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c. Review Article
d. Short communications
e. Case reports
f. Letter to Editor

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The guidelines listed below should be followed where appropriate. Please use these guidelines to structure your article. Completed applicable checklists, structured abstracts and flow diagrams should be uploaded with your submission; these will be published alongside the final version of your paper.

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a) Checklist for cohort, case-control, and cross-sectional studies (combined)
b) Checklist for cohort studies
c) Checklist for case-control studies
d) Checklist for cross-sectional studies

- PRISMA (www.prisma-statement.org/index.htm) for reporting of systematic reviews
- MOOSE for reporting of meta-analyses of observational studies
- STREGA (www.medicine.uottawa.ca/public-health-genomics/web/eng/strega.html) for reporting of gene-disease association studies.
- The Equator Network (Enhancing the Quality and Transparency Of health Research) provides a comprehensive list of reporting guidelines. The web site of it is http://www.equator-network.org/resource-centre/library of-health-research -reporting/library/

Original Research Articles:

It should be arranged into the following sections:

1. Title
2. Author(s)
3. Address

4. Structured Abstract
5. Key words
6. Introduction
7. Methodology
8. Results
9. Discussion
10. Conclusion
11. Acknowledgement
12. References
13. Tables
14. Figures

Title page

It should be paginated as page 1 of the paper. It should carry the title, authors' names and their affiliations, running title, address for correspondence including Email address & mobile number.

Title

Must be informative, specific and short and not exceed 100 words.

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The names of authors and their appropriate addresses should be given. It should be made clear which address relates to which author.

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It is a short title typed in the journal at the right top corner of right hand page of the article (except the lead page). A short running title of not more than 40 characters should be given.

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Abstract and key words

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Methodology

This section should deal with the materials used and the methodology - how the work was carried out. The procedure adopted should be described in sufficient detail to allow the study to be interpreted and repeated by the readers, if necessary. The number of subjects, the number of groups studied, the study design, sources of drugs with dosage regimen or instruments used, statistical methods and ethical aspects must be mentioned under the section in text format not in structured format. The methodology- the data collection procedure - must be described in sufficient detail. If a procedure is a commonly used one, giving a reference (previously published) would suffice. If a method is not well known (though previously published) it is better to describe it briefly. Give explicit descriptions of modifications or new methods so that the readers can judge their accuracy, reproducibility and reliability. The nomenclature, the source of material and equipment used, with details of the manufacturers in parentheses, should be clearly mentioned. Drugs and chemicals should be precisely identified using their non-proprietary names or generic names. If necessary, the proprietary or commercial name may be inserted once in parentheses. In case of pharmaceuticals, the first letter of the drug name should be small for generic name (e.g., dipyridamole, propranolol) but capitalized for proprietary names (e.g., Persantin, Inderal). The routes of administration may be abbreviated, e.g., intraarterial (i.a.), intracerebroventricular (i.c.v.), intra-gastric lavage (i.g.), intramuscular (i.m.), intraperitoneal (i.p.), intravenous (i.v.), per os (p.o.), subcutaneous (s.c.), transdermal (t.d.).

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The details of statistical tests used and the level of significance should be stated. If more than one test is used it is important to indicate which groups and parameters have been subjected to which test.

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This section should deal with the interpretation, rather than recapitulation of results. It is important to discuss the new and significant observations in the light of previous work. Discuss also the weaknesses or pitfalls in the study. New hypotheses or recommendations can be put forth. Avoid unqualified statements and conclusions not completely supported by the data. Repetition of information given under Introduction and Results should be avoided.

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Conclusions must be drawn considering the strengths and weaknesses of the study. They must be conveyed in the last paragraph under Discussion. Make sure conclusions drawn should tally with the objectives stated under Introduction.

Acknowledgements

It should be typed in a new page. Acknowledge only persons who have contributed to the scientific content or provided technical support. Sources of financial support should be mentioned.

References

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- Statistical significance of groups indicated by asterisks or other markers?
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used for article retrieval, including any constraints (for example, English language or human subjects). If abstract space does not permit this level of detail, summarize sources in the abstract including databases and years searched, and place the remainder of the information in the "Methods" section of the text.

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Systematic reviews are welcome. They should be critical assessments of current evidence covering a broad range of topics of concern to those working in the specific field of journal. Systematic reviews should be 4000-5000 words (abstracts to be structured as above).

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- Number of pages, number of figures and number of tables.
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List the first six authors followed by et al. (Note: NLM now lists up through 25 authors; if there are more than 25 authors, NLM lists the first 24, then the last author, then et al.)

Vega KJ, Pina I, Krevsky B. Heart transplantation is associated with an increased risk for pancreatobiliary disease. Ann Intern Med 1996 Jun 1;124(11):980-3

As an option, if a journal carries continuous pagination throughout a volume (as many medical journals do) the month and issue number may be omitted. (Note: For consistency, the option is used throughout the examples in Uniform Requirements. NLM does not use the option.)

Vega KJ, Pina I, Krevsky B. Heart transplantation is associated with an increased risk for pancreatobiliary disease. Ann Intern Med 1996;124: 980-3

More than six authors:

Parkin DM, Clayton D, Black RJ, Masuyer E, Friedl HP, Ivanov E, et al. Childhood leukaemia in Europe after Chernobyl: 5 year follow-up. Br J Cancer 1996;73:1006-12

2. Organization as author

The Cardiac Society of Australia and New Zealand. Clinical exercise stress testing. Safety and performance guidelines. Med J Aust 1996; 164: 282-4

3. No author given

Anonymous. Cancer in South Africa [editorial]. S Afr Med J 1994;84:15

4. Article not in English

(Note: NLM translates the title to English, encloses the translation in square brackets, and adds an abbreviated language designator.)

Ryder TE, Haukeland EA, Solhaug JH. Bilateral infrapatellar seneruptur hostidligere frisk kvinne. Tidsskr Nor Laegeforen 1996;116:41-2.

5. Volume with supplement

Shen HM, Zhang QF. Risk assessment of nickel carcinogenicity and occupational lung cancer. Environ Health Perspect 1994;102 Suppl 1:275-82.

6. Issue with supplement

Payne DK, Sullivan MD, Massie MJ. Women's psychological reactions to breast cancer. Semin Oncol 1996; 23(1 Suppl 2):89-97.

7. Volume with part

Ozben T, Nacitarhan S, Tuncer N. Plasma and urine sialic acid in non-insulin dependent diabetes mellitus. Ann Clin Biochem 1995;32(Pt 3):303-6.

8. Issue with part

Poole GH, Mills SM. One hundred consecutive cases of flap lacerations of the leg in ageing patients. N Z Med J 1994;107(986 Pt 1):377-8.

9. Issue with no volume

Turan I, Wredmark T, Fellander-Tsai L. Arthroscopic ankle arthrodesis in rheumatoid arthritis. Clin Orthop

1995;(320):110-4.

10. No issue or volume

Browell DA, Lennard TW. Immuno-logic status of the cancer patient and the effects of blood transfusion on antitumor responses. Curr Opin Gen Surg 1993:325-33.

11. Pagination in Roman numerals

Fisher GA, Sikic BI. Drug resistance in clinical oncology and hematology. Introduction. Hematol Oncol Clin North Am 1995 Apr;9(2):xi-xii.

12. Type of article indicated as needed

Enzensberger W, Fischer PA. Metronome in Parkinson's disease [letter]. Lancet 1996;347:1337.

Clement J, De Bock R. Hematological complications of hantavirus nephro-pathy (HVN) [abstract]. Kidney Int 1992;42:1285.

13. Article containing retraction

Garey CE, Schwarzman AL, Rise ML, Seyfried TN. Ceruloplasmin gene defect associated with epilepsy in EL mice [retraction of Garey CE, Schwarzman AL, Rise ML, Seyfried TN. In: Nat Genet 1994;6:426-31]. Nat Genet 1995;11:104.

14. Article retracted

Liou GI, Wang M, Matragoon S. Precocious IRBP gene expression during mouse development [retracted in Invest Ophthalmol Vis Sci 1994; 35:3127]. Invest Ophthalmol Vis Sci 1994;35:1083-8.

15. Article with published erratum

Hamlin JA, Kahn AM. Herniography in symptomatic patients following inguinal hernia repair [published erratum appears in West J Med 1995;162:278]. West J Med 1995;162: 28-31. Books and Other Monographs

(Note: Previous Vancouver style incorrectly had a comma rather than a semicolon between the publisher and the date.)

16. Personal author(s)

Ringsven MK, Bond D. Gerontology and leadership skills for nurses. 2nd ed. Albany (NY): Delmar Publishers; 1996.

17. Editor(s), compiler(s) as author

Norman IJ, Redfern SJ, editors. Mental health care for elderly people. New York: Churchill Livingstone; 1996.

18. Organization as author and publisher

Institute of Medicine (US). Looking at the future of the Medicaid program. Washington: The Institute; 1992.

19. Chapter in a book

Phillips SJ, Whisnant JP. Hypertension and stroke. In: Laragh JH, Brenner BM, editors. Hypertension: Pathophysiology, diagnosis, and management. 2nd ed. New York: Raven Press; 1995. p. 465-78.

20. Conference proceedings

Kimura J, Shibasaki H, editors. Recent advances in clinical neuro-physiology. Proceedings of the 10th International Congress of EMG and Clinical Neurophysiology; 1995 Oct 15-19; Kyoto, Japan. Amsterdam: Elsevier; 1996.

21. Conference paper

Bengtsson S, Solheim BG. Enforce-ment of data protection, privacy and security in medical informatics. In: Lun KC, Degoulet P, Piemme TE, Rienhoff O, editors. MEDINFO 92. Proceedings of the 7th World Congress on Medical Infor-matics; 1992 Sep 6-10; Geneva, Switzerland. Amsterdam: North-Holland; 1992. p. 1561-5

22. Scientific or technical report

Issued by funding/sponsoring agency:

Smith P, Golladay K. Payment for durable medical equipment billed during skilled nursing facility stays. Final report. Dallas (TX): Dept. of Health and Human Services (US), Office of Evaluation and Inspections; 1994 Oct. Report No.: HHSI-GOEI69200860.

Issued by performing agency:

Field MJ, Tranquada RE, Feasley JC, editors. Health services research: work force and educational issues. Washington: National Academy Press; 1995. Contract No.: AHCPR282942008. Sponsored by the Agency for Health Care Policy and Research.

23. Dissertation/Thesis

Kaplan SJ. Post-hospital home health care: the elderly's access and utilization [Dissertation/Thesis]. St. Louis (MO): Washington Univ.; 1995.

24. Patent

Larsen CE, Trip R, Johnson CR, in-ventors; Novoste Corporation, assignee. Methods for procedures re-lated to the electro-

physiology of the heart. US patent 5,529,067. 1995 Jun 25.

Other Published Material

25. Newspaper article

Lee G. Hospitalizations tied to ozone pollution: study estimates 50,000 admissions annually. The Washington Post 1996 Jun 21;Sect. A:3 (col. 5).

26. Audiovisual material

HIV+/AIDS: the facts and the future [videocassette]. St. Louis (MO): Mosby-Year Book; 1995.

27. Legal material

Public law: Preventive Health Amendments of 1993, Pub. L. No. 103-183, 107 Stat. 2226 (Dec. 14, 1993). Unenacted bill: Medical Records Confidentiality Act of 1995, S. 1360, 104th Cong., 1st Sess. (1995)

Code of Federal Regulations: Informed Consent, 42 C.F.R. Sect. 441.257 (1995).

Hearing: Increased Drug Abuse: the Impact on the Nation's Emergency, Rooms: Hearings Before the Subcomm. On Human Resources and Intergovernmental Relations of the House Comm. On Government Operations, 103rd Cong., 1st Sess. (May 26, 1993).

28. Map

North Carolina. Tuberculosis rates per 100,000 population, 1990 [demo-graphic map]. Raleigh: North Carolina Dept. of Environment, Health, and Natural Resources, Div. of Epidemiology; 1991.

29. Dictionary and similar references

Stedman's medical dictionary. 26th ed. Baltimore: Williams & Wilkins; 1995. Apraxia; p. 119-20.

30. Classical material

The Winter's Tale: act 5, scene 1, lines 13-16. The complete works of William Shakespeare. London: Rex; 1973.

31. In press

(Note: NLM prefers "forthcoming" because not all items will be printed.)

Leshner AI. Molecular mechanisms of cocaine addiction. N Engl J Med. In press 1996.

Electronic Material

32. Journal article in electronic format

Morse SS. Factors in the emergence of infectious diseases. Emerg Infect Dis [serial online] 1995 Jan-Mar [cited 1996 Jun 5];1(1):[24 screens].

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Editorial
Journal of Monno Medical College,
June 2019, Vol. 5, No. 1, pp. 1-2 ISSN (Print) 2412-3277

Importance of Hospital Antibiotic Stewardship Programs: Bangladesh Perspective

Rabbi FI

Antibiotic stewardship is the effort to measure and to improve the way how antibiotics are prescribed by clinicians and used by patients[1]. Improvement of antibiotic prescribing as well as the use of antibiotic are the critical issues to effectively treat infections; furthermore, protection of patients from harms due to unnecessary use of antibiotic and combat antibiotic resistance is also very important. The Antibiotic Stewardship Programs (ASPs) can help the clinicians by improving the clinical outcomes as well as minimize harms by improving antibiotic prescribing[2]. The hospital antibiotic stewardship programs can increase infection cure rates by reducing treatment failures, adverse effects, antibiotic resistance and the hospital costs as well as the lengths of hospital stay.

Similar toother medications, the antibiotics have some serious adverse effects, which occur in roughly 20.0% of hospitalized patients who receive them[3]. Patients who are unnecessarily exposed to antibiotics are placed at risk for these adverse events with no benefit. The misuse of antibiotics has also contributed to antibiotic resistance, which is a serious threat to public health. The misuse of antibiotics can adversely impact the health of patients who are not even exposed to them through the spread of resistant organisms[4].

In 2014, Centre for disease control (CDC), Atlanta, USA, had called on all the hospitals in the United States to implement antibiotic stewardship programs and had released the *Core Elements of Hospital Antibiotic Stewardship Programs* (Core Elements) to help hospitals achieve this goal. The Core Elements outlines structural and procedural components that are associated with successful stewardship programs[1]. In 2015, The United States National Action Plan for Combating Antibiotic Resistant Bacteria set a goal for implementation of the Core Elements in all hospitals that receive federal funding[2]. This type of core elements can be implemented for reducing the antibiotic resistance.

There is no single template for a program to optimize antibiotic prescribing in hospitals. Implementation of antibiotic stewardship programs requires flexibility due to the complexity of medical decision-making surrounding antibiotic use and the variability in the size and types of care among hospitals[5]. In some sections, CDC has identified priorities for implementation, based on the experiences of successful stewardship programs and published data. The Core Elements are intended to be an adaptable framework that hospitals can use to guide efforts to improve antibiotic prescribing[6]. The assessment tool can help hospitals identify gaps to address.

In Bangladesh, antibiotics are prescribed the most in cases of acute respiratory tract infections, acute watery diarrhea, acute trauma and gastrointestinal symptoms; furthermore, the most commonly prescribed antibiotics are ceftriaxone, cefixime and amoxycillin[8]. More than 50% resistance has found against *Pseudomonas aeruginosa* infections with commonly used antibiotics, including ciprofloxacin, gentamicin, ceftriaxone and cefixime. Azithromycin could not show any effectiveness in wound and urine infections, while ceftriaxone-cefiximehas100.0% ineffective in tracheal infections. *Escherichia colihas* observed to be resistant in 40% of cases to the commonly used antibiotics like ceftriaxone, levofloxacin, ciprofloxacin, amoxicillin, ampicillin and 95% resistant to azithromycin. The same pattern has been observed in *Klebsiella pneumoniae*. Over the year, shigellosis has developed great propensity to resistance. Cholera is one of the most prevalent and threatening water borne diseases of the country and has eventually acquired resistance against tetracycline. The situation is alarming[9].

A research by Johns Hopkins University has explored that 67.0% of hospitalized patients in Bangladesh has received antibiotics, even though in at least 50.0% cases they are not required[8]. All the resistant microbes endanger the prevention and treatment of infectious medical conditions, minor to major surgical procedures such as organ transplantation, caesarean sections, hip replacements, abdominal surgeries, oncological chemotherapy, diabetes management with inclined health care cost, lengthier stays in hospitals and intensive care arrangements. The impact of this in growing antibiotic resistant is not affecting the medical conditions only, but socio-economic and psychological aspects as well.

Around 80.0% people of Bangladesh live in rural areas, where there is high prevalence of quack or fake doctors or

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traditional healers, who are actually prescribing not only irrational antibiotics, but also the newest regiments, like ceftriaxone or meropenem every now and then. Few factors, like gross dispensation of antibiotics, unethical promotion, self-medication without prescription, irrational use of antibiotics in prescriptions by professionals, animal agricultural antibiotic use are endangering the situation in the country[1].

Unfortunately, currently the struggle with antibiotic resistant is mostly restricted to the clinical fields. It is high time for us to realize it is a burning public health issue which should be battled with multi sectorial integration, not in labs and hospitals only. The government should take sustainable and effective health policies, along with participation of different ministries rising awareness and developing research programmes to fight against antibiotic resistant before it is too late. The way antibiotic resistant is jeopardizing the gains from millennium development goals and endangering the Sustainable Development Goals globally, is a matter of serious concern in a lower middle income country like Bangladesh.

[Journal of Monno Medical College, June 2019;5(1): 1-2]

References

1. Pollack LA, Srinivasan A. Core elements of hospital antibiotic stewardship programs from the Centers for Disease Control and Prevention. Clinical Infectious Diseases. 2014;59(suppl_3):S97-100

2. Pollack LA, van Santen KL, Weiner LM, Dudeck MA, Edwards JR, Srinivasan A. Antibiotic stewardship programs in US acute care hospitals: findings from the 2014 National Healthcare Safety Network Annual Hospital Survey. Reviews of Infectious Diseases. 2016;63(4):443-9.

3. Tamma PD, Avdic E, Li DX, Dzintars K, Cosgrove SE. Association of Adverse Events With Antibiotic Use in Hospitalized Patients. JAMA Intern Med. 2017;177(9):1308-15.

4. Huttner A, Harbarth S, Carlet J, Cosgrove S, Goossens H, Holmes A, et al. Antimicrobial resistance: a global view from the 2013 World Healthcare-Associated Infections Forum. Antimicrobial resistance and infection control. 2013;2(1):31.

5. Brown K, Valenta K, Fisman D, Simor A, Daneman N. Hospital ward antibiotic prescribing and the risks of Clostridium difficile infection. JAMA Intern Med. 2015;175(4):626-33.

6. Centers for Disease Control and Prevention. U.S. National Action Plan for Combating Antibiotic-Resistant Bacteria (National Action Plan). Available from: https://www.cdc.gov/drugresistance/us-activities/national-action-plan.html

7. Centers for Disease Control and Prevention. Implementation of Antibiotic Stewardship Core Elements at Small and Critical Access Hospitals. Available from: https://www.cdc.gov/antibiotic-use/core-elements/small-critical.html

8. Sanchez GV, Fleming-Dutra KE, Roberts RM, Hicks LA. Core elements of outpatient antibiotic stewardship. Morbidity and Mortality Weekly Report: Recommendations and Reports. 2016;65(6):1-2

9. Heil EL, Kuti JL, Bearden DT, Gallagher JC. The essential role of pharmacists in antimicrobial stewardship. Infection control & hospital epidemiology. 2016;37(7):753-4.

Original Article

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Use of Tobacco in a Rural Community in Selected District of Bangladesh

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Abstract

Background: Global consumption of cigarettes has been rising steadily since manufactured cigarettes were introduced at the beginningof the 20th century.The number of smokers increase mainly due to expansion of the world's population. **Objectives:** The objectives of the study was to find out types of tobacco use, to identify health problem, sources of knowledge of harmfulness of tobacco and cost involvement for tobacco use. **Methodology:** This cross sectional study was conducted from January 2010 to June 2010 for a period of six months to determine the pattern of tobacco consumption among the household member of patgram upazila under Lalmonirhat District in Bangladesh. **Results:** A total number of 272 respondents of 1572 households were studied in patgram Upazilla in Lalmonirhat district of Bangladesh to find out the status of tobacco use among the rural community as well as the health problems and cost involvement related toboth smoking and smokeless tobacco products consumption whereas (75.0%) respondents had habits of smokeless tobacco; furthermore, 14.8% respondents had habits of smoking tobacco and 44.06% respondents had suffered from different types of tobacco related disease during last 6 month. The mean cost from tobacco products was 16.3333 with SD of ±18.914 per day. However, 35.9% respondents had visited doctor or hospital for medical service in different occasion. **Conclusion:** In conclusion majority are male, illiterate, poor and manyof tobacco users consumed the smokeless tobacco. Use of smokeless tobaccoposes a risk to the success of tobacco control efforts. *[J Monno Med Coll June 2019;5(1): 3-7]*

Keywords: Rural community; smoking; smokelessTobacco; heath problem

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Introduction

Rural people are the disadvantaged group which does not have access to health facilities. At the first point, doctors are not available in the rural areas; then also the rural people do not have money to go to doctors. Therefore it is very important to provide primary care to rural people which include prevention of development of diseases. There are many risk factors that lead to poor health of people. Tobacco use among rural people is one of them. Generally we see the village people smoking Hukkas and other tobacco products at Gram Choupal.Tobacco use is very harmful. Smoking significantly contributes to chronic Non Communicable Diseases; mainly heart disease, stroke, cancer (lung, larynx, oral cavity, pharynx and oesophagus) and chronic obstructive pulmonary diseases (COPD)[1,2]. Smoking also increases the incidence of clinical tuberculosis[3]. The World Health Organization's (WHO) report on the Global Tobacco Epidemic in 2008 highlighted that approximately 5.4 million deaths every year are related to tobacco use[4]. Tobacco is a risk factor for leading causes of death in the world[4]. Consumption of tobacco is a complex and multidimensional problem faced by all countries[5]. Tobacco use is the single largest cause of preventable premature death in the United States[6-8] and exposure to environmental tobacco smoke (ETS)

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is a preventable cause of significant morbidity and mortality[9-11]. Smoking-attributable mortality (SAM) is a serious public health concern in the 21st century which now out numbers that from human immunodeficiency virus (HIV), tuberculosis, and malaria combined[12]. According to the 2013 World Health Organization (WHO) report on the global tobacco epidemic, tobacco use accounts for millions of premature deaths and billions of dollars of economic damage every year[13]. The numbers of smokers will increase mainly due to expansion of the world's population. By 2030 there will be at least another 2 billion people in the world[14]. The Healthy People goal is to reduce illness, disability and death related to tobacco use and exposure to second hand smoke. The objectives of the study was to find out types of tobacco use, to identify health problem, sources of knowledge of harmfulness of tobacco and cost involvement for tobacco use.

Methodology

This cross sectional study was conducted to determine the pattern of tobacco consumption among the household members of Patgram Upazilla under Lalmonirhat District in Bangladesh. The study was carried out over a 180 days period of January 2010 to June 2010 and their questionnaire were used as source of date. Respondents were selected from household selected randomly. The household members who were available during the time of data collection were included in the study. From the district Patgram Upazilla every 4 households were selected randomly and one individual is randomly selected from each household, Finally 272 respondent from 272 households were randomly chosen from 1527 households. The data were collected by direct face to face interviewing the workers who fulfilled the selection criteria. The interview was taken by researcher himself at the place of study without disturbing their routine works. The data were collected by prepared pre-tested questionnaire. The purpose and objects of the study was explained to the respondents before interview. Assurance was given regarding confidentiality and secrecy of the information they provided. Prior to the commencement of this study, participants was clearly informed about the scope and limitation of the study. The aims and objectives of the study along with its procedure, risks and benefits of this study were explained to the patients in easily understandable local language and then informed consent were taken from each participant. Neither this study was involved any invasive procedure; nor any experimental medications or placebos was administered as part of the study. The researcher used detailed questionnaire covering the various aspects of the tobacco consumption behavior of the respondents. The data were compiled, analyzed and were distributed in to different groups of variables.

Results

A total of 272 respondents of 1572 house hold were studied in PatgramUpazilla in Lalmonirhat district to find outtypes of tobacco use,to identify health problem associated with tobacco use,sociodemographic condition and cost involvement for tobacco use and multiple measures of smoking behaviors among population of Lalmonirhat.The distribution of the respondents by type or pattern of tobacco products was recorded.Out of 216 respondents 162(75.0%) respondents had habits of smokeless tobacco (Table 1).

Table 1: Distribution of Respondents by Type or Pattern of Tobacco Products in Group (n=216)

Pattern of Tobacco Products	Frequency	Percent
Smoking tobacco	32	14.8
Smokeless tobacco	162	75.0
Combined use	22	10.2
Total	**216**	**100**

The distribution of the respondents by type of health problem due to tobacco use were recorded.Out of 216 respondents most of them 32(14.8%) had stomach ulcer and others health problem due to tobacco use (Table 2).

Table 2: Distribution of Respondents by Type of Health Problem Occurs Due to Tobacco Use (n=216)

Health Problem Related to Tobacco	Frequency	Percent
Heart disease	12	5.6
Sore in month	14	6.5
Cancer	18	8.3
Spot on tooth	14	6.5
Stomach ulcer	32	14.8
Bronchial asthma	2	0.9
TB	28	13.0
Toothache	12	5.6
Loss of appetite	2	0.9
Vertigo	4	1.9
Cancer & TB	14	6.5
Stomach ulcer & bronchial asthma	2	0.9
Sore in mouth & bronchial asthma	2	0.9
Sore in mouth & TB	4	1.9
Spot on tooth & TB	2	0.9
Cancer & bronchial asthma	4	1.9
Heart disease & stomach ulcer	2	0.9
Sore in mouth & stomach ulcer	2	0.9
Stomach ulcer & bronchial asthma	2	0.9
Cancer & stomach ulcer	2	0.9
Spot on tooth & bronchial asthma	2	0.9
Others	40	18.5
Total	**216**	**100**

The distribution of the respondents by how much cost from tobacco products use were observed. Out of 216 respondents most of them 44(20.4%) respondents spend 20 taka for tobacco use (Table 3).

Table 3: Distribution of Respondents by Cost from Tobacco Products Use(n=216)

Cost of tobacco Products Per Day (BDT)	Frequency	Percent
1.00	4	1.9
2.00	32	14.8
3.00	6	2.8
4.00	6	2.8
5.00	30	13.9
6.00	4	1.9
9.00	2	0.9
10.00	28	13.0
12.00	8	3.7
15.00	18	8.3
20.00	44	20.4
25.00	8	3.7
30.00	6	2.8
50.00	12	5.6
60.00	2	0.9
100.00	6	2.8
Total	**216**	**100**

The source of knowledge of harmfulness of tobacco had been informed from several media. Out of 272 respondents most of them 141(51.8%) respondents had known the knowledge of harmfulness of tobacco from TV (Table 4).

Table 4: Distribution of Respondents by Source of Knowledge of Harmfulness of Tobacco (n=227)

Source of knowledge of harmfulness of tobacco	Frequency	Percent
Newspaper	2	0.7
TV	141	51.8
Radio	30	11.0
Magazine	8	2.9
Relatives	8	2.9
Friends	6	2.2
Newspaper & TV	2	0.7
TV & Radio	17	6.3
Others (self, elders)	58	21.3
Total	**272**	**100**

The distribution of the respondents byhistory of sufferings from any tobacco related disease during last 6 month were observed. Out of 118 respondents most of them 66(55.9%) respondents did not suffer from any tobacco related disease during last 6 month.

Table 5: Distribution of Respondents by History of Sufferings from Any Tobacco Related Disease during Last 6 Month (n=118)

Sufferings From Tobacco Related Problems	Frequency	Percent
Yes	52	44.6
No	66	55.94
Total	**118**	**100**

Discussion

The study was conducted among 272 individual of 1527 household of Patgram Upazilla inLalmonirhat District. This study aimed to find out the types of tobacco use, to identify the health problems associated with tobacco use and to fine out the cost involvement for tobacco use and multiple measures of smoking behaviors among population of Lalmonirhat. It was a cross sectional descriptive type of study. Data were collected by face-to-face interview of the respondents using questionnaire.

In a study on tobacco prevalence in Bangladesh three-fourth of male and half of female respondents have been found to use tobacco products in their later years of lives. While tobacco prevalence is high at 80 percent for the rural male respondents, the same is 69 percent among their urban counterparts. Prevalence was found to be the highest at 79 percent for male respondents and 63 percent for female respondents[15]. The highest rate, 58.2%, was among men with a household income of less than $24/month. Smoking prevalence declines proportionally as income increases, with the lowest rate, 32.3%, being for men with a monthly[16]. This study revealed that out of 216 respondents most of them 122 (56.5%) respondents had developed the habituation of tobacco by self. In this studyshowed 79.4% respondents had the habit of consumption of both smoking and smokeless tobacco products. Among which by type or pattern of tobacco products majority respondents 31.5% took Khinee. Again 27.8% respondents took zarda/sada, 12.0% respondents took cigarette, 9.3% respondents took zarda & khinee, 5.6% respondents took cigarette and zarda, 2.8% respondents took gul, 2.8% respondents took bidi and zarda, 1.9% respondents took bidi and khinee, 0.9% respondents took khinee, gul and rest, 0.9% respondents took others (nasa). In another study in USA,they found that the rates of lifetime use were 11.9% for little cigars,16.4% for regular cigars, 18.2% for all cigars, 6.5% for bidi, 8.9% for kreteks. 4.65 for smokeless tobacco and 33.7% for cigarettes which was comparable to this study[17]. In another study of India on tobacco use in a rural area of Bihar, found that smokeless tobacco use was 6.2% and smoking 0.3%. Most smokeless tobacco use was in the form of red toothpowder 77%[18]. According to GATS, 2009-10, use of Khaini or tobacco lime mixture was most prevalent in rural areas followed by Bidi smoking and then use of Gutkha. According to the study Bidi was most frequently used tobacco product, followed by Khaini and Hukkha. Out of total current tobacco users, 49 percent smoked Bidis, 20 percent used Khaini and 16 percent smoked Hukkha[19].

The health effects of cigarette smoke have been well researched for several decades. Smokers have more health issues and a lower life expectancy than the general population. Smoking causes a range of serious health problems, including cancer, heart disease, stroke, asthma, emphysema, vascular disease and damage to most body organs. Smokers' health problems can impact on their work performance and affect productivity through more frequent

sickness-related absences and multiple 'smoke breaks' while at work[20]. Despite common thinking that smoking is a stress reliever, research has found that it actually increases psychological distress while providing no medicinal benefits[21].

A report title by impact of Tobacco-related Illnesses in Bangladesh World Health Organization 2007 has been claimed about 62% of men and 41% of women (52% for sexes combined) either smoked or chewed tobacco products. 9% of the participants examined at households had at last one of eight selected tobacco-related diseases (ischemic heart disease, lung cancer, stroke, oral cancer, cancer of the larynx, chronic obstructive pulmonary disease, pulmonary tuberculosis, or Berger's disease). 41% of them were attributable to tobacco. Hospital data indicated that 29% of inpatients (of the same age group) were hospitalized due to this diseases[22]. It was seen that most of the respondents people had knowledge of harmfulness of tobacco and majority of them get the information from TV and radio and few from others source. A study[23] in Delhi showed that the knowledge about harmful effects of tobacco among study subjects. The most common source of information about harmful effect was parents (349%) followed by teacher (27.9%), friends (18.6%), radio (16.3%), doctor (14.0%), neighbor (9.3%), sibling (2.3%), police (2.3%), books (2.3%) and poster/banner (2.3%)[16]. In this study (79.4%) respondents had the habit of consumption of both smoking and smokeless tobacco products.

In this study the tobacco consumers had to spend a considerable amount of money to purchase tobacco items every day. The mean cost from tobacco products was 16.33 with SD of ± 18.91 taka BDT per day among which (35.9%) respondents had visited doctor/hospital for medical service. Tobacco use remains the leading cause of preventable death in the United States, with 430,000 deaths each year (one in five) attributable to tobacco use. The resulting cost is an estimated $50 to $73 billion dollars in health care costs nearly 12 percent of all medical costs[26-28]. In this study found that (52.8%) respondents had decided to leave tobacco usage above 1 year, (29.2%) respondents had decided to leave tobacco usage within 6 month, (12.5%) respondents had decided to leave tobacco usage within 1 month and rest (5.6%) respondents had decided to leave tobacco usage within year. The study found that illiterate was poorer to tobacco consumption. Motivation was one of the major principal to combat the situation. Further studies are required to investigation there.

Little is known about changes in tobacco use over time by socioeconomic status (SES) in Bangladesh. This evidence is important from three perspectives. First, economic growth, rising incomes and urbanization have increased access to tobacco products, for example, cigarettes are becoming more affordable across social strata. This may manifest in earlier initiation and access to tobacco products, which could vary by income or education[29-32],. Second, increases in innovative marketing, packaging and promotion of tobacco products may differentially impact vulnerable populations. For instance, tribal populations may respond to innovative marketing by switching from traditional tobacco products like snuff, hookah, kimam to mass-market forms of tobacco like bidis and cigarettes[24]. Finally, in other contexts, nearly half of premature mortality between SES groups has been attributed to tobacco use[24]. In Bangladesh, where multiple forms of tobacco exist, social patterning of tobacco will be an important driver of inequalities in morbidity and mortality fromnon-communicable diseases (NCDs) going forward. Tracking changes in the socioeconomic inequalities in tobacco use may aid in understanding the directions of this change, thereby identifying gaps in existing interventions in order to avert future disease burdens. Tobacco products are made entirely or partly of leaf tobacco as rawmaterial, which are intended to be smoked, sucked, chewe dorsnuffed. All Contain the highly addictive psychoactive ingredient; nicotine. Itis claiming the lives of nearly 5.4 million people a year worldwide[25].

Conclusion

Prevalence of Tobacco habit is quite high. Awareness Regarding impact on health is very poor. About one third tobacco consumers as said that they need help in quitting tobacco. There is urgent need to address their problem. Health centre/personnel may be good assistance for those who want to quit tobacco habit. They may also act as source of information. Due to poor quality of pictorial warning on pouches and packets, people sometimes fail to correlate tobacco with morbidities caused by it and they remain less impressed by these statutory/pictorial health warnings. Higher use in rural areas will eventually lead to higher numbers of people with health problems that rural areas are ill equipped to handle. While past research has shown that education, enforcement of existing laws, product labeling, and anti-tobacco advertising campaigns may reduce tobacco use, more research is needed to understand the factors that contribute to higher prevalence of both smoke and smokeless tobacco use in rural areas.

References

1. Ezzati M, Henley SJ, Lopez AD, Thun MJ. Role of smoking in global and regional cancer epidemiology: current patterns and data needs. Int J Cance. 2005;116:963-971

2. Ezzati M, Henley SJ, Thun MJ, Lopez AD. Role of smoking in global and regional cardiovascular mortality. Circulation 2005;112:489-497

3. Gajalakshmi V, Peto R. Smoking, Drinking and Incident Tuberculosis in Rural India: population based case control study, International Journal of Epidemiology 2009;38(4):1018-1025

4. World Health Organisation (WHO). WHO report on the global tobacco epidemic, 2008 – The EMPOWER package. Geneva: World Health Organization, 2008

5. Vinita S,Hem R P, Mehta M,Kapil U.Tobacco Consumption And Awareness of their health Hazards amongst Lower Income Group School Children In National Capital Territory of Delhi.2007 April 17.44:293-295

6. McGinnisJM,FoegeWH.ActualcausesofdeathintheUnitedStates.JAMA 1993;270:2207–12

7. National Cancer Institute Smoking and Tobacco Control Program.

Changes in cigarette related disease risks and their implication for prevention and control. Smoking and Tobacco Control Monograph 8. Bethesda, MD: National Institutes of Health, National Cancer Institute, 1997

8. USA Department of Health and Human Services. Reducing the health consequences of smoking: 25 years of progress. A report of the Surgeon General. Rockville, MD: U.S. Department of Heath and Human Services, Public Health Service, Centers for Disease Control and Prevention, 1989 (DHHS Pub. No. [CDC] 89-8411)

9. California Environmental Protection Agency. Health effects of exposure to environmental tobacco smoke—final report and appendices. Sacramento, CA: California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, 1997

10. U.S. Environmental Protection Agency. Respiratory health effects of passive smoking: lung cancer and other disorders. Washington, DC: U.S. Environ- mental Protection Agency, Office of Research and Development, Office of Health and Environmental Assessment, 1992 (EPA/600/ 6-90/006F)

11. USA Office on Smoking and Health. The health consequences of involun- tary smoking: a report of the Surgeon General. Rockville, MD: U.S

12. Alshishtawy, M.M. Tobacco Smoking. Facts and actions. Sultan Qaboos Univ. Med. J. 2013, 13, 341–344

13. World Health Organization. WHO Report on the Global Tobacco Epidemic, 2013: Enforcing Bans on Tobacco Advertising, Promotion and Sponsorship; World Health Organization: Geneva, Switzerland, 2013

14. Short,snappy,easily attempted,easily completed or just as easily discarded before completion-the cigarette is the symbol of the machine age. New York Times,1925

15. Yunus M. Craving for Nicotine:A Study OnTobacco Prevalence In Bangladesh. Final report. Bangladesh Institution of Development 2001 Dec, Available in URL:http://209.61.208.233/ Link Files/Regional Surveillance System Sentinel Bangladesh.pdf

16. Debra E,Saifuddin A, Joy T,Syed MA, Amit RD,Bipbpb D.Hungry for Tobacco:An Analysis Of The Economic Impact OF Tobacco Consumption On The Poor In Bangladesh

17. Huyser DJ,Dorseya E. Characteristics of User of Cigars,Bidis and Kreteksand The Relationship To Cigarette Use Social Science Research and Evaluation,Inc.,Brookline,MA, USA

18. Dhirendra N, Sinha PC,Gupta A,Mangesh S,PednekarK. Tobacco Use In A Rural Area Of Bihar,India; Oct.-Dec. 4

19. Ministry of Health and Family Welfare (MOHFW). Global Adult Tobacco Survey (GATS) India, 2009-10. New Delhi: MOHFW, Govt. of India; 2010

20. Halpern MT, Shikiar R, Rentz AM. Impact of smoking status on workplace absenteeism and productivity. Tobacco Control 2001;10:233-238

21. Parrott, AC. Cigarette-derived nicotine is not a medicine', World Journal of Biological Psychiatry 2003;4:49-55

22. Impact of Tobacco related Illness in Bangladesh World Health Organization 2007

23. Malhotra C,Malhotra R,Singh MM,Garg S,Ingle GK. A Study of Tobacco Use Among Street Children of Dheli. Indian Journal of Community Medicine 2007;329(1):58-59

24. Jha P, Peto R, Zatonski W, Boreham J, Jarvis MJ, Lopez AD. Social inequalities in male mortality, and in male mortality from smoking: indirect estimation from national death rates in England and Wales, Poland, and North America. Lancet. 2006;368 (9533):367–370

25. http://www.who.int/tobacco/mpower/mpower_report_full_2008.pdf Accessed On March 8, 2013

26. Kendell N. Medicaid and indigent care issue brief: Youth access to tobacco. Issue Brief Health Policy Tracking Service, 2000, 1-32

27. CDC. Best practices for comprehensive tobacco control programs-August 1999. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and Health Promotion, Office on Smoking and Health, 1999

28. Smith, S.S., and Fiore, M.C. The epidemiology of tobacco use, dependence, and cessation in the United States. Journal of Primary Care 26:433-461, 1999

29. Reddy KS, Arora M. Tobacco use among children in India: a burgeoning epidemic. Indian Pediatr. 2005;42(8):757–761

30. Bhan N, Srivastava S, Agrawal S, et al. Are socioeconomic disparities in tobacco consumption increasing in India? A repeated cross-sectional multilevel analysis. BMJ Open. 2012;2(5):e001348

31. Patel D, Kassim S, Croucher R. Tobacco promotion and availability in school neighborhoods in India: a cross-sectional study of their impact on adolescent tobacco use. Asian Pac J Cancer Prev. 2012;13(8):4173–4176

32. Schensul JJ, Nair S, Bilgi S, et al. Availability, accessibility and promotion of smokeless tobacco in a low-income area of Mumbai. Tob Control. 2013;22(5):324–330

Original Article

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Awareness Regarding Hospital Waste Management among the Health Care Providers in Different Private Medical College Hospital and Clinic in Savar Upazilla, Dhaka

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Abstract

Background: Medical waste has been considered as one of the major health and environmental management issues in Bangladesh over the last three decades. Poor management, lack of handling knowledge and unscientific disposal of various health-care wastes pose serious direct and indirect public health threats to health-care personnel, nurses, technicians, waste workers, hospital visitors, patients, surrounding communities and the environment as well. **Objective:** The purpose of the present study was to assess awareness (KAP) about hospital waste management among the health care provider. **Methodology:** This cross-sectional descriptive study was conducted in different private clinics and hospitals at Savar Upazilla, Dhaka, Bangladesh during the period of February to April 2019 with convenience sampling technique. A semi-structured questionnaire was developed in English (with Bangla translation) to collect data. Statistical analysis was used by SPSS version 25. **Results:** Out of the 113 participants, 45.1% were male and 54.9% were female. The mean age of the respondent was 26.34 years. Among them 31.0% were junior doctor, 18.6% were sister/brother, 28.3% were laboratory technician and 21.4% were Aya. Safe management of HW is self-responsibility 83% agreed with that, about more than 12% did not agree. Poor biomedical waste managements (BMWM) is public health hazard there were 70% respondent agreed, 29.2% did not support with this. The best method of biomedical waste managements knew only 53%, but 49% did not know that. **Conclusion:** In Bangladesh, proper medical waste management is a new phenomenon and government of Bangladesh is trying to develop a new and modern approach to deal with the medical waste properly. *[J Monno Med Coll June 2019;5(1): 8-11]*

Keywords: Knowledge; attitude; practice (KAP); hospital waste management

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Introduction

Medical waste has been considered as one of the major health and environmental management issues in Bangladesh over the last three decades. Poor management, lack of handling knowledge and unscientific disposal of various health-care wastes pose serious direct and indirect public health threats to health-care personnel, nurses, technicians, waste workers, hospital visitors, patients, surrounding communities and the environment as well[1].

Healthcare wastes include all types of wastes generated by healthcare establishments, research facilities, and laboratories. There are various estimates regarding hazardous and nonhazardous constituents of healthcare waste. According to World Health Organization (WHO) related reports and studies, around 85.0% of hospital wastes are nonhazardous, 10.0% are infectious (biologically hazardous), and the remaining 5% are toxic chemicals, pharmaceutical, and radioactive wastes[2]. This traditional estimate, however, is not consistent for many developing countries. The proportion for hazardous waste varied from country to country which is Pakistan in about 20%, Nigeria of 26.5% and in Sub-Saharan Africa countries about 2 to 10.0%[2-4]. In Bangladesh, 36.03% in diagnostic centers and higher clinics[3]. There are no guidelines for the proper management of healthcare wastes.

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There is no segregation of wastes at the point of generation. Most healthcare establishments dispose of their wastes to the nearest municipal dustbins[4].

World Health Organization (WHO) conducted an investigation survey on management of medical waste in 22 developing countries and the results showed that the proportion of healthcare facilities that did not use proper waste disposal methods ranged from 18% to 64%[5]. Good medical waste management in a hospital depends on a dedicated waste management team, good administration, careful planning, sound organization, underpinning legislation, adequate financing, and full participation by trained staffs[6].

The purpose of this study was to reveal knowledge attitudes and practice (KAP) about hospital waste management among the health care providers indifferent private (medical college) hospital or clinic in Savar Upazilla, Dhaka. Hospital waste management of Bangladesh is very poor. There is lack of attention in this issue in both governmental and nongovernmental sectors. But due to the rapid increase of healthcare establishments in the country, the problem is also increasing.

Methodology

This descriptive cross-sectional study was conducted in different private clinics and hospitals including Enam medical college hospitals at Savar Upazilla, Dhaka, Bangladesh during the period of February to April 2019. A convenience sampling technique was used. A semi-structured questionnaire was developed in English (with Bangla translation) to collect data. The questionnaire then pre-tested in a non-sample area on the similar population. After pre-testing, necessary modification was made for perfection of the instrument. In this study 120 healthcare professionals such as junior doctors, interne doctors, nurses, lab technicians, were selected initially. There were 7 respondents not completed the questionnaire so response rate was 93.0%. Collected data were analyzed using with SPSS version 25.

Results

Out of the 113 participants in this study, 45.1% were male and 54.9% were female participants (Figure I). The overall mean age of respondents was 26.34 years.

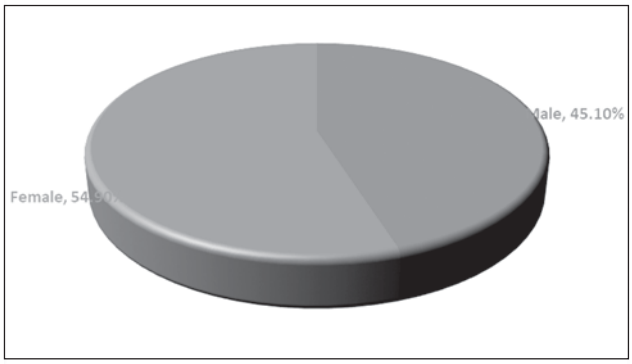

Figure I: Gender Distribution among Study Population

Among them, 31.0% respondents were junior doctor and surgeons; 18.6% respondents were nurse or brother; 28.3% respondents were laboratory technician and 21.4% respondents were aya in savar upazilla different clinics and hospital and EMCH (Figure II).

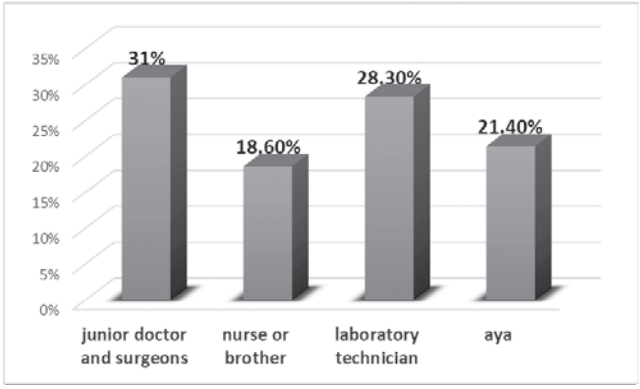

Figure I: Gender Distribution among Study Population

There were different type of hospital waste such as surgical, pathological, radiological, and infectious and many others. Most of the respondent (about 83.0%) used container for waste collection only 4.0% did not that. The first place of hospital waste segregated was at different places which was outside hospital (44.0%), at lab room (27.0%), segregated at patient ward (17.0%) and operation theater room (10.0%) (Figure III).

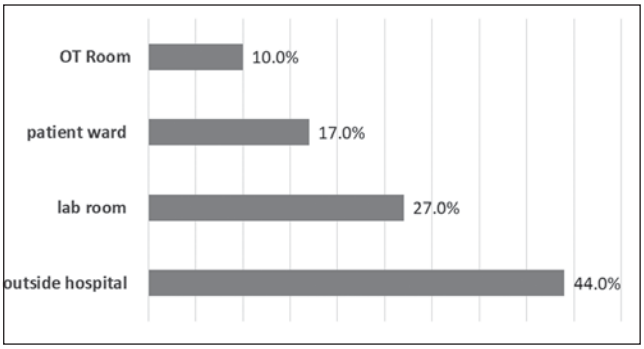

Figure III: Different Places of First Place of Hospital Waste Segregated

Hospital waste transmitted disease which was known by 98.0% and only 2.0% did not know. Safe management of hospital waste was self-responsibility in 83.0% agreed with that and about more than 17.0% did not agree. Poor biomedical waste managements had a public health hazard and there were about 70.0% respondent agreed; however, 30.0% did not support with this (Table 1).

Regarding practice related variables more than 58.0% did not know the needle cutter and only 41.0% did know that. After using the needle only 67.0% respondents destroyed it and the rest 32.0% respondents did not do that (Table 2).

Table 1: Attitude about Biomedical Waste Management

Attitude	Response	
	Positive	Negative
Hospital waste transmitted disease	98.0%	2.0%
self-responsibility	83.0%	17.0%
HWM public health hazard	70.0%	30.0%

Table 2: Practices about Medical Waste Management

Practices	Response	
	Positive	Negative
Needle destroyed after use	67.0%	32.0%
Needle cutter Use	58.0%	41.0%

Color code did not know about 66.0% respondents and only 44.0% respondents knew that the hospital waste management color code use. Most of them were doctor. The best method of biomedical waste managements knew among 53.0% respondents; however, 49.0% respondents did not know about that. Hospital waste management considered as an important issue was known by 84.0% respondents and the rest 15.0% respondents did not know. Unfortunately hospital waste management law did not know among a large portion of health workers (92.0%) (Table 3).

Table 3: Knowledge about Medical Waste Management

Knowledge	Response	
	Positive	Negative
Colour Code	66.0%	44.0%
Best Method of HWM	53.0%	49.0%
Importance of HWM	84.0%	15.0%
About HWM Law	92.0%	8.0%

HWM=Hospital waste management

Discussion

Some medical staff earn income by selling used syringes and other healthcare wastes. There is a lack of awareness, concern, and knowledge of appropriate handling and disposal methods of hospital wastes at all levels. The level of knowledge on the dangerous consequences of improper handling and disposal of hazardous hospital wastes is also very low at all levels. Most healthcare staff is not aware of the proper management of wastes. Adequate and effective waste-management facilities are absent. Besides, the budget is meager to effectively implement safe disposal of hospital wastes. There is no specific clause pertaining directly to the handling, transportation, or disposal of healthcare wastes in the Bangladesh Environmental Protection Act, 1995. Consensus among the owners of private clinics and the policy-makers of the government and nongovernment organizations (NGOs) is also lacking which is crucial for healthy environment in the healthcare facilities[4]. It is a common observation in mega cities of Bangladesh that poor scavengers, women and children collect some of the medical wastes like syringe-needles, saline bags, blood bags and so on for reselling despite the deadly health risks. It has been reported that the re-use of syringes can even cause the spread of infections such as AIDS and hepatitis[1].

In Bangladesh, proper medical waste management is a new phenomenon and government of Bangladesh is trying to develop a new and modern approach to deal with the medical waste properly. Project in Agriculture, Rural Industry, Science and Medicine (PRISM-Bangladesh), a reputed national NGO in Bangladesh, with the financial support from Canadian International Development Agency (CIDA) has recently developed a disposal facility for low cost medical waste treatment and management in Dhaka City[8].

Hassan et al[7] report a survey on Bangladesh hospitals that generate a total of 5562 kg/day of wastes, of which about 77.4% are non-hazardous and about 22.6% are hazardous. The average waste generation rate for the surveyed hospital is 1.9 kg/bed/day or 0.5 kg/patient/day. This study revealed the HWM awareness (KAP) in Health care provider (HCP) at Savar Upozilla's private clinic or hospital. In this study the researcher exposed that there are different type of HW in this area. Infectious waste 31%, surgical 21.2%, pathological 16.8%, radiological waste 7.1%, and other general waste were 22%.

The World Health Organization (WHO) has classified medical waste into different types like infectious like material-containing pathogens in concevtrations high enough to cause diseases on exposure. This includes waste from surgery, lab cultures, used dressings, and others. Shares disposable needles, syringes, blades, broken glasses related with radioactive substances used for diagnosis and treatment of diseases. Pressurized containers including gas cylinders and substances with high heavy metal content like broken mercury thermometers. These are the most dominant types of medical waste[9].

A study has been conducted on UK (United Kingdom) hospitals and has showed that 10.0% of hospitals have used yellow, heavy-duty, high-density polyethylene (HDPE) containers. This study has explored that 66.5% HCP didn't know the colour code but among them 40.4% used red colour, 19.5% used yellow and rest of them used other colour such as green, blue and black, with plastic container 94.4% only 3.5% used plastic bags.

Regarding needle stick injury (NSI) the researcher revealed that only 41.6% was effected, 58.4% didn't that. Among them 74.3% didn't report of that injury only 25.7% did report for NSI. Used needle destroy 67.3% but 32.7% didn't. Prevalence of needle sticks injury was 32 (20.9%) reported episodes of needle stick injuries in this study. Among them 18 (56.25%) were male and 14 (43.75%) female health care workers.

About 81% of the dental professionals reported that they would first contact a medical emergency room in case of an accidental NSI, The needle disposal method followed and practiced by most of the dental professionals is the use of

needle burner and syringe destroyer (54.5%)[11.12].

Conclusion

Medical waste management was not poor in different private hospital at Savar Upozilla. Standards surveillance in collecting and separation and proper training scopes was not as good. In addition the hospital waste management educations, proper policy procedures must be taken into action in order to improve the HWM. Moreover, a trained staffs responsible for proper Hospital waste management process which lead to less public health hazard.

References

1. Biswas A, Amanullah AS, Santra SC. Medical waste management in the tertiary hospitals of Bangladesh: an empirical enquiry. ASA University Review. 2011;5(2):149-58

2. Uddin MN, Islam MR, Yesmin K. Knowledge on hospital waste management among senior staff nurses working in a selected medical college hospital of Bangladesh. Journal of Waste Management. 2014;2014

3. Azage M, Kumie A. Healthcare waste generation and its management system: the case of health centers in West Gojjam Zone, Amhara Region, Ethiopia. Ethiopian Journal of Health Development. 2010;24(2): 119-126

4. Nessa K, Quaiyum MA. Wast management in healthcare facilities: a review. International Centre for Diarrhoeal Diseases Research Bangladesh: Dhaka; 2001

5. WHO, "Safe Healthcare Waste Management: Policy Paper," World Health Organization, Geneva, 2004

6. Mbarki A, Kabbachi B, Ezaidi A, Benssaou M. Medical waste management: A case study of the souss-massa-draa region, morocco. Journal of Environmental Protection 2013;4:914-919

7. Hassan MM, Ahmed SA, Rahman KA, Biswas TK. Pattern of medical waste management: existing scenario in Dhaka City, Bangladesh. BMC public health. 2008;8(1):36

8. Zarook M. Medical Waste Management and Control. Journal of Environmental Protection. 2012;3:1625-1628

9. WHO, (The World Health Organization). Waste Management at Medical Centers. 2010. http://www.who.or.id/eng/contents/aceh/wsh/books/es/ES08CD.pdf

10. Dehghani MH, Azam K, Changani F, Fard ED. Assessment of medical waste management in educational hospitals of Tehran university medical sciences. Journal of Environmental Health Science & Engineering. 2008;5(2):131-6

11. Bhardwaj A, Sivapathasundaram N, Yusof MF, Minghat AH, Swe KM, Sinha NK. The prevalence of accidental needle stick injury and their reporting among healthcare workers in orthopaedic wards in general hospital Melaka, Malaysia. Malaysian orthopaedic journal. 2014;8(2):6-13

12. Pavithran VK, Murali R, Krishna M, Shamala A, Yalamalli M, Kumar AV. Knowledge, attitude, and practice of needle stick and sharps injuries among dental professionals of Bangalore, India. Journal of International Society of Preventive & Community Dentistry. 2015;5(5):406-12

Original Article

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Pattern of Mitral Inflow Velocity due to Left Ventricular Diastolic Dysfunction among Impaired Glucose Tolerance Patients

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Abstract

Background: Pattern of mitral inflow velocity may vary due to left ventricular diastolic dysfunction among impaired glucose tolerance patients. **Objectives:** The purpose of the present study was to assess the pattern of mitral inflow velocity due to left ventricular diastolic dysfunction among impaired glucose tolerance patients. **Methodology:** This cross sectional study was carried out in the Department of Cardiology at Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh from July 2005 to June 2007 for a period of two (02) years. Patients with impaired glucose tolerance (IGT) patients attending Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM), Dhaka, Bangladesh and fulfilled selection criteria were included in this study as group A. The apparently healthy persons without cardiovascular disease were taken as group B. All the study subjects underwent 2D and M-mode echocardiography for chamber enlargement, ventricular hypertrophy and ventricular systolic function according to recommendation of American Society of Echocardiography. **Result:** Doppler mitral inflow parameters between groups showed that E-wave 58.94±15.14 vs 71.14±10.60 cm/s, $p<0.001$, and E/A ratio 1.13±0.46 vs 1.48±0.36, $p<0.001$ significantly lower in group A, but A-wave 55.32±9.55 vs 49.54±6.93 cm/s, $p<0.01$ significantly higher in group A compared to group B subjects. Doppler mitral inflow parameters were also compared between LVDD present and absent groups, which showed that E-wave 45.58±5.46 vs 73.42+5.97 cm/s, $p<0.001$, E/A ratio 0.74±0.12 vs 1.56±0.26, $p<0.001$, significantly lower in LVDD present group, while A-wave 62.12±6.35 vs 47.96±6.46 cm/s, $p<0.001$, and DT 224.42±3.53 vs 192.79±8.54 msec, $p<0.001$) were significantly higher in LVDD present group. **Conclusion:** In conclusion the pattern of mitral inflow velocity is significantly different due to left ventricular diastolic dysfunction among impaired glucose tolerance patients. *[J Monno Med Coll June 2019;5(1): 12-15]*

Keywords: Pattern; Mitral inflow velocity; Left Ventricular Diastolic Dysfunction; Impaired Glucose Tolerance

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Introduction

Insulin resistance and subsequent myocardial changes are responsible for the development of diastolic dysfunction[1]. IGT is a predictor for future diabetes mellitus, and it is a strong risk factor for the development of premature cardiovascular disease and so subsequent morbidity and mortality[2]. The National Diabetes Data Group (NDDG) of the National Institute of Health (NIH), USA, in concern with World Health Organization (WHO) proposed the term impaired glucose tolerance (IGT)[3].

Individuals with IGT decompensated to overt diabetes and had higher mortality rate than those with normal glucose tolerance[4]. The macrovascuar complication, such as coronary heart disease, hypertension and stroke are present at a greater

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rate than in the people with normal glucose[5]. This increasing frequency of registration appears to be either increasing awareness of diabetes among people or real increase in diabetes prevalence in the community. Some small diabetes surveys, at community level in different periods, proved an increasing prevalence of diabetes and IGT[5].

Doppler echocardiography is a noninvasive and simple procedure which provides insight into left ventricular diastolic dysfunction[6]. The most commonly used Doppler parameters of diastolic dysfunction are derived from left ventricular inflow and pulmonary venous inflow. A pulsed-wave (PW) Doppler sample volume is placed at the mitral valve leaflets tips to calculate transmitral E and A wave velocities, E/A ratio, deceleration time (DT) of E-wave and duration of A (Ad) wave. In PW Doppler study of pulmonary vein inflow estimates S and D wave velocities. Alteration of these flow patterns occur in case of elevation of left ventricular (LV) diastolic and left atrial (LA) pressure[7].

If the diastolic dysfunction can be detected at the early stage, it can take the measures for prevention of its progression or to reverse the process. This present study was undertaken to assess the pattern of mitral inflow velocity due to left ventricular diastolic dysfunction among impaired glucose tolerance patients.

Methodology

This present cross sectional study was carried out in the Department of Cardiology at Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh from July 2005 to June 2007 for a period of two (02) years. Patients with impaired glucose tolerance (IGT) patients attending Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM), Dhaka, Bangladesh and fulfilled selection criteria were included in this study. Patients with the age group of 18 to 60 years, fasting blood sugar less than 7 mmol/L and 2 hours after 75 gm glucose 7.8 to 11.0 mmol/L with blood pressure of systolic less than 140 mmHg and diastolic less than 90 mmHg, sinus rhythm and negative ETT were selected as study population. Any evidence of pericardial, myocardial or endocardial disease, valvular heart disease, congenital heart disease, known or suspected coronary artery disease, diabetes mellitus patients, atrial fibrillation, renal impairment, pregnant women or patients with poor echocardiography window were excluded from this study. The apparently healthy persons without cardiovascular disease were taken as group B. Informed consents were taken from each subject. History and clinical examination findings were recorded in predesigned data collection sheet. ECG, chest X-ray, blood sugar (fasting and 2 hours after 75 gm glucose); fasting lipid profile and serum creatinine; urine for microalbumin level were analyzed and findings documented. Exercise tolerance test (ETT) was done in every case and positive cases were excluded. Echocardiography including Doppler with colour flow imaging study were done by cardiologists. Each study subjects underwent standardized 12-lead electrocardiographic evaluation. Any change in the ST, T-segment was carefully noted. Exercise tolerance test (ETT) was done using Bruce protocol after proper evaluation, excluding contraindications in patients with normal ECG and highly suspicious for IHD. Symptoms of angina and ST-segment changes were carefully evaluated. All the study subjects underwent 2D and M-mode echocardiography for chamber enlargement, ventricular hypertrophy and ventricular systolic function according to recommendation of American Society of Echocardiography. Careful attention was paid on valvular, congenital, pericardial, myocardial pathology. Special emphasis was given on wall motion abnormality and graded from normal to dyskinetic motion. LV systolic function was recorded. pulsed Doppler sample volume (2.4 mm gate) was placed -on the tip of mitral valve leaflets to observe the transmitral flow parameters, whereas sample volume (3 mm gate) 1 to 2 cm deep in right upper pulmonary vein for the assessment of pulmonary venous inflow. Flow patterns across the mitral inflow like E- and A-wave velocities, E/A ratio, deceleration time (DT), isovolumic relaxation time (IVRT), duration of A-wave (AD) were measured. Measurements up to 3 cycles at end-expiration was averaged. Similarly, flow patterns across the pulmonary inflow like S- and D-wave velocities, S/D ratio, atrial reversal (AR) and duration of AR (ARD) were measured. AD/ARD ratio was calculated. Deferent stage of LVDD as absent, abnormal relaxation, pseudonormalization and restrictive pattern values were recorded. Collected data were compiled and statistical analyses were done using computer based software, Statistical Package for Social Science (SPSS) version 22.0. To arrive at statistical significance, Chi-square test and unpaired Student's 't' test were applied. P value < 0.05 was taken as minimum level of significance.

Results

The present prospective study was carried out in the Department of Cardiology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka. Fifty consecutive cases of IGT patients who attended BIRDEM hospital and fifty age, sex matched non-IGT subjects, who fulfilled the selection criteria were included in this study. The mean age of group A and B were 49.92±8.96 and 40.42±9.31 years. The difference between the group A and B was not statistically significant (p=0.785) (Table 1).

Table 1: Mean Age of the study subjects

Group	Mean Age± SD	P value
Group A	40.92±8.96	0.785
Group B	40.42±9.31	

Unpaired Student's 't' test

In this study 35(70.0%) and 39(78.0%) were male, and 15(30.0%) and 11(22.0%) were female in group A and B respectively. The difference between the male and female was not statistically significant (p=0.362) (Table 2).

Table 2: Gender Distribution of the study Population

Gender	Group A	Group B	P value
Male	35(70.0%)	39((78.0%)	
Female	15(30.0%)	11(22.0%)	0.362
Total	**50(100.0%)**	**50(100.0%)**	

Chi-square test

The mitral inflow velocity pattern showed significant differences between groups, i.e. peak E-wave (58.94±15.14 and 71.14±10.60 cm/s; p<0.001), peak A-wave (55.32±9.55 and 49.54±6.93 cm/s; P<0.01), E/A ratio (1.13±0.46 and 1.48±0.36, p<0.001), deceleration time (209.24±17.19 and 189.90±13.83 msec; p<0.001) and IVRT (102.80±9.84 and 92.86±7.82 msec; p<0.001) (Table 3).

Table 3: Mitral Inflow Velocity Pattern by Doppler Echocardiography in the Study subjects (n=100)

Variables	Group A	Group B	P value
Peak E-wave (cm/s)	58.94±15.14	71.14±10.60	0.0001
Peak A-wave (cm/s)	55.32±9.55	49.54±6.93	0.001
E/A ratio	1.13±0.46	1.48±0.36	0.0001
Deceleration time (msec)	209.24±17.19	189.90±13.83	0.0001
IVRT (msec)	102.80±9.84	92.86±7.82	0.0001

IVRT=Isovolumetric relaxation time; Unpaired Student's 't' test was performed to see the level of significance.

The mean peak E-wave and E/A ratio were significantly lower but peak A-wave, deceleration time and IVRT were significantly higher in cases with LVDD. Mean (±SD) values with cases with and without LVDD, respectively, were peak E-wave 45.58±5.46 and 73.42±5.97 cm/s (P<0.001), peak A-wave 62.12±6.35 and 47.96±6.46 cm/s (p<0.001), E/A ratio 0.74±0.12 and 1.56±0.26 (p<0.001), deceleration time 224.42±3.53 and 192.79±8.54 msec (p<0.001), and IVRT 111.23±4.43 and 93.67±4.21 msec (p<0.001) (Table 4).

Table 4: Mitral inflow velocity pattern by Doppler echocardiography in cases with and Without Left Ventricular Diastolic Dysfunction

Variables	LVD Dysfunction		P value
	Present (n=26)	Absent (n=24)	
Peak E-wave (cm/s)	45.58±5.46	73.42±5.97	0.0001
Peak A-wave (cm/s)	62.12±6.35	47.96±6.46	0.0001
E/A ratio	0.74±0.12	1.56±0.26	0.0001
Deceleration time (msec)	224.42+3.53	192.79+8.54	0.0001
IVRT (msec)	111.23±4.43	93.67±4.21	0.0001

IVRT=Isovolumetric relaxation time; Unpaired Student's 't' test was performed to see the level of significance.

Discussion

There has been increasing interest comprehension and appreciation regarding the contribution of left ventricular diastolic dysfunction (LVDD) to the signs and symptoms produced by cardiovascular disorders (CVD)[6]. Abnormal left ventricular diastolic (LVD) performance has been observed both in conjunction with and absence of systolic dysfunction. The advent of Doppler velocity recording has provided a rapid, repeatable, noninvasive method by which LVDD is assessed[7].

Accurate noninvasive assessment is crucial to the broad application and understanding of this common condition. Echocardiographic parameters have become the backbone of this noninvasive procedure[8]. The increased incidence of LVDD is the impaired glucose tolerance (IGT) patients explained by presence of early diabetic cardiomyopathy[9]. Bajraktaria et al[2] found that 55.0% patients with IGT had LVDD. Our study has endeavoured to find out such recommendation.

Detection of LVDD at the entry point of IGT and diabetes mellitus is very important regarding the initiation of mode of management as appropriate mode of management might arrest or reverse the process[10] (Hirai et al., 1992; Hiramatsu et al., 1992; Bajraktaria et al., 2006). In this study, various grades of LVDD were evaluated in asymptomatic, normotensive, ETT-negative IGT patients and these were compared with non-IGT age and sex matched controlled subjects by Doppler echocardiography. Until now, there has been few data in Bangladesh regarding the LVDD in asymptomatic, normotensive, ETT negative IGT patients by Doppler echocardiography. In the current study, an attempt has been made to compare data of various relevant studies with that from present study.

The age range in this study was 18 to 60 years with mean age 49.92±8.96 years. Highest number of patients was 18 (36%) in 41-50 years group. Next age group was 31-40 years. Most of the persons above the age 60 years had LVDD due to aging, for this reason age range was 18-60 years. Bajraktaria et al2 worked on diastolic dysfunction in normotensive NGT (normal glucose tolerance), type 2 diabetes, age range was 18-60 years, they had taken some sample above 60 years which may give a higher frequency of LVDD due to age-related diastolic dysfunction. In the present study, only 10% control population had LVDD. All subjects were between 41-60 years of age. Karmakar[11] showed that 12.5 % of control population had LVDD. Zahurul[12] showed that 22 % of control group had LVDD in his study.

The majority of study population was male, 35(70.0%), while female comprised of small part, 15 (30.0%). Male and female ratio was 2.3:1. In Bangladesh, almost all studies reported an overwhelming majority of male patients[11-12]. For detection of LVDD, Doppler mitral inflow parameters and Doppler pulmonary venous parameters are crucial. In Doppler mitral inflow parameters, E/A ratio and deceleration time (DT) are very important parameters to measure, and in pulmonary venous parameters, S/D ratio and PAR are very important. Doppler mitral inflow parameters between case and control groups showed that

E-wave and E/A ratio significantly lower in case group, but A-wave significantly higher in same group compared to control subjects, which signifies presence or initiation of LVDD. During the starting of LVDD, initially left ventricular end-diastolic pressure is increased and to maintain an adequate flow from LA to LV, LA pressure is increased and reflected by increased A-wave and reduced E-wave velocity, thus altered E/A ratio.

As it has been taken the asymptomatic population, pseudonormal and restrictive filling abnormal groups of LVDD may be absent in this present study as most of the persons of pseudonormal and restrictive filling abnormal group are symptomatic[13]. Bajraktaria et al[2] showed that 55.0% of IGT cases, 27.6% of NGT cases and 75.7% of type 2 diabetes mellitus cases had LVDD. None of subject was found to have pseudonormal or restrictive filling abnormality. In a study it has been reported that 63.0% of type 2 diabetes group have LVDD, and none of the subject are found to have pseudonormal or restrictive filling abnormality. This study is nearly similar to this present study, however, frequency is slightly higher.

Conclusion

In conclusion the pattern of mitral inflow velocity is significantly different due to left ventricular diastolic dysfunction among impaired glucose tolerance patients. It has been also found the significant difference of mitral inflow velocity pattern by doppler echocardiography in cases with and without left ventricular diastolic dysfunction among the IGT patients. Further large scale study should be conducted.

References

1. Salmasi AM, Frost P, Dancy M. Left ventricular diastolic function in normotensive subjects 2 months after acute myocardial infarction is related to glucose intolerance. American Heart Journal. 2005;150(1):168-74

2. Bajraktari G, Koltai MS, Ademaj F, Rexhepaj N, Qirko S, Ndrepepa G, Elezi S. Relationship between insulin resistance and left ventricular diastolic dysfunction in patients with impaired glucose tolerance and type 2 diabetes. International Journal of Cardiology. 2006;110(2):206-11

3. Boyer JK, Thanigaraj S, Schechtman KB, Pérez JE. Prevalence of ventricular diastolic dysfunction in asymptomatic, normotensive patients with diabetes mellitus. The American Journal of Cardiology. 2004;93(7):870-5.

4. Poirier P, Bogaty P, Philippon F, Garneau C, Fortin C, Dumesnil JG. Preclinical diabetic cardiomyopathy: relation of left ventricular diastolic dysfunction to cardiac autonomic neuropathy in men with uncomplicated well-controlled type 2 diabetes. Metabolism. 2003 Aug 1;52(8):1056-61

5. Power AC. Diabetes mellitus. In: Braunwald E, et al. (eds). Harrison's principle of internal medicine. Volume 1, 15th ed. 2001; pp. 2109-2137

6. Schannwell CM, Schneppenheim M, Perings S, Plehn G, Strauer BE. Left ventricular diastolic dysfunction as an early manifestation of diabetic cardiomyopathy. Cardiology. 2002;98(1-2):33-9.

7. Newton CA, Raskin P. Diabetic ketoacidosis in type 1 and type 2 diabetes mellitus: clinical and biochemical differences. Archives of Internal Medicine. 2004;164(17):1925-31

8. Diakakis GF, Parthenakis FI, Mavrakis HE, Patrianakos AP, Zacharis EA, Nyktari EG, Ganotakis ES, Vardas PE. Association of impaired glucose tolerance with increased heart rate and subclinical inflammation. Hellenic J Cardiol. 2005;46(6):394-401

9. Ernande L, Bergerot C, Rietzschel ER, De Buyzere ML, Thibault H, PignonBlanc PG, Croisille P, Ovize M, Groisne L, Moulin P, Gillebert TC. Diastolic dysfunction in patients with type 2 diabetes mellitus: is it really the first marker of diabetic cardiomyopathy? Journal of the American Society of Echocardiography. 2011;24(11):1268-75.

10. Cosson S, Kevorkian JP. Left ventricular diastolic dysfunction: an early sign of diabetic cardiomyopathy? Diabetes & metabolism. 2003;29(5):455-66.

11. Karmakar PK. Detection of left ventricular diastole dysfunction (LVDD) in asymptomatic, normotensive, ETT negative newly detected type-2 diabetic patients by Doppler echocardiography [thesis]. Dhaka: Bangabandhu Sheikh Mujib Medical University, 2004

12. Zahurul MM. Study of left ventricular diastolic dysfunction in type-2 diabetes mellitus with chronic unstable angina [thesis]. Dhaka: Bangabandhu Sheikh Mujib Medical University, 2003

13. Poulsen MK, Henriksen JE, Dahl J, Johansen A, Gerke O, Vach W, Haghfelt T, H ilund-Carlsen PF, Beck-Nielsen H. Left ventricular diastolic function in type 2 diabetes mellitus: prevalence and association with myocardial and vascular disease. Circulation: Cardiovascular Imaging. 2010;3(1):24-31.

Original Article

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Validity of Color Doppler for the Detection of Adverse Perinatal Outcome among the Pre-Eclampsia Patients

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Abstract

Background: Role of color Doppler for the detection of adverse perinatal outcome among the pre- eclampsia patient is a crucial steps for the management. **Objectives:** The purpose of the present study was to evaluate the validity of color Doppler for detection of adverse perinatal outcome among pre-eclampsia patients. **Methodology:** This prospective study was carried out in department of Obstetrics and Gynaecology, Dhaka Medical College Hospital (DMCH), Dhaka during the period of November 2011 to April 2012. All the pregnant women presented with clinically diagnosed cases of severe pre-eclampsia with the age group of 16 to 35 years who were attended in the IPD of the Department of Obstetrics and Gynaecology between 30 to 40 weeks of gestation was selected as study population. The pregnancies were followed up and the final neonatal weight of each case was noted. Validity of the test was confirmed by determining sensitivity, specificity, accuracy, positive predictive value, negative predictive value. **Result:** A total number of 40 patients were recruited for this study. The age of the patient were ranging from 16 to 35 years. In this study a total number of 40 subjects were included of which 32(80.0%) cases had adverse perinatal outcome and 8(20.0%) cases had normal outcome. Out of 32 abnormal cases 30(93.7%) cases were presented with adverse perinatal outcome and the rest 2(6.3%) cases were found without any adverse perinatal outcome. Among 8 normal neonates 1(12.5%) case had abnormal Doppler and 7(87.5%) cases had without any adverse perinatal outcome (p=0.0001). Sensitivity, specificity, positive predictive value, negative predictive value and accuracy were 96.7%(95% CI 83.30% to 99.92%), 77.7%(95% CI 39.99% to 97.19%), 93.7%(95% CI 81.52% to 98.08%), 87.5% (95% CI 49.66% to 98.03%) and 92.5%(95% CI 84.34% to 100.66%). The area under the curve was 0.127 (p=0.001). **Conclusion:** In conclusion colour Doppler has a high sensitivity for the detection of adverse fetal outcome; however, there is a low specificity and very high accuracy. *[J Monno Med Coll June 2019;5(1): 16-19]*

Keywords: Diagnostic test Validity; color Doppler; adverse perinatal outcome; pre-eclampsia patient

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Introduction

Pre-eclampsia causes placental insufficiency and it is the most common cause of intrauterine growth retardation[1]. It is an important obstetric problem on account of the high association with perinatal morbidity and mortality[2]. Intrauterine growth retardation is characterized by failure of the fetus to reach its normal growth potential. Intrauterine growth retardation is the 2nd leading cause of perinatal death[3]. IUGR is associated with significant morbidity including increased rates of meconium aspiration, hypoglycaemia, respiratory distress syndrome, intrapartum asphyxia, developmental delay and still birth[4].

Intrauterine growth retardation is associated with an increased risk of perinatal mortality and morbidity and

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impaired neurodevelopment[5]. Doppler velocimetry is the most rigorous evaluation test among the noninvasive tests of fetal well-being. Placental insufficiency, whether primary or secondary to maternal factors such as hypertension, poor nutrition etc. is the most common cause of intrauterine growth retardation which is an important obstetric problem on account of the high association perinatal mortality and morbidity. It is essential to recognize placental insufficiency early so that its hazards can be reduced[6].

Doppler ultrasound allows a noninvasive assessment of fetal haemodynamics[7]. Doppler ultrasound enable a better understanding of the haemodynamic changes and has therefore become one of the most important clinical tools for fetomaternal surveillance in high risk pregnancies. Doppler waveform abnormalities have been reported to be the most accurate predictor of poor neonatal outcome[8]. A color Doppler apparatus may be used to assess the blood flow velocity profiles in the umbilical arteries to determine if complications associated with impaired trophoblastic invasion of the placental bed could be predicted by this measurement. The purpose of the present study was to evaluate the validity of color Doppler for detection of adverse perinatal outcome among pre-eclampsia patients.

Methodology

This prospective cohort study was conducted in the Department of Obstetrics and Gynaecology at Dhaka Medical College Hospital (DMCH), Dhaka. The study was carried out from November 2011 to April 2012 for a period of six month. All the pregnant women presented with clinically diagnosed cases of severe pre-eclampsia with the age group of 16 to 35 years who were attended in the IPD of the Department of Obstetrics and Gynaecology between 30 to 40 weeks of gestation was selected as study population. Women who are very sick with medical disorders other than hypertension, multiple pregnancies or refusing the procedure were excluded from this study. All the pregnant women were evaluated by detail history and clinical examination. Umbilical artery Doppler sonography was performed to all the pregnant women. After enrollment in the study informed consent of every pregnant woman were taken. Purposive sampling technique was performed. All these pregnant women were undertaken cerebral-umbilical artery duplex color Doppler ultrasonography examination (Siemens Sonoline, G60S) using 3.5 MHz transducer with 3mm sample volume and medium filter. During the examination, the patient was in a semi recumbent position and the fetus was in quiet resting state. A Doppler beam was placed the region of interest where the color flow was clearly noted and arterial pulsation were identified. Prior to commencement of this study the respective authority (RRC & EC) approved the research protocol. Statistical analysis was performed by using SPSS version 21.0 for Windows. Data were presented as mean with standard deviation. Categorical variables were expressed as frequency and percentage and were compared by using Chi-square test. A receiver operating characteristic (ROC) curve was constructed. Their sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and 95% confidence interval were calculated. A value of $p < 0.05$ was considered statistically significant for all tests.

Results

A total number of 40 patients were recruited for this study. The age of the patient were divided into 4 age group, ranging from 16 to 35 years. The maximum 50 % were within 21-25 years age group and least was within 16-20 years age group (Table 1).

Table l: Age Distribution of Patients (n=40)

Age groups	Frequency	Percent
16 to 20 Years	4	10
21 to 25 Years	20	50
26 to 30 Years	10	25
31 to 35 Years	6	15
Total	**40**	**100**
Mean ± SD	22.5±9.8	

In this study a total number of 40 subjects were included of which 32(80.0%) cases had adverse perinatal outcome and 8(20.0%) cases had normal outcome (Table 2).

Table 2: Adverse Perinatal Outcome among Study Population (n=40)

Adverse perinatal outcome	Frequency	Percent
Present	32	80
Absent	8	20
Total	**40**	**100**

Out of 32 abnormal cases 30(93.7%) cases were presented with adverse perinatal outcome and the rest 2(6.3%) cases were found without any adverse perinatal outcome. Among 8 normal neonates 1(12.5%) case had abnormal Doppler and 7(87.5%) cases had without any adverse perinatal outcome. The difference between these two was statistically significant (p=0.0001) (Table 3).

Table 3: Association of Color Doppler evaluation with Adverse Perinatal Outcome (n=40)

Color Doppler	Adverse Perinatal Outcome		Total	P value
	Present	Absent		
Abnormal	30(93.7%)	2(6.3%)	32(100.0%)	
Normal	1(12.5%)	7(87.5%)	8(100.0%)	0.0001
Total	**31(77.5%)**	**9(22.5%)**	**40(100.0%)**	

Abnormal Pulsatility ratio means <1.08; Normal Pulsatility ratio means >1.08

Perinatal follow up done of those patients and reports were collected. The validity of the tests were confirmed by calculating sensitivity, specificity, positive and negative predictive values. Sensitivity, specificity, positive predictive value, negative predictive value and accuracy were 96.7%(95% CI 83.30% to 99.92%), 77.7%(95% CI 39.99%

to 97.19%), 93.7%(95% CI 81.52% to 98.08%), 87.5% (95% CI 49.66% to 98.03%) and 92.5%(95% CI 84.34% to 100.66%) (Table 4).

Table 4: Validity of color Doppler for Adverse Perinatal Outcome

Validity Test	Values	95% CI
Sensitivity	96.7%	83.30% to 99.92%
Specificity	77.7%	39.99% to 97.19%
Positive predictive value	93.7%	81.52% to 98.08%
Negative predictive value	87.5%	49.66% to 98.03%
Accuracy	92.5%	84.34% to 100.66%

The area under the curve was calculated and was found that it was 0.127 with the 95% confidence interval of 0.000 to 0.295 which was statistically highly significant (p=0.001) (Table 5).

Table 5: Area under the Curve

AUC	P value	Asymptotic 95% Confidence Interval	
Area		Lower Bound	Upper Bound
0.127	0.001	0.000	0.295

The test result variable(s): Color Doppler has at least one tie between the positive actual state group and the negative actual state group. Statistics may be biased. Under the nonparametric assumption; Null hypothesis: true area = 0.5

Discussion

Doppler investigation of umbilical arteries provides information concerning perfusion of the fetoplacental circulation. Doppler value was considered as normal when the cerebral-umbilical ratio was above 1.08 and below the value was considered abnormal[9]. In case of severe pre-eclampsia patient, umbilical blood flow is significantly reduced mainly due to change in the placental vascular resistance. In intrauterine growth retardation, umbilical blood flow is significantly reduced, mainly due to change in the placental vascular resistance[10].

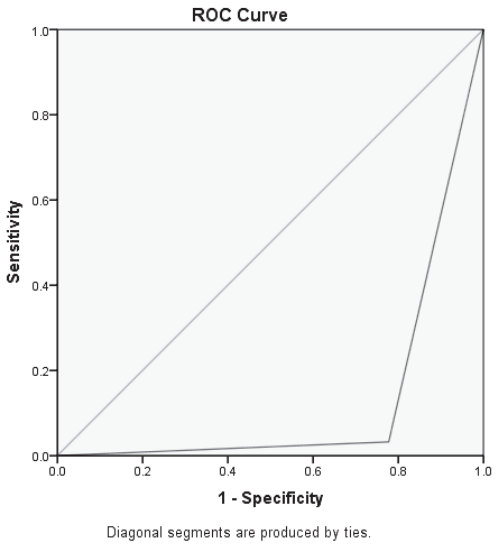

Figure I: ROC curve of Color Doppler; AUC was 0.127

The Color Doppler study of C/U vessels has made an advancement in new generation sonography equipment and expertise, which has brought a revolution in the field of diagnostic imaging to diagnose IUGR prenatally. This non-invasive imaging modality will be able to replace the other invasive diagnostic procedures.

This current study has been carried out with an aim to establish the usefulness of C/U pulsatility index ratio in diagnosis of IUGR and prediction of adverse perinatal outcome. Validity test was done be calculating sensitivity, specificity, accuracy, positive predictive value (PPV) and negative predictive value (NPV) respectively.

The present study findings were discussed and compared with previously published relevant studies. Osborn et al[11] found the maternal age range was 26 to 33 years. In this study, total number of 40 patients took part. It was observed that maximum 50% were within 21 to 25 years age group and least was 10% within 16 to 20 years age group.

In this study the validity of the color Doppler tests was confirmed by calculating sensitivity, specificity, positive and negative predictive values. Sensitivity, specificity, positive predictive value, negative predictive value and accuracy were 96.7%(95% CI 83.30% to 99.92%), 77.7%(95% CI 39.99% to 97.19%), 93.7%(95% CI 81.52% to 98.08%), 87.5% (95% CI 49.66% to 98.03%) and 92.5%(95% CI 84.34% to 100.66%). Gramellini et al[12] calculated the C/U ratio and found that remain constant in the last 10 weeks of pregnancy, therefore this study considered a single cut-off value of 1.08 for all cases of 30 to 41 weeks of gestation. Using the cut-off value, study population was divided into normal and abnormal.

Bano et al[13] and Osborn et al[11] have observed in their series that Doppler was significantly correlated with adverse perinatal outcome where sensitivity ranged from 83 to 90%, specificity from 71 to 100%. Thus the parameters provide strong evidence that Doppler analysis is of great value in evaluation of prenatal diagnosis of fetal at risk in IUGR. In pregnancies with chronic fetal hypoxia, the blood volume in the fetal circulation is redistributed in favor of vitally important organs, the heart, kidneys, and brain. Vasodilatation of the MCA, with an increase diastolic flow through it, result in a decrease in its Pl. The resulting hyper perfusion is considered pathological.

Conclusion

In conclusion colour Doppler can detect adverse fetal outcome which is statistically significantly. Furthermore, colour Doppler has a high sensitivity for the detection of adverse fetal outcome; however, there is a low specificity. It is very interesting that the accuracy of detection capcity of colour Doppler is very high. Therefore a large scale multicenter study should be performed to see the real scenario.

References

1. Shahinaj R, Manoku N, Kroi E, Tasha I. The value of the middle cerebral

to umbilical artery Doppler ratio in the prediction of neonatal outcome in patient with preeclampsia and gestational hypertension. Journal of prenatal medicine. 2010 Apr;4(2):17

2. Müller T, Nanan R, Rehn M, Kristen P, Dietl J. Arterial and ductus venosus Doppler in fetuses with absent or reverse end-diastolic flow in the umbilical artery: correlation with short-term perinatal outcome. Acta obstetricia et gynecologica Scandinavica. 2002 Jan 1;81(9):860-6.

3. Makhseed M, Jirous J, Ahmed MA, Viswanathan DL. Middle cerebral artery to umbilical artery resistance index ratio in the prediction of neonatal outcome. International journal of gynecology & obstetrics. 2000 Nov;71(2):119-25.

4. Lacin SS, Demir NN, Koyuncu FF, Goktay YY. Value of intraplacental villous artery Doppler measurements in severe preeclampsia. Journal of postgraduate medicine. 1996 Oct 1;42(4):101.

5. Singh M, Sharma A, Singh P. Role of Doppler indices in the prediction of adverse perinatal outcome in preeclampsia. National Journal of Medical Research. 2013;3(4):315-8.

6. Conde-Agudelo A, Villar J, Lindheimer M. World Health Organization systematic review of screening tests for preeclampsia. Obstetrics & Gynecology. 2004;104(6):1367-91.

7. Geipel A, Germer U, Welp T, Schwinger E, Gembruch U. Prenatal diagnosis of single umbilical artery: determination of the absent side, associated anomalies, Doppler findings and perinatal outcome. Ultrasound in Obstetrics and Gynecology. 2000 Feb;15(2):114-7

8. Wolfe HM, Gross TL. Increase risk to the growth retardate fetus, Intrauterine growth retardation. Chocage, 1989;111.

9. Kok JH, Den Ouden AL, Verloove-Vanhorick SP, Brand R. Outcome of very preterm small for gestational age infants: the first nine years of life. BJOG: An International Journal of Obstetrics & Gynaecology. 1998;105(2):162-8.

10. Berkowitz GS, Mehalek KE, Chitkara US, Rosenberg JO, Cogswell CA, Berkowitz RL. Doppler umbilical velocimetry in the prediction of adverse outcome in pregnancies at risk for intrauterine growth retardation. Obstetrics and gynecology. 1988;71(5):742-6.

11. Osborn AG, Devis WL, Jacobs J. Cerebral vasculature, In diagnostic neuroradiology, 3rd edn, Elsevier, St. louis, Missouri, 2008;117-51

12. Gramellini D, Folli MC, Raboni S, Vadora E, Merialdi A. Cerebral-umbilical Doppler ratio as a predictor of adverse perinatal outcome. Obstetrics and gynecology. 1992;79(3):416-20.

13. Bano S, Chaudhary V, Pande S, Mehta VL, Sharma AK. Color doppler evaluation of cerebral-umbilical pulsatility ratio and its usefulness in the diagnosis of intrauterine growth retardation and prediction of adverse perinatal outcome. The Indian journal of radiology & imaging. 2010;20(1):20-25

Review Article

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Risk and Pathogenesis of Osteoporosis: A Review Update

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Abstract

Osteoporosis is a disease characterized by low bone mass and micro architectural deterioration of bone tissue, leading to enhanced bone fragility and a consequent increase in fracture risk. It has been estimated that there is a life time risk for a wrist, hip or vertebral fracture according to the order of 30% to 40% in developed countries. Among the fractures hip fractures (HP) are especially devastating. Osteoporosis is not only a major cause of fractures, but also causes people to become bedridden with serious complications. Osteoporosis can be diagnosed by dual-energy x-ray absorptiometry (DEXA) scan by measuring bone mineral density (BMD) where BMD lies 2.5 standard deviations or more below the average value for young healthy people (a T-score of <-2.5 SD). However, there are certain common mechanisms that mediate bone loss with aging in most people, although the relative contributions of each of these may vary from person to person. As for most multifactorial disorders, the pathogenesis of osteoporosis is complex, and a different set of mechanisms may be operative in any given individual. In this review, a number of important criteria involved in pathogenesis of osteoporosis and it's risk factors are addressed and discussed. *[J Monno Med Coll June 2019;5(1): 20-22]*

Keywords: Osteoporosis; pathogenesis; risk factors

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Introduction

Osteoporosis is a common skeletal disease among elderly adults, especially postmenopausal women, characterized by osteopenia and degeneration of bone microstructure, leading to increasing bone brittleness and tendency for bone fracture[1]. Osteoporosis, characterized by the loss of bone mass and strength that leads to fragility fractures, has probably existed throughout human history but only recently became a major clinical problem as human lifespan increased. Early in the nineteenth century, Sir Astley Cooper, a prominent English surgeon noted "the lightness and softness that (bones) acquire in the more advanced stages of life" and that "this state of bone favors much the production of fractures"[2].

Osteoporosis is a bone disorder with remarkable changes in bone biologic material and consequent bone structural distraction, affecting millions of people around the world from different ethnic groups. Bone fragility is the worse outcome of the disease, which needs long term therapy and medical management, especially in the elderly.

Many factors have been implicated, but the evidence for some is unsubstantial. Low premenopausal bone mineral density (BMD), a decrease in BMD, and an increase in bone fragility which occur as a result of both aging and the menopause are major determinants of subsequent risk for osteoporotic fracture. In addition, low body mass index (BMI), low calcium intake, low physical activity, and smoking can affect BMD. The relative importance of the effects of these physical and lifestyle factors have on BMD in midlife women is not fully established. The impact of gynecologic history (parity, lactation, oral contraceptive use, age of menarche) on BMD is uncertain.

History of Osteoporosis

The term osteoporosis was coined by Johann Lobstein at about the same time, but he described that the disorder may be due to osteogenesis imperfecta[3]. In 1940, it was described and proposed that postmenopausal osteoporosis was the consequence of impaired bone formation due to estrogen

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deficiency by the American physician and endocrinologist Fuller Albright[4]. Subsequently, it was proposed that there are 2 forms of osteoporosis, one related to estrogen deficiency at the menopause and the other to calcium deficiency and aging of the skeleton[5]. Osteoporosis is replaced by this current phenomenon, in which multiple pathogenetic mechanisms converge to cause loss of bone mass and micro architectural deterioration of skeletal structure. These factors, coupled with an increased risk of falls, contribute to a high incidence of fragility fractures in osteoporotic patients. According to the World Health Organization measurement, approximately 30.0% of postmenopausal women have osteoporosis. There are 10 million people with osteoporosis and about 34 million with low bone density in the USA[6].

Pathogenesis of Osteoporosis

Skeletal fragility can result from failure to produce optimal mass and strength of a skeleton during growth; excessive bone resorption resulting in decreased bone mass and microarchitectural deterioration of the skeleton; and an inadequate formation response to increased resorption during bone remodeling. In addition, the incidence of fragility fractures, particularly of the hip and wrist, is further determined by the frequency and direction of falls[7].

Osteoporosis occurs because of a defect in attaining peak bone mass and/or because of accelerated bone loss. In normal individuals, bone mass increases during skeletal growth to reach a peak between the ages of 20 and 40 years but falls thereafter. In women there is an accelerated phase of bone loss after the menopause due to oestrogen deficiency, which causes uncoupling of bone resorption and bone formation, such that the amount of bone removed by osteoclasts exceeds the rate of new bone formation by osteoblasts. Age-related bone loss is a distinct process that accounts for the gradual bone loss that occurs with advancing age in both genders. Bone resorption is not particularly increased but bone formation is reduced and fails to keep pace with bone resorption. Accumulation of fat in the bone marrow space also occurs because of an age-related decline in the ability of bone marrow stem cells to differentiate into osteoblasts and an increase in their ability to differentiate into adipocytes[8].

Peak bone mass and bone loss are regulated by both genetic and environmental factors. Genetic factors account for up to 80% of the population variance in peak bone mass and other determinants of fracture risk, such as bone turnover and bone size. Polymorphisms have been identified in several genes that contribute to the pathogenesis of osteoporosis and many of these are in the RANK and Wnt signaling pathways, which play a critical role in regulating bone turnover. However, these account for only a small proportion of the genetic contribution to osteoporosis and many additional genetic variants remain to be discovered[8].

Environmental factors, such as exercise and calcium intake during growth and adolescence, are important in maximising peak bone mass and in regulating rates of post-menopausal bone loss. Smoking has a detrimental effect on bone mineral density (BMD) and is associated with an increased fracture risk, partly because female smokers have an earlier menopause than non-smokers. Heavy alcohol intake is a recognised cause of osteoporosis and fractures, but moderate intake does not substantially alter risk[8].

Identification of the role of increased RANKL production in the setting of estrogen deficiency has provided a basis for blocking this pathway as a new approach to potently inhibiting bone resorption. The key role of Wnt signaling in bone metabolism and possibly in age-related bone loss has led to the development of specific activators of this pathway in treating osteoporosis. As these examples illustrate, the collective basic and translational effort to understand the pathogenesis of osteoporosis has formed a firm foundation on which to build various therapeutic strategies to prevent and cure this important public health problem.

Fracture Risk in Osteoporotic Patients

The risk of osteoporotic bone fracture in women over 50 years of age is 60.0%[7]. There are 1.5 million osteoporotic bone fractures annually[5]. The risk of osteoporosis is reflected by bone fractures, increase in hospital mortality after sustaining fracture, significant decrease in functional capacity as well as high treatment costs. One year after the osteoporosis hip fracture, every fifth of the patients' died[9].

Incidence of Osteoporotic Fracture

Osteoporosis is a major health problem, particularly in the elderly because of the fractures that arise as a consequence of the decreasing bone mineral density with age. Common sites of fragility fracture are at the hip, spine and wrist. The incidence of these and other fragility fractures rises markedly with age. The most serious fracture in terms of morbidity, mortality and health care costs is hip fracture. As the population is expanding and improving the life expectancy, the number of fractures is increased. The demographics of world populations are set to change with more elderly living in developing countries[9]. In Europe in 2010, 22 million women and 5.5 million men were supposed to have osteoporosis and 3.5 million new fragility fractures were sustained, comprising 610,000 hip fractures, 520,000 vertebral fractures, 560,000 forearm fractures and 1,800,000 other fractures like fractures of the pelvis, rib, humerus, tibia, fibula, clavicle, scapula, sternum and other femoral fractures[9]. The economic burden of incident and prior fragility fractures was estimated at Euro 37 billion. Incident fractures represented 66.0% of this cost, long-term fracture care 29.0% and pharmacological prevention 5.0%[10].

Risk Factor

The risk factors for the hip fracture were examined by the study of the Osteoporotic Fractures Research Group, in view of which there were 9704 postmenopausal women who were aged seventy five years old or older[11]. The investigators determined that many factors, in addition to low bone mineral density, contribute independently to the risk of fracture,

including age, history of maternal hip fracture, low body weight, height, poor health, previous hyperthyroidism, poor depth perception, tachycardia, previous fracture, and benzodiazepine use[12].

Measurements of Risk Variables

Hypertension was defined as systolic blood pressure ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg, and/or use of antihypertensive medication[13]. Blood pressure was measured in the sitting position on the right arm, and the mean of two recordings at least 3 min apart was recorded. Body mass index (BMI) was computed as weight divided by height squared (kg/m2). In a combined assessment of leisure-time and work activity, during last year, it was categorized into four grades of increasing activity via a questionnaire in which the participant, assisted by the survey physician, assigned a grade for her activity. The four levels were being almost entirely inactive or engaging in light physical activity, 2 h per week (e.g. reading, watching television); engaging in light physical activity for 2 to 4 h per week like walking, cycling, washing dishes, light gardening, light physical exercise; engaging in light physical activity for 4 hours per week or more vigorous activity for 2 to 4 hours per week like brisk walking 3 to 4 mph, fast cycling, heavy gardening, sports that cause perspiration or exhaustion and engaging in vigorous physical activity for 4 hours per week, regular heavy exercise, or competitive sports several times per week. Level 1 was considered physically inactive, level 2 was considered a low level of physical activity, and levels 3 and 4 together were considered a moderate to high level of physical activity[14].

Osteoporosis is a challenging human disease. In spite of using various therapeutic approaches for the prevention or treatment of osteoporosis, their side effects are undeniable. Increasing our knowledge about the signaling pathways involved in bone remodeling will help us to design new therapeutic options for osteoporosis.

Conclusion

Osteoporosis is a disorder of the skeleton in which bone strength is abnormally weak. This leads to an increase in the risk of breaking bones (bone fracture). Osteoporosis is a multifactorial disorder and any model for pathogenesis has to recognize that a different set of mechanisms may be operative in any given individual. There have been considerable advances in our understanding of the pathogenesis of bone loss and osteoporosis in women and in men. Thus, a better understanding of estrogen and androgen signaling in bone has set the stage for the development of selective estrogen and androgen receptor modulators to prevent and treat osteoporosis.

References

1. WHO, Study Group: Assessment of fracture risk and its application to screening for postmenopausal osteoporosis. 1994. [Online] Available from: http://apps.who.int/iris/bitstream/10665/39142/1/WHO_TRS_843_eng.pdf. [Accessed on 21st April 2018].

2. Cooper C, Melton LJ. Hip fractures in the elderly: a worldwide projection. Osteoporosis International. 1992;2:285–289

3. Schapira, D., Schapira, C. Osteoporosis: the evolution of a scientific term. Osteoporosis International. 1992;2:164–167

4. Albright F, Bloomberg E, Smith PH. Postmenopausal osteoporosis. Transactions of the Association of American Physicians. 1940;55:298–305

5. Riggs BL, Wahner HW, Seeman E, Offord KP, Dunn WL, Mazess RB, et al. Changes in bone mineral density of the proximal femur and spine with aging. Differences between the postmenopausal and senile osteoporosis syndromes. Journal of Clinical Investigation. 1982;70(4):716-23

6. Mondelli MU. Natural history of hepatitis C virus infection. Journal of biological regulators and homeostatic agents. 2003;17(2):128-32

7. Parfitt AM, Villanueva AR, Foldes J, Rao DS. Relations between histologic indices of bone formation: implications for the pathogenesis of spinal osteoporosis. Journal of Bone and Mineral Research. 1995;10(3):466-73.

8. Davidson S. Rheumatology and bone disease. In: Walker BR, Colledge NR, Ralston SH, Penman ID, editors. Davidson's Principles and Practice of Medicine. 22nd ed. China: Elsevier Limited; 2014;1057-1136

9. Johnell O, Kanis JA. An estimate of the worldwide prevalence and disability associated with osteoporotic fractures. Osteoporosis International. 2006;17:1726–1733

10. Hernlund E, Svedbom A, Ivergård M, Compston J, Cooper C, Stenmark J, McCloskey EV, Jönsson B, Kanis JA. Osteoporosis in the European Union: medical management, epidemiology and economic burden. Archives of Osteoporosis. 2013;8(1-2):136

11. Cummings SR, Nevitt MC, Browner WS, Stone K, Fox KM, Ensrud KE, et al. Risk factors for hip fracture in white women. New England journal of medicine. 1995;332(12):767-74

12. Unnanuntana A, Gladnick BP, Donnelly E, Lane JM. The assessment of fracture risk. The Journal of Bone and Joint Surgery 2010;92(3):743.

13. Chobanian AV. National heart, lung, and blood institute; national high blood pressure education program coordinating committee. Seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure. Hypertension. 2003;42:1206-52

14. Pedersen JØ, Heitmann BL, Schnohr P, Grønbæk M. The combined influence of leisure-time physical activity and weekly alcohol intake on fatal ischaemic heart disease and all-cause mortality. European Heart Journal. 2008;29(2):204-12

Case Report

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Pregnancy in Unicornuate Uterus: A Case Report

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Abstract
A 26 years old 3rd gravida was admitted at 36 weeks 3 days gestational age with the complaints of per vaginal watery discharge for 10 hrs. She underwent emergency caesarean section for failure to progress and fetal distress. Intraoperatively she was incidentally found to have unicornuate uterus with contralateral Fallopian tube directly attached to the ovary. Baby cried immediately after birth though it was growth retarded. If pregnancy with Unicornuate uterus is managed well it can result in favourable obstetrical outcome. *[J Monno Med Coll June 2019;5(1): 23-24]*

Keywords: : Pregnancy; unicornuate uterus; obstetrical outcome

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Introduction

Mullerian duct agenesis are congenital defects of the female genital tract that arise from abnormal embryological development of the Mullerian duct. Unicornuate uterus is a developmental anomaly which occurs due to abnormal or failed development of the paired Mullerian duct or fusion of the ducts. Women with Unicornuate Uterus have increased incidence of obstetrical complications like spontaneous abortion, preterm delivery and intrauterine fetal demise and gynaecological complications like subfertility, endometriosis and dysmenorrhoea.

The unicornuate uterus represent a uterine malformation where the uterus has a single horn linked to the ipsilateral Fallopian tube that faces it's ovary. These anomalies are present in 1 to 10.0% of un selected population, 2 to 8% of infertile women and 5-30% of women with history of miscarriage[1]. The uterus is normally formed during embryogenesis by the fusion of two Mullerian duct. If one of the duct does not develop then one Mullerian duct grows into a unicornuate uterus[2].

Case Presentation

A 26 years old 3rd gravida with history of 2 midtrimester spontaneous abortion (1st abortion at 20 weeks, 2nd at 24 weeks) came to the emergency department at her 36 weeks 3 days pregnancy with the complaints of per vaginal watery discharge for last 10 hours and home trial for last 4 hours. The watery discharge was not foul smelling not associated with bloody show. After admission she was found dehydrated, there was a single fetus oblique lie FHR was 80 beats /min and liquor was less than adequate. On per vaginal examination os was 4cm, 30% effaced, presentation was cephalic, meconium stained. Emergency caesarean section was done due to fetal distress. A healthy male baby weighing 1.8kg with APGAR score of 8 in 1st minute, 10 in 5th minute was delivered. After delivery uterus was found to be right Unicornuate. Left cornu and salpinx were absent. Left ovary fixed to the posterior pelvic wall. Left uterine arterial pulsation was absent. Right uterine artery was abnormally tortuous and dilated. Uterine incision was closed in layers. There was no Intraoperative or post operative haemorrhage. Rest of the post-operative period was uneventful. Both

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patient and neonate were discharged on 5th post-operative day. During Post natal checkup at 6 weeks patient had no complaints, uterine involution was satisfactory, Lochia discharge was average. Baby put on exclusive breast feeding.

Discussion

A Unicornuate uterus has a single cervix and vagina. It is usually associated with renal and less commonly with skeletal defect. Such cases are called KHMR syndrome[3]. When gynaecological symptoms such as abdominal pain, dysmenorrhoea and infertility are present, Unicornuate uterus can be suspected. However the diagnosis is unlikely before anomaly causes reproductive problems and diagnosis is usually made as an incidental finding during a routine prenatal USG[4]. Patient with no complaints are incidentally diagnosed per operatively. Laparoscopic surgery to remove a non-connected hemi uterus that result in abdominal pain due to inability of menstrual blood flow to uterus[5]. Specialized care during pregnancy and delivery to reduce the risk of complications including preterm delivery and miscarriage.

Patients who have a Unicornuate uterus have increased incidence of gynaecological problems such as dysmenorrhoea, chronic pelvic pain in addition to obstetrical problems such as preterm labour, repeated pregnancy loss. Wang et al[6] presented 26 cases of Unicornuate uterus 4 of which (15%) had become pregnant and 1 of which (4%) presented with ipsilateral tubal ectopic pregnancy. Heinonen[7] mentioned 93 pregnancies and only two of them had term pregnancy.

Even though the obstetrical outcome is usually poor, there are some case reports that present with successful pregnancies. Gerris et al[8] reported successful triplet pregnancy in a patient with a Unicornuate uterus with a cavitary communicating rudimentary horn. Caserta et al[9] reported a 39 weeks pregnancy with successful outcome after caeserean section. According to the current guidelines of American congress of obstetrics and gynaecology for management of IUGR it is reasonable to consider serial growth USG examination in pregnancies at risk of IUGR as in the case of a Unicornuate uterus pregnancy[10].

Conclusion

Here we presented a case report of a patient with right Unicornuate uterus and contralateral ovary attached to the left pelvic wall. Thus an important message for obstetrician is that even though unicornuate uterus has many gynaecological and obstetrical problems yet with good and appropriate monitoring feto maternal outcome is not always adverse.

References

1. Chan YY, Jayaprakasan K, Tan A, Thronton JG. Reproductive outcome in women with congenital anomalies: a systematic review. Ultrasound Obstet Gynecol. 2011;38: 371-82

2. Hua M, Odibo AO, Longman RE, Macones GA. Congenital uterine anomalies and adverse pregnancy outcomes. Am J Obstet Gynecol. 2011;205(6):558

3. Grimbizis GF, Camps R, Brucker S, Gergolet M. Clinical approach for classification of congenital uterine malformation. 2012;(9):119-129

4. Lovelace D. Congenital uterine anomalies and uterine rupture. Midwifery women health 2016;61(4):501-506

5. Mishra V, Roy P, Cuss B, Aggarwal R, Hokabaj S, Gondhali R. Unicornuate uterus and pregnancy outcome: a case report. International Journal Reproduction Contraception Obstetrics and Gynaecology 2016;5:4522-4

6. Wang SJ, Oli M, Jinag L. Clinical analysis of 225 women with congenital uterine malformation. Zhonghua Fu Chan 2008;43(7):493-6

7. Heinonen Pk. Unicornuate uterus and rudimentary horn. Fertil Steril. 1997;68(2):224-30

8. Gerris J, Eulaers E, Loquet P, Verdonk P. Sucessful triplet pregnancy in a patient with a Unicornuate uterus with a cavitary communicating rudimentary horn. Hum Reprod 1993; 8(2):338-41

9. Caserta D, Mallozi M, Meldolesi C, Bianchi P, Moscarini M. Pregnancy in a Unicornuate uterus: a case report. Hum Reprod 2014; 8:130

10. American congress of Obstetrics and Gynaecology committee on Practice Bulletins Obstetrics. ACOG practice bulletin: intrauterine growth restriction. 2000;95:1-12