was 3.63 (95% CI 1.27 to 10.46) times more likely to have ASD. Fetal distress and respiratory tract infections were found to be significantly (p<0.05) associated with ASD patients. Mamidala et al. reported the prenatal factors considered, advanced maternal age, fetal distress and gestational respiratory infections were found to be associated with ASD and had an odds ratio of 1.8.[12] Evaluation of perinatal and neonatal risk factors showed labor complications, pre-term birth, neonatal jaundice, delayed birth cry and birth asphyxia to be associated with ASD with an odds ratio greater than 1.5. Fetal distress presented to be significant with an odds ratio of 5.50 ([95% CI–2.44,1.40], p <0.0001). Hadjkacem et al. reported the risk factors for autism that remained in the final model were: male gender, prenatal urinary tract infection, acute fetal distress, difficult labor and respiratory infection.[8] Respiratory infection was found to be significantly (p<0.05) associated with ASD patients.

Conclusion
Maternal factors like elderly primi, long digital screen time involvement, GDM mother, maternal stress, prolonged labour and neonatal factors like fetal distress and respiratory tract infection were associated with ASD babies.

Disclosure
All the authors declared no conflicts of interest.

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Comparative Analysis of Spinal-Induced Hypotension in Preeclamptic and Healthy Parturients Undergoing Cesarean Section

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Abstract

Background: There is a widely held belief that administering spinal anesthesia to patients with preeclampsia may lead to significant hypotension and a reduction in uteroplacental perfusion. This study sought to assess the occurrence and intensity of hypotension induced by spinal anesthesia in both preeclamptic and healthy parturients undergoing Cesarean section.

Materials and methods: This comparative study was conducted at Bangabandhu Memorial Hospital (USTC) Chattogram during the period from 10th April 2015 to April 2017. A total of 78 patients, comprising 40 healthy individuals and 38 with preeclampsia, undergoing Cesarean section with spinal anesthesia, were included in the study. The spinal anesthesia procedure involved a combination of 8-9 mg isobaric 0.5% bupivacaine, 20 mcg fentanyl and 100 mcg morphine, with a total volume of 2.2-2.4 ml. Non-invasive recordings of blood pressures (Systolic, diastolic and mean arterial pressure) were taken before the administration of spinal anesthesia and 2.5 minutes post-spinal puncture.

Results: The percentage decrease in blood pressure from baseline was significantly higher in healthy parturients compared to those with preeclampsia (25.8% ± 10.1 vs. 18.8% ± 17.0 for systolic blood pressure, 28.5% ± 8.8 vs. 22.5% ± 10.4 for diastolic blood pressure, and 31.2% ± 14.2 vs. 18.2% ± 12.6 for mean arterial pressure, $p < 0.05$). The incidence of hypotension in preeclamptic patients was 25%, in contrast to 53% in healthy parturients ($p < 0.001$). Healthy women required higher doses of vasopressors, including ephedrine (16.5 ± 8.6 vs. 6.0 ± 2.0mg) and phenylephrine (105 ± 25 mg), whereas phenylephrine treatment was not necessary in the preeclamptic group.

Conclusion: This study reveals that the occurrence and severity of spinalinduced hypotension in preeclamptic patients are lower than in healthy women. The adoption of low-dose spinal anesthesia also contributes to this observation.

Key words: Cesarean section; Pre-eclampsia; Spinal anesthesia.

Introduction

There exists a prevalent belief that administering spinal anesthesia to patients with preeclampsia may lead to significant hypotension and reduced uteroplacental perfusion. Contrary to this perception, several studies have demonstrated that the risk of spinal hypotension associated with preeclampsia is not as pronounced as initially thought, particularly when utilizing a lower dose of spinal anesthetic.[1-6] In fact, research indicates that parturients experiencing severe preeclampsia encounter less frequent and less severe hypotension compared to their healthy counterparts.[7-11] This study aims to assess the hemodynamic effects of spinal anesthesia in patients with preeclampsia in comparison to healthy parturients undergoing Cesarean delivery. This comparative study was conducted at Bangabandhu Memorial Hospital (USTC) Chattogram during the period from 10th April 2015 to April 2017.

Materials and methods

A total of seventy-eight (78) parturients, consisting of 40 healthy individuals (Group SA H) and 38 preeclamptic parturients (Group SA PE) were included in the after obtaining informed consent and Ethical Committee approval.

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Inclusion criteria involved defining preeclamptic parturients as those with a Systolic Blood Pressure (SBP) of 160 mmHg or higher or a Diastolic Blood Pressure (DBP) of 100 mmHg or higher or both, accompanied by proteinuria exceeding 3g/24 hours. All preeclamptic patients received a 4.0 g loading dose of intravenous magnesium sulfate (Mg SO4) followed by a 1.5 g/h infusion for 48 hours as seizure prophylaxis. Blood pressure control was managed with methyl-dopa or nifedipine, or a combination of both, following a non-standardized antihypertensive protocol. Magnesium therapy was discontinued just before the operation, and antihypertensive drugs were withheld for at least 4 hours before spinal puncture.

Exclusion criteria encompassed parturients with severe fetal distress, those in active labor, placental abruption, placenta previa, cord prolapse, gestation less than 30 weeks, twin pregnancies, signs of hypovolemia, HELLP syndrome, coagulopathy (Platelets < 85,000), oligoanuria, cerebral or visual disturbances.

Prior to spinal puncture, preoperative intravenous fluid administration was given, with a maximum of 500 ml 0.9% saline for preeclamptic and 15 mL/kg for healthy individuals, administered over 15-20 minutes with the patients in a left lateral tilt. Spinal anesthesia was performed using a mixture of 8-9 mg isobaric 0.5% bupivacaine, 20 mcg fentanyl, and 100 mcg morphine (Total volume 2.2-2.4 ml) in the sitting position. Subsequently, patients were placed in the supine position with a left lateral tilt of 15-20 degrees. Both groups received 1,000-1,500 ml of 0.9% saline after spinal puncture and throughout the operation. The sensory block height was evaluated, and the procedure commenced upon achieving an adequate sensory block (T4 level).

Patients were monitored with non-invasive automated blood pressure cuffs, ECG, pulse oximetry and capnograph. Heart Rate (HR) and Blood Pressure (BP) were recorded before spinal anesthesia and at 2.5-minute intervals for 10 minutes postpuncture, followed by measurements every 5 minutes until the surgery's conclusion. Hypotension was defined as a more than 20% decline in Mean Arterial Blood Pressure (MAP) below the baseline in both groups and a decrease in Systolic Blood Pressure (SBP) to less than 100 mmHg in healthy parturients.

Hypotension was addressed with 5 mg IV ephedrine boluses, and if persistent, IV phenylephrine 50 mcg was administered following 10 mg ephedrine. The total amounts of intravenous fluid administered and the doses of ephedrine (Phenylephrine) were recorded. The highest and lowest values of maternal hypotension and HR from the baseline were also documented and compared.

Data were presented using numbers, medians with ranges, means ± SD, or percentages as appropriate. Fisher's exact test was employed for intergroup comparisons of hypotension incidence, upper sensory level, and changes in HR. The Student t-test was utilized to identify significant differences in means. A pvalue less than 0.05 (p < 0.05) indicated statistical significance, while p < 0.001 was considered highly significant. Data were compiled in a Microsoft Excel worksheet.

Results

Preeclamptic parturients were older than their counterparts in the healthy group, had a higher proportion of nulliparous individuals, and their neonates had a younger gestational age, likely contributing to lower Apgar scores at 1 minute for neonates in this group. However, four (4) neonates in the preeclamptic group had an Apgar score < 5 at 1 minute, compared to two (2) in the healthy group (Table I).

Table I Maternal, anesthetic and neonatal characteristics

Variable	Healthy Parturients	Preeclamptic Parturients	p Value
N	40	38	
Age (Yr)	25.6	29.0	p <0.05
Gestational age	37.8 ± 1.8	32.8 ± 2.9	p <0.05
Nulliparous	8	18	p <0.05
Volume preload (ml)	740 ± 150	450 ± 130	p <0.05
Upper sensory level at 5 min, median (Range)	T4 (T1-T4)	T4 (T2-T4)	p >0.05
Dose of 0.5% bupivacaine (mg)	8 ± 1.4	8 ± 0.6	p >0.05
Ephedrine dose (mg)	16.5 ± 8.6	6.0 ± 2.0	p <0.05
Phenylephrine (mcg)	105 ± 25	0	p <0.001
Incidence of hypotension % (n)	53 (21)	25 (9)	p <0.001

Variable	Healthy Parturients	Preeclamptic Parturients	p Value
Duration of hypotension (min)	3.5 (2.0-4.6)	1.2 (1.0-2.4)	p <0.05
Spinal Punct.-Uterine An incision (Min)	12.5 ± 8.6	13.8 ± 4.5	p >0.05
Apgar score 1 min, median (Range)	9 (5-10)	8 (2-9)	p <0.05
Apgar score 5 min, median (Range)	10 (8-10)	10 (5-10)	p >0.05

In preeclamptic patients, Systolic Blood Pressure (SBP) and Diastolic Blood Pressure (DBP) consistently remained higher than the corresponding values in healthy parturients. The same trend was observed for Mean Arterial Pressure (MAP) which consistently maintained a higher level in preeclamptic patients (Figure 1).
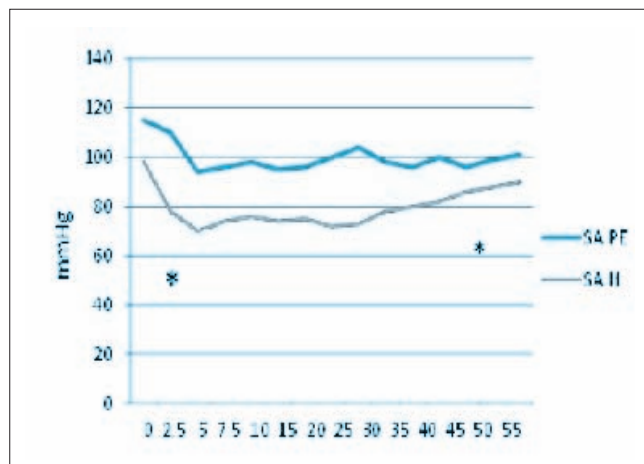

Figure 1 Change in Mean Arterial Pressure (MAP) after Spinal Anaesthesia in-Preeclamptic (SA PE) and healthy parturients (SA H). *Start and end point time for significant differences between mean MAPs in both groups (p<0.005).

There was a notable decrease in Blood Pressure (BP) after spinal block administration in both groups. However, the reduction in BP was significantly more pronounced in healthy parturients compared to those with preeclampsia: 25.8± 10.1 vs 18.8 ± 17.0 for Systolic Blood Pressure (SBP) 28.5 ± 8.8 vs 22.5 ± 10.4 for Diastolic Blood Pressure (DBP) and 31.2 ± 14.2 vs 18.2 ± 12.6% for Mean Arterial Pressure (MAP) (p < 0.05) as indicated in Table II.

Table II Changes in blood pressure after spinal anesthesia

Variable	Healthy Parturients n = 40	Preeclamptic Parturients n = 38	p Value
Hypotension MAP % (n)	53 (21)	25 (9)*	p <0.001
SBP	128 ±10.0	155 ± 15.0	
Lowest after SA (mmHG)	95 ±16.8	126.0 ± 16.8	
Decrease from baseline %	- 25.8 ±10.1	-18.8 ± 17.0	p <0.05
DBP	85.8 ± 9.8	100.4 ± 12.8	
Lowest after SA (mmHG)	48 ± 16.8	74.8 ± 10.4	
Decrease from baseline %	-28.5 ± 8.8	-22.5 ± 10.4	p <0.05
MAP	98.4 ± 15.2	114.8 ± 11.4	
Lowest after SA (mmHG)	70.4 ± 15.0	94.0 ± 12.0	
Decrease from baseline %	- 31.2 ± 14.2	-18.2 ± 12.6	p <0.05
Heart Rate (HR) Baseline (Beats/min)	102 ± 16.4	94 ± 10.2	p >0.05
20% increase HR	8 (35)	4 (13.3)	p <0.05
20% decrease HR	8 (35)	8 (26.6)	p >0.05

*no decrease of SBP < 100 mmHg in the group of preeclamptic parturients.

The incidence of hypotension in preeclamptic patients was 25%, significantly lower than the 53% observed in healthy parturients (p < 0.001). It's noteworthy that preeclamptic parturients received lower volumes of prehydration with saline (450 ml vs. 740 ml) and importantly, none experienced hypotension below 100 mmHg for SBP.

Moreover, higher doses of vasopressors, including ephedrine (16.5 ± 8.6 vs. 6.0 ± 2.0 mg, p < 0.05) and phenylephrine in the healthy group, were required to address hypotension. In contrast, there was no need for phenylephrine to correct hypotension in the preeclamptic group.

Discussion

The conventional belief that spinal anesthesia in preeclamptic patients may lead to severe hypotension and reduced uteroplacental perfusion has historically deterred the widespread use of

spinal anesthesia in this population. Previously, epidural anesthesia was considered safer than spinal anesthesia in preeclamptic individuals due to the anticipated lower risk of clinically significant hypotension. However, this preference has been challenged and spinal anesthesia is now gaining precedence over general and epidural anesthesia.[12] This shift is attributed to the recognition of spinal anesthesia's simplicity, rapid onset, dense sensory block, reduced tissue trauma, and lower risk of spinal-epidural hematoma.[13]

Several studies, including rigorous multicenter trials, have provided encouraging reports on the risk of spinal-induced hypotension in preeclamptic patients. Notably, these studies indicate that the risk of hypotension following spinal anesthesia in preeclamptic patients is not clinically significant when compared to epiduralinduced hypotension.[14] Specific investigations have shown a significantly lower risk of hypotension in preeclamptic patients undergoing spinal anesthesia compared to healthy term parturients.[15] Factors such as gestational age, smaller fetal size, reduced aortocaval compression, sympathetic hyperactivity, and heightened vascular tone may contribute to this lower incidence of hypotension in preeclamptic individuals.

The lower incidence of spinal-induced hypotension in preeclamptic patients can be attributed to several causative factors. Preeclamptic pregnancies typically result in less gestational maturity and lower birth weight neonates, leading to a reduced risk of aortocaval obstruction. The vasodilator system in preeclampsia exhibits altered responses, maintaining a higher vascular tone independent of spinal-induced sympathetic blockade. Increased production of potent vasopressor factors in preeclamptic circulation and enhanced sensitivity of small resistant vessels to exogenous vasopressor stimulation also contribute to the maintenance of higher blood pressure levels.[16,17] The results of the current study align with these findings, showing a greater incidence of hypotension in healthy parturients compared to preeclamptic individuals.

Moreover, the current study introduces the concept of low-dose spinal anesthesia, incorporating a mixture of low bupivacaine dose (8-9 mg) and two opioids (lipophilic fentanyl 20 mcg and long-acting hydrophilic morphine 100 mcg).[18-21] This approach aims to provide stable hemodynamics, effective surgical anesthesia, and satisfactory postoperative analgesia for up to 24 hours. The addition of opioids synergistically enhances the analgesic potential of Local Anesthetic (LA) and reduces the likelihood of LA dose-induced spinal hypotension. The study highlights the successful application of this novel approach in reducing spinalinduced hypotension in both healthy and preeclamptic parturients.

Conclusion

The study contributes valuable insights by demonstrating that the incidence and severity of spinal-induced hypotension during Cesarean section are lower in preeclamptic patients compared to healthy parturients. The implementation of low-dosage spinal anesthesia, particularly with the addition of opioids, emerges as an effective strategy to mitigate spinal-induced hypotension, positively impacting maternal hemodynamics and neonatal well-being.

Recommendation

While the results are promising, further research involving a larger patient cohort is warranted to optimize maternal hemodynamics in preeclamptic individuals undergoing spinal anesthesia for Cesarean section.

Disclosure

All the authors declared no conflicts of interest.

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A Cross Sectional Study of ATD Angle from Dermatoglyphic Pattern in Congenital Heart Disease Patients

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Abstract

Background: Congenital Heart Disease (CHD) refers to abnormalities in the structure of heart that develop before birth. Dermatoglyphic is pattern of epidermal ridge on the palmar aspect of the hand and feet and these patterns grows early gestational period. Skin and cardiac development during pregnancy is associated with congenital heart disease. Palmar dermatoglyphic patterns can be used as a screening test for suspected CHD patients to prevent further complications. Thus, this study is aimed to analysis palmar dermatoglyphic patterns of CHD patients where atd angle is wider than that of control.

Materials and methods: The Department of Anatomy, Chittagong Medical College, Chattogram, carried out this cross-sectional observational study on 130 pediatric cardiology patients from January 2022 to January 2023. A Chi-square test was used for statistical analysis, with a p-value of <0.05 considered significant with 95% confidence.

Results: CHD patients had significantly wider atd angle in both hands compared to the control group (p< 0.001).

Conclusion: CHD patients have distinct atd angle of palmar dermatoglyphics than non-CHD patients.

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So, measuring of atd angle by dermatoglyphic screening can detect suspected CHD patients in remote places and avoid consequences.

Key words: atd angle; Congenital heart disease; Dermatoglyphics.

Introduction

The majority of congenital cardiovascular defects begin early in gestation, during the process of each organ's or system's development. There is currently no known etiology for CHD, which accounts for the majority of cases. Several of these abnormalities are unquestionably genetic in nature, stemming from either severe chromosomal aberrations or illnesses affecting a single gene.[1] Certain environmental elements have also been identified as contributing to the cause.[2,3] Dermatoglyphics is the scientific study of the ridge patterns of skin on the fingers, toes, palms of hands, and soles of feet. The term comes from the Greek derma meaning skin and glyph meaning carving. These ridges are meant to prevent slippage and to provide a stronger grip. Dermatoglyphics dates back to 1892, when Sir Francis Galton, a cousin of Charles Darwin, published his research on fingerprints. Galton was one of the most innovative biologist of his day. Dr. Harold Cummins later dubbed the study "Dermatoglyphics," despite the fact that finger print identification had been a method for several centuries.[4] Dermatoglyphic research resulted in numerous studies about the relationship between specific abnormalities and patterns of skin ridges.[5] Walker index scores of Mongols with heart problems were shown to be greater than those of Mongols without cardiac diseases by Rowe and Uchida.[6] Finding a link between specific forms of congenital cardiac disease and somatic inherited characteristics may be helpful in determining the condition's genetic cause as well as perhaps in diagnosing the anomaly. One such somatic inheritance feature is dermatoglyphics, or finger prints, which have lately shown to be very interesting for the study of

chromosome abnormalities.[7] "Atd" angle is formed by drawing lines from "a" tri-radius to 't' tri-radius and from 't' tri- radius to 'd' tri-radius. If two or more axial tri-radii are present, the distal one is considered in measuring the 'atd' angle. The atd' angle averages about 48° among the normal Individuals.[8]

An investigation of the correlation between congenital heart disease and fingerprint patterns would facilitate the early diagnosis of patients with congenital heart disease.   In our developing country, the prompt and cost-effective identification of congenital heart disease is not readily accessible. However, the palmar dermatoglyphic pattern can be swiftly captured, at a low cost, and analyzed with ease.   Within this particular context, the inclusion of atd angle of dermatoglyphic pattern analysis can serve as a diagnostic tool to identify patients who may have congenital heart disease at an early stage, hence mitigating the risk of complications. The objective of this study was to ascertain the potential disparities in dermatoglyphic patterns between individuals with congenital heart disease and those without.

Materials and methods

After receiving ethical approval from the Chittagong Medical College Ethical Review Committee, this cross-sectional observational study with certain analytical components was carried out at the Department of Anatomy. From August 2022 to December 2022, data were gathered in the BSMMU Department of Pediatric Cardiology to observe the dermatoglyphic patterns in patients with CHD. Thirty individuals without any congenital heart defect and one hundred patients with congestive heart failure made up the 130 responders who were chosen for this study based on inclusion and exclusion criteria. The age range for participants to meet the inclusion criteria was 6 to 18 years old, with subjects in the same age range who were not diagnosed with CHD serving as the control group. Those with deep burns, birth defects, congenital diseases, or injuries resulting in hand abnormalities were excluded, as were those with persistent scars on their fingers or palms. Participants were subject to echocardiography as a screening test for differentiation of other congenital anomalies. Every demographic information, medical records were noted, and dermatoglyphic patterns were captured using an ink technique. After that, all of the data were entered, examined and converted to percentages using computer-based SPSS software.

Procedure of Taking Fingerprint

The Ink and paper method, first described by Cummins and Midlo in 1961, was used to take dermatoglyphic prints. Initially, an expert cardiologist reported an echocardiograph that was used to select confirmed kids with congenital heart disorders from the pediatric cardiology department at BSMMU. Each guardian provided written informed consent after being briefed about the nature of study and goals to the subjects and parents at the onset. From the subject's medical records, basic information such as name, age, and sex were noted. To get rid of grime, the person's hands were cleaned with liquid soap before being inked. A paper towel was then used to wipe the hands. A clipboard held two white sheets that were used to snap pictures of the right and left hands. The clipboard was then set up on a wooden table. A dry, clean, flat-bottomed container was filled with the necessary amount of ink. Until the ink was evenly and thinly distributed throughout the hand roller, it was moved in the ink. With the aid of the roller, both hands were painted. The inked roller was uniformly passed over the palm and digits to apply a thin layer of ink. After making sure the palms and fingers were correctly inked, the handprint was taken on the white paper that was attached to the clipboard. On the paper was the palmer aspect of the wrist. Next, from the proximal to the distal end of the paper, the palm was progressively put. Lastly, palmprints were captured on paper after hand were rolled from the radial to the ulnar side. In the opposite direction, from the distal to the proximal end, the palm was removed from the paper. The next instruction was to wash both hands with Turpin oil liquid soap while the faucet was running, then pat dry with a paper towel. Magnifying glass was used to inspect the painted papers. The painted sheets were inspected using 4x and 6x magnification. To magnify the palm prints and identify the various dermatoglyphic patterns, a magnifying glass was employed. The present investigation involved the separate recording of dermatoglyphic patterns in the palmar areas of both hands for the axial tri-radius and the 'Atd' angle on the data sheet.

Procedure of Studying of Measurement of 'atd' Angle

The 'atd' angle is formed by the lines joining the 'a' and 'd' tri-radius with the most distal axial or 't' tri-radius. 'atd' angle was measured with the help of a protractor after identifying the 't', 'a' and 'd' tri-radii respectively. This angle was measured in right and left hand separately and noted on data sheet.
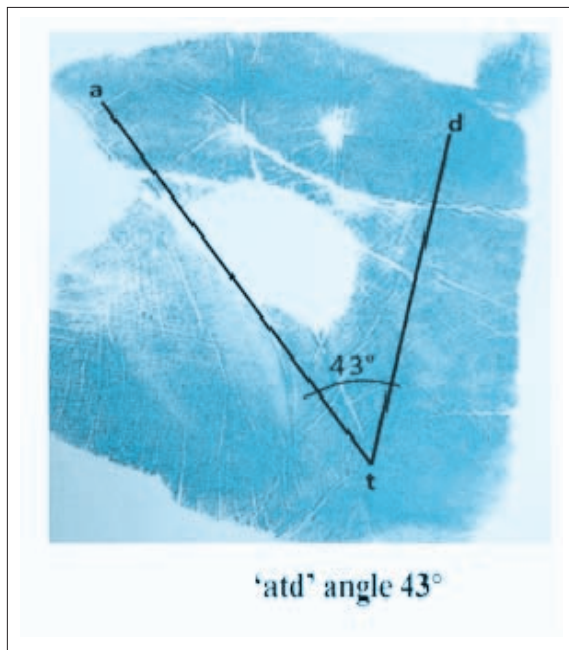

Figure 1 Process of measurement of 'atd' angle (Control)

'atd' angle 97⁰

Figure 2 Process of measurement of 'atd' angle (Case)

Results

Regarding this study, the mean ± SD of 'atd' angle of right hand in patients with CHD was 75.08 ± 15.84 and mean ± SD of 'atd' angle of right hand in control group was 43.38 ± 3.99. Unpaired student's t test was performed, and the difference was highly significant ($p<0.001$). The mean ± SD of 'atd' angle of left hand in patients with CHD was 77.14 ± 16.03 and mean ± SD of 'atd' angle of left hand in control group was 43.97 ± 3.77. Unpaired student's t test was performed, and the difference was highly significant ($p<0.001$)

Table I Comparison of the variations of 'atd' angle of both hands in patients with CHD and subjects without any CHD (n=130)

Variations of 'atd' angle	Case (n=100)	Control (n=30)	p-value
Right hand	75.08 ± 15.84	43.38 ± 3.99	<0.001
Left hand	77.14 ± 16.03	43.97 ± 3.77	<0.001

Unpaired t test was done
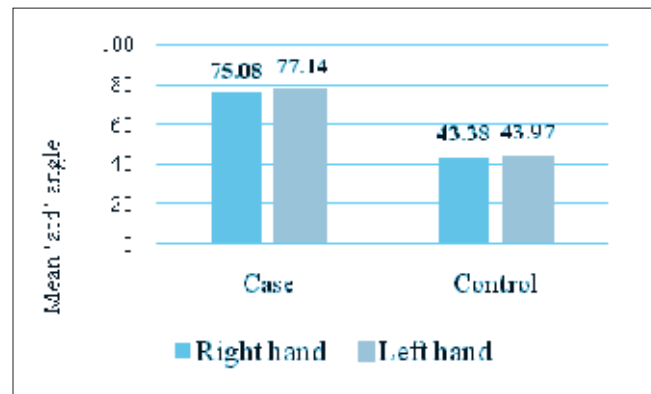
Figure 3 Bar diagram of variations of 'atd' angle of both hands in CHD patients and subjects without any CHD.

Discussion

This study result showed that, the mean ± SD of 'atd' angle in right hand was 75.08 ± 15.84 in case and 43.38 ± 3.99 in control group and the difference was highly significant ($p<0.001$). The mean ± SD of 'atd' angle in left hand was 77.14 ± 16.03 in case and 43.97 ± 3.77 in control group and the difference was highly significant ($p<0.001$) (Table I) (Figure 3). Anturlikar et al. conducted a study in Maharashtra. He observed that the mean values of 'atd' angle in right hand was 49.32 and in left hand it was 49.27 in cases. In control group mean values of 'atd' angle in right hand was 42.48 and in left

hand was 45.94 .The mean value of 'atd' angle of both hand in case was higher than that of control group and this difference was statistically significant (p<0.05).[9] Alter et al. conducted another study in Minnesota. They found in their study that the mean 'atd' angle was wider in case than control group and it was statistically significant (p<0.05). Both the findings of these studies is similar to the findings of present study.[10]

Limitations

This study was conducted over a short period of time in a small number of hospitals, its findings might not be totally representative of all people with congenital heart disease. There might have been a few errors because the manual inking approach was used in the study.

Conclusion

The results of this investigation indicate that patients with CHD had a considerable change in 'atd' angle than the patients without CHD. The 'atd' angle was significantly wider in CHD than control group.

Recommendations

Studies can employ correspondingly higher numbers of samples from other places, and the findings of this investigation need to be verified. Further investigation utilizing contemporary techniques, like a biometric scanning device, can be employed to enhance the reliability of the dermatoglyphic pattern.

Acknowledgement

Disclosure

All the authors declared no conflict of interests.

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Comparison of Phase-I Medical Students' Performance in Problem-Based and Traditional Short Answer Questions of Physiology in Bangladesh

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Abstract

Background: Physiology is highly applicable subject to clinical practice. So, instead to concentrate on recalling, students has to focus on applying the knowledge in problem solving clinical setting.So, this study is aimed to compare the performance of phase-I medical students in problem-based with traditional short answer questions of physiology in Bangladesh.

Materials and methods: This cross-sectional study was conducted in the Department of Physiology of one medical college under each of the four medical University and Dhaka university of Bangladesh for 6 months. A total of 362 first professional examinees were assessed by 10 problem-based and 10 traditional short answer questions on physiology. For statistical analysis, Independent sample t test was done as applicable.

Results: The score of correct response was significantly poorer for problem-based (3.16±1.93) than for traditional (6.92±1.70) SAQs. The score of incorrect response was significantly higher for problem-based (5.09±1.61) than for traditional (2.18±1.19) SAQs. The score of unattempted response was significantly higher for problem-based (1.74±1.90) than for traditional (0.89±1.09) SAQs. So, the performance of phase-I medical students was poor in answering problem-based than traditional SAQs of physiology. There was non-significant difference in the score of correct, incorrect and unattempted responses for both problem-based and traditional SAQs between male and female students.

Conclusion: The results of this study suggested that the performance of phase-I medical students in problem-based short answer questions was weaker compared to traditional short answer questions of physiology in Bangladesh.

Key words: Phase I medical students; Physiology; Problem-based SAQs; Traditional SAQs.

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Introduction

Medical students build their clinical knowledge from the previous knowledge of basic subjects.Among the basic subjects of medical education, physiology is the one which forms the basement of all medical branches.[1,2] So, proper understanding of physiological mechanisms is needed for deeper perception of the perplexity of the human body.[2,3] As this subject is highly applicable to clinical practice, instead to concentrate on recalling, students have to focus on applying the knowledge in problem solving clinical setting and on long term retention of knowledge.[4,5] The tool, that can help the medical students in connecting basic physiological knowledge with medical applications is clinical correlation.[6] By this way, comprehending the pathophysiology of a disease, understanding the clinical features and acquiring decision- making skill can be possible.[7] But this basic knowledge is regarded by the students only as a barrier to progress into the clinical years.[8] For this reason, basic science conceptions and essentials that acquired in the preclinical years, they can't able to apply during their clinical years.[9]

To direct and drive students learning, assessment acts as a primary motivator. Learning objectives can be judged by it.[2] Teaching and assessment together can produce a significant learning. Both teacher and student can get feedback from the assessment. It can measure the efficacy of teaching program for teacher and enables the students to realize about their awareness of ignorance.[10]

The essence of teaching of physiology is to relate the functions with structure and disturbance that causes disease.[11] Now a day, teaching of physiology becomes a challenge for rapidly increasing knowledge and scope of this subject. To keep up interest and to motivate students in learning different physiological concepts and mechanisms with orientation of clinical aspects is essential for developing critical thinking and problem solving skill.[12,13] Therefore, this study aimed to evaluate the problem solving skill of the phase-I medical students of Bangladesh.

Materials and methods

This cross sectional type of descriptive study was conducted in the Department of Physiology of one medical college under each of the four medical universities (Chittagong Medical University, Sheikh Hasina Medical University, Rajshahi Medical University, Sylhet Medical University) and Dhaka University of Bangladesh for six months. After getting permission from institutional ethical review board of Chattagram International Medical College and the respective authorities of the institutions, a total of 362 undergraduate medical students were selected by convenient sampling technique. The students who were eligible for first professional examination and willing to participate in the study were included. The students who were not eligible for first professional examination were excluded from the study. All the participants were enrolled as group I when they were assessed by ten problem-based Short Answer Questions (SAQs) and were enrolled as group II when they were assessed by ten traditional Short Answer Questions (SAQs).

All the SAQs were prepared by the researchers and were approved by one expert physiologist and one medical educationist. For construction of questions, a standard textbook of physiology commonly recommended for MBBS course in Bangladesh, Guyton and Hall Textbook of Medical Physiology was consulted. Among the Physiological systems taught in MBBS course according to the recommendations of 'Bachelor of Medicine & Bachelor of Surgery (MBBS) Curriculum in Bangladesh' December 2021, five Physiological systems were selected randomly by lottery method. Then, tenproblem-based and ten traditional SAQs were constructed from applied Physiology topics and clinically related core topics in each of the selected five physiological system suggested by curriculum. During construction of questions, one problem-based and onetraditional SAQ (Without clinical scenario, unique answer) was constructed from same topic. In this way ten problem-based and ten traditional SAQs were constructed from tenapplied physiology topics and clinically related core topics.

The assessment was conducted on the same day in all the five medical colleges. Forty minutes were given to the participants for answering total 20 SAQs. Twenty minutes to answer 10 problem-based SAQs and another 20 minutes to answer 10 traditional SAQs with a 10 minute of break in between. Scoring was done for correct, incorrect and unattempted responses of problem-based and traditional SAQs of each of the participants.Then the data of the problem-based SAQs was compared with that of the traditional SAQs by independent sample t test.

Results

Total 362 medical students of phase-I were participated in the study. Among them 210 students were female and 152 students were male.
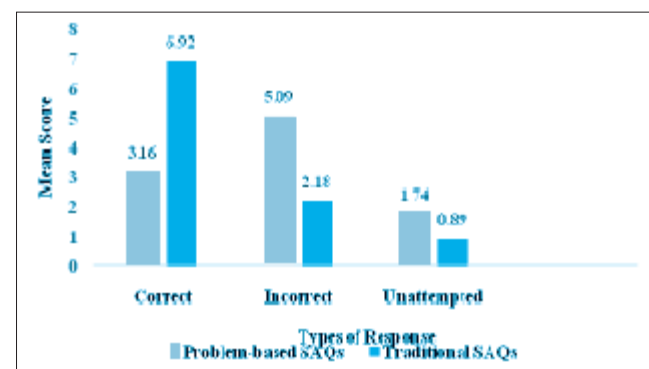

Figure 1 Comparison of the mean scores of correct, incorrect and unattempted responses of phase-I medical students in answering problem-based and traditional SAQs on Physiology (n=362)

Statistical analysis was done by Independent sample t test, ***- statistically significant (p ≤0.001).

The mean ±SD score of correct responses were 3.16±1.93 and 6.92±1.70 for problem-based and traditional SAQs respectively. The score was significantly lower for problem-based than for traditional SAQs. The mean ±SD score of incorrect responses were 5.09±1.61 and 2.18±1.19 for problem-based and traditional SAQs respectively. The score was significantly higher for problem-based than for traditional SAQs. The mean ±SD score of unattempted responses were 1.74±1.90 and 0.89±1.09 for problem-based and traditional SAQs respectively. The score was significantly higher for problem-based than for traditional SAQs. So, the performance of phase-I medical students was poor in answering problem-based than traditional SAQs of physiology.

Table I Comparison of mean scores of correct, incorrect and unattempted responses of problem-based SAQs on physiology of male and female students (n=362)

Type of response	Gender		p value
	Female	Male	
Correct	3.11±1.99	3.19±1.79	0.689
Incorrect	5.09±1.58	5.21±1.62	0.485
Unattempted	1.81±1.87	1.63±1.96	0.398

Statistical analysis was done by Independent sample t test, (p ≤0.05) was considered as statistically significant.

The mean ±SD scores of different types of responses of female and male students in problem-based SAQs is shown in Table I. The mean ±SD score of correct responses were non-significantly higher in male students (3.19±1.79) than female students (3.11±1.99). The mean ±SD score of incorrect responses were also non-significantly higher in male students (5.21±1.62) than female students (5.09±1.58). The mean ±SD score of unattempted responses were non-significantly higher in female students (1.81±1.87) than male students (1.63±1.96). So, the performance was indifferent in male and female students of phase-I in answering problem-based SAQs on physiology.

Table II Comparison of mean scores of correct, incorrect and unattempted responses of traditional SAQs on physiology of male and female students (n=362)

Type of response	Gender		p value
	Female	Male	
Correct	6.87±1.72	6.99±1.56	0.493
Incorrect	2.23±1.31	2.19±1.11	0.819
Unattempted	0.92±1.04	0.81±1.00	0.287

Statistical analysis was done by Independent sample t test, (p ≤0.05) was considered as statistically significant.

The mean ±SD scores of different types of responses of female and male students in traditional SAQs is shown in Table II. The mean ±SD score of correct responses werenon-significantly higherin male students (6.99±1.56)thanfemalestudents (6.87±1.72). The mean ±SD score of incorrect responses were non-significantly higher in female students (2.23±1.31)than male students (2.19±1.11). The mean ±SD score of unattempted responses were non-significantly higher in female students (0.92±1.04) than male students (0.81±1.00). So, the performance of male students was non-significantly better than female students in answering traditional SAQs on physiology.

Discussion

In Bangladesh, undergraduate medical curriculum has divided the medical course into four phases. Among them, 1st and 2nd phases are preclinical, 3rd phase is paraclinical and 4th phase is clinical phase. To perceive clinical science, understanding of basic science with clinical context is necessary. This can support in solving complex clinical scenarios as well as better diagnosis.[14] Medical students and interns accept that physiology is the highest applicable subject in clinical practice among all the basic subjects.[6,9] After inception of revised curriculum 2021 in Bangladesh, 'Operational Manual of MBBS Curriculum 2021' developed by DGME have included mandatory problem-based questions in each paper of written SAQ examination of physiology.

In the present study, significant lower score of correct response and significant higher score of incorrect response were found in problem-based

SAQs compared to traditional SAQs. It was also observed that there were a significantly higher number of unattempted responses in answering problem-based SAQs. Almost similar performance was found in male and female students. So, it can be said that the performance of phase-I medical students was significantly poorer in answering problem-based SAQs compared to traditional SAQs. This result indicates thelack of ability of medical studentsto apply basic physiological concepts in problem solving clinical settings. The result of this study may be considered as generalized for whole phase I medical students of Bangladesh since the data were collected from one medical college under each of the four medical universities and University of Dhaka (Except Bangladesh University of Professionals and Gono Bishwabidyalay, Dhaka). A similar study also revealed poor performance of medical students in answering problem-based questions on regional anatomy. The author concluded thatthe students could not understand how to apply basic anatomy knowledge in solving problem-based questions and suggested to give emphasize on early clinical exposure of medical students. In this way medical students would become self-directed and lifelong learner.[15]

For generations, medical students accentuate on recall of knowledge to gain marks in their preclinical years.[6,12] During clinical years, they face difficulties to apply basic science knowledge to solve clinical problems.[9] In the present research, our students appeared on the test without prior exposure of problem-based learning skill. This is why, they performed poorly in answering problem-based questions. Whereas, it is evidenced that to build and culture good clinical reasoning skill of the students, basic science topics should be taught with clinical correlation.[4]

A previous studyreported significant better performance of students after problem-based learning compared to traditional lecture in physiology. The author of the study found that problem-based learning improved the level of understanding about different physiological concepts, better attention and active participation of the students.[16] Another study found that students scored significantly higher in problem-based questions after problem-based learning with clinical scenarios. The author concluded that

problem-based learning measured students' depth of learning and analytical skill to solve clinical problem. It also motivated them in active learning and developed their self confidence.[17] A study claimed that clinically-oriented problem-solving tutorials improved both medical and dental students' clinical reasoning skills and understanding of the relationship of structure with functions.[18]

A previous study found that problem-based learning enhanced the students' level of understanding and long term retention of basic knowledge of anatomy. It also fostered their responsibility for learning objectives, gave scope to express themselves and helped their problem solving ability.[19] Therefore, exposure of medical students in problem-solving and critical thinking skill learning in preclinical phase is crucial for their future service in public health.

Limitation
Only five medical colleges were recruited as per convenient sampling technique.

Conclusion
The results of this study suggested that the performance of phase-I medical students in problem-based questions was weaker compared to traditional short answer questions of physiology in Bangladesh.

Recommendation
- To enhance the critical thinking skill, problem-based learning session should be incorporated in the physiology course.
- Interdisciplinary integration should be more emphasized.
- Active learning environment should be created in regular large and small group teaching session
- Regular teachers training for faculty to help them improve their teaching strategies could be a useful intervention.

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Disclosure
All the authors declared no competing interest.

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Abdominal Actinomycosis Presenting as Gastric Mass with Outlet Obstruction : A Case Report

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Nahid Farzana[5] Tyfur Rahman[6]

Abstract

Actinomycosis is a rare chronic inflammatory bacterial disease caused by actiomyces species which can effect gastrointestinal tract, pulmonary, pelvic and cervico-facial area. Invading surrounding tissues it forms mass lesion mimicking malignancy. Clinicians should be aware of its diverse presentation and in its ability to be a great pretender. Here we describe an unusual presentation of Actinomycosis causing extra luminal gastric outlet obstruction compelling surgical intervention.

Key words: Actinomycosis; Gastric outlet obstruction; Mass mimicking malignancy.

Introduction

Actinomycosis is an indolent slowly progressive infection caused by gram positive, anaerobic, filamentous bacilli. They are universal human commensal colonizing oropharynx, gastrointestinal tract and urogenital tract.[1] Any mucosal disruption of these sites may lead to infection at virtually any site of the body. Actinomycosis have been called the most misdiagnosed disease and no disease is so often missed by experienced diagnostician.[2] Therefore the clinical presentation that should

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prompt consideration of abdominal Actinomycosis is mass like feature with chronic progression beyond tissue boundaries and histopathological study negative for malignancy or tuberculosis.[3]

Case Presentation

A female patient of 66 years hailing from Noapara, Chattogram on 21st January 2019 came to Medicine Department of Chattogram International Medical College Hospital and presented with recurrent abdominal pain, abdominal fullness, with occasional post-prandial vomiting, early satiety and weight loss for one year. She was diabetic on good glycemic control on oral anti-diabetic drugs. Her vomiting was non bilious, not blood stained with no history of any NSAID.She also complained low grade pyrexia with weight loss but no bowel bladder difficulty or any previous history of hepato-pancreatic disease. She had undergone hemorrhoid operation one year back before symptoms.There was no history of previous TB or any contact of TB patient.

On examination she was mild anemic, non-icteric, non-edematous and JVP was not raised. There was no palpable lymph node and thyroid gland was enlarged. Per abdominal examination revealed a bit distended upper abdomen and succasion splash was positive but no organomegaly or ascites was detected. Other systemic examination revealed normal. So she was diagnosed as a case of Gastric Outlet Obstruction (GOO) under evaluation.

Routine laboratory investigations Hb-10.3 gm. /dl, ESR 73 mm/ 1st hour, Leukocytosis 11,000/cu/mm,electrolytes normal, Albumin 3.5 mg/dl, SGPT 55 IU/dl, Urine R/E-Pus cell 2-4, Albumin nil, Tumor markers- CEA, CA 19.9 and CA 125 normal, MT test 05 mm, and plane X-ray abdomen sub-acute intestinal obstruction, X-ray chest P/A mild cardiomegaly and echocardiography showed mild pericardial effusionwith good ejection fraction.

Ultrasound whole abdomen showed irregular cystic area (4.9X3.2 cm) in right supra-renal region with fecal loaded bowel loops and excess intra-abdominal gas. Endosopy of upper GIT revealed distended stomach with partially occluded lumen with mucosal irregularity mimicking gastric malignancy causing Gastric Outlet Obstruction (GOO). But endoscopic biopsy report was negative for malignancy-only inflammed and ulcerated gastric mucosa. CT scan with contrast shows irregular wall thickening in antral part of stomach with surrounding mesenteric infiltration and irregular mixed density soft tissue complex (8.1x5.8 cm) in right supra-renal region. So diagnosing the case as GOO by extra luminal mass patient underwent elective exploratory surgery. The finding was a mass mimicking malignancy involving omentum, gastric wall and transverse colon. Partial gastrostomy, resection of involved omentum and partial colectomy done. Again histopathology revealed no evidence of malignancy but ulceration with granulation tissue, dense acute and chronic inflammatory cell and colonies of actinomycetes and foreign body giant cell reaction
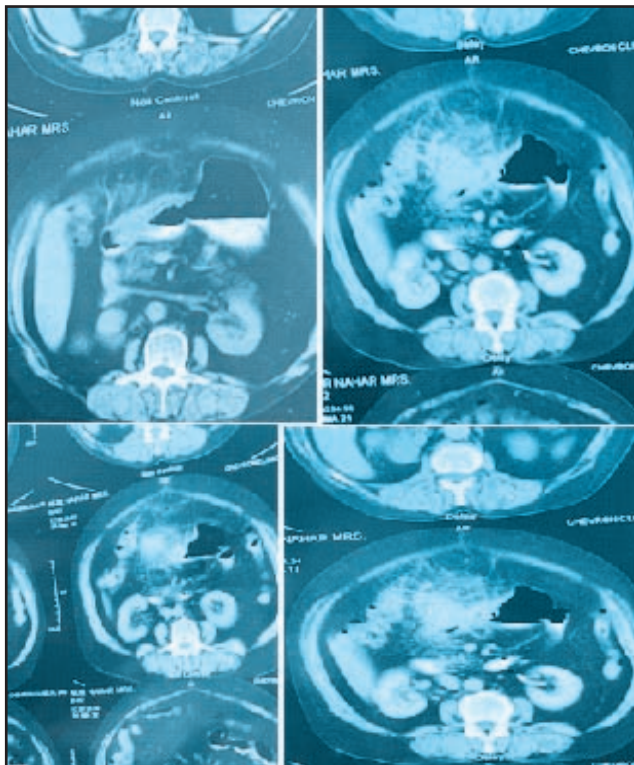

Figure CT scan of Abdomen with contrast shows mass with irregular wall thickening involving antral part of stomach, part of colon and surrounding mesenteric infiltration

found.Finally post-operatively she was diagnosed as a case of abdominal Actinomycosis presenting as Gastric Outlet Obstruction (GOO) by extra luminal mass effect.

The patient was treated with intravenous clindamycin 900 mg 8 hourly for 2 weeks followed by oral phenyxomethiyl penicillin 6 months as initial intravenous penicillin which isthe 1stline of drugs was not available in market. The patient had a good recovery with follow up at 3, 6 and 12 months and revealed a stable clinical status without any evidence of recurrence.

Discussion

Actinomycosis occur worldwide with high prevalence rate in areas with low socio-economic condition, poor dental hygiene and use of foreign bodies like intrauterine contraceptive device. The critical step in the development of Actinomycosis is disruption of mucosal barrier and once established the organism spreads contiguously in a slow progressive manner ignoring tissue planes.[4] Although acute inflammation may develop at the infection site, the hallmark of Actinomycosis is chronic lesion, indolent phase with single or multiple indurations with central necrosis and characteristics sulfur granules which is virtually diagnostic.[5] The fibrotic wall of the mass is typically described as wooden. Overtime, sinus tract to the skin, adjacent organs or bone may develop. This unique features of Actinomycosis mimic malignancy with which it is often confused.

There are delays in diagnosing Actinomycosis because infection mimics mass lesion and often confused with intestinal tuberculosis, helminthic infestation, appendicular lump, diverticulosis and chron's diseases.[3,6] Diagnostic gold standard microbial culture is especially laborious, recurring fresh material like pus or tissue, to be transported in specific anaerobic condition and would have still a negative result. The recommended regime for treating Actinomycosis is 4 months of daily 20 million I/U intravenous penicillin G and oral penicillin V 2-4 mg/kg per day for a variable period.[2] Depending on the location and extend on the involvement, percutaneous/surgical drainage of the abscess or surgical resection of the involve tissue can be considered. The need for surgery must be determined on a case basis as combination of surgery and antimicrobial treatment can provide complete cure and the prognosis is excellent. Because of non-specific symptoms, abdominal

Actinomycosis is usually diagnosed post-operatively since most patients undergo exploratory laparotomy for a suspected neoplasm.[7, 8]

Conclusion

Abdominal Actinomycosis is a rare infectious disease that can mimic neoplasm and may obstruct gastrointestinal tract extra or intra luminaly. High index of suspicion is needed in patients admitted for unexplained mass with an indolent course. Classical histopathological picture with adequate sample is diagnostic. Surgical debridement of infected tissueas well as prolong antibiotic is very effective treatment.

Disclosure

All the authors declared no conflicts of interest.

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A Small Talk of a Big Show

Rajat Sanker Roy Biswas[1*]

Sir

Arranging a conference for scientific talking in a bigger aspect is a very important event for the dissemination of new concepts and modification, acceptance or rejection of old facts. It is a continuous process and scientists worldwide move from country to country to share their new inventions and to enlighten the new generations. In this way science advances, world of science goes forward.[1]

Bangladesh is at its youth after more than 50 years of its liberation. Different universities and medical colleges along with different scientific societies arrange regular scientific seminars and conferences. Government medical colleges are ahead in this aspect. But some non-government medical colleges are also taking initiatives for arranging such one- or two-days long conferences. Among the six non-government medical colleges of this southern part of Bangladesh, Chattagram Maa-O-Shishu Hospital Medical College (CMOSHMC) is the first-one in arranging such conferences in the year 2016. Just after that Chattagram International Medical College (CIMC) also started its journey of arranging such conference. Recently CIMC arranged a whole day long scientific conference which was their 3rd international and it was first time at their own huge campus.

I was interested to join with this mega event after getting their invitation to register for the conference. Myself submitted a research paper for a session and it was accepted for oral presentation. Everything went smooth and the day came. I worked as a lecturer at CIMC in my early carrier

but it was long ago. I forgot the route and was in fear whether I could reach the venue in time. But organizer added the Google map in the invitation message which was very helpful. When I was coming nearer I noticed that, they added road tracking by putting festoons with the arrow marks directing the venue which was very innovative.

After reaching the campus, kits and chest cards were collected from the distribution spots smoothly. Went to my venue-2 where my paper was the beginner. Well decorated room with all modern facilities making the venue fantastic. Sessions started in time and after the presentation with other co-researchers, all of our papers got a big appreciation from the chairman of the session.

Professor Dr. Ridwanur Rahaman was my teacher, my thesis paper examiner and also my idol in the field of research. He is so for a big number of doctors and researchers of our country also. His premature demise is a big loss for the country. A memorial lecture for our beloved teacher is a time demanding event and if it is given by Professor Dr. M A Faiz then who will not appreciate it. Whole auditorium was hearing Professor Dr. M A Faizat pin drop silence while he was delivering the talk in this issue.

I was amazed by the innovative ideas of the organizer where they added a session for the current medical students reading in different medical colleges including CMOSHMC. Not only presentations of the students were excellent but their involvement also added a new taste to the conference. Nursing teachers also presented papers which was really praiseworthy. To get a healthy health team for the community we need to work with doctors-nurses-technologists-pharmacists in a harmonious way. So they provided a clear message to the health care providers. Dental researches also had separate sessions. Venue of poster show were fantastic and new researchers were very anxious while they were presenting their works to the session faculties as expected.

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Simultaneously, different sessions were going on in different venues and all of them were full of participants. During tea break, I had the opportunity to meet lots of researchers and faculties. Foods were excellent and tasty, environment was cool and all the organizers were friendly.

Lunch was tasty and healthy. Evening sessions were also enjoyable. Fantastic cultural night added a final touch to the event. Lastly, we can say, it is totally a successful event and health care community learned a lot, gained new thoughts enormously, which could be used for the development of our new generation, so that we can get a safe physician for our community and a thoughtful researcher for the mankind.[2]

Thanking You
Faithfully Your
Dr. Rajat Sanker Roy Biswas

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We would like to take this opportunity to thank you for the effort and expertise that you contribute to reviewing, without which it would be impossible to maintain the standards of Chattagram International Medical College journal.

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