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Contents

From the Desk of Editor-in-Chief 3
Instructions for Authors 4

Editorial

Global Worming and its Effect on Health 13
Matin ABMA, Begum R

Original Articles

Relationship of Serum Calcium and Inorganic Phosphate Levels with Total Count of WBC in Acute Leukaemia 16
Siraj S, Sarkar CR, Ahmed A, Begum F, Chowdhury MAA

Effect of Aqueous Extract of Aegle Marmelos Fruit and Leaf on Cholesterol of Non-diabetic and Type -I Model Diabetic Rats 22
Debnath R, Aziz M, Akhter M, Ayub TE, Haque F

Work Posture and Musculoskeletal Problems of Garment Workers During Natal Period 26
Dutta B, Dhar R, Begum R, Rahman M, Karim F, Jahan AF

Analgesic Efficacy of Paracetamol Versus Tramadol Hydrochloride after Upper Limb Vascular Surgery: A Prospective Single Blind Study 31
Abbasi MM, Shaheen SA, Ahmed R, Saklayen SMG, Karim S

Evaluation of Extensions of Sinonasal Malignancy by Clinical, Surgical & CT Scan Findings 38
Jahan I, Shimu F, Chowdhury NF, Islam MJ

A Leading Cause of Death- Road Traffic Accident (RTA): A Post Mortem Study in ShSMC Morgue 46
Hossain MA, Biswas UK, Chowdhury MIB, Rahman MS, Moinuddin KM, Hossain MZ

Review Article

Malnutrition: An Evergreen Issue in Nephrology 51
Nomany BMS, Islam SF, Alam MR

Case Report

Hydrops Fetalis with Multiple Congenital Cardiac Disease: A Case Report 58
Hasi HH

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From the Desk of Editor-in-Chief

We are delighted to inform that the Volume 11, Number 1 of the Dhaka Central International Medical College Journal (DCIMCJ) is going to be published very soon. We are grateful to Almighty Allah. We are sending the complimentary copies of the journal to the libraries of most of the medical college and other medical institutions in Bangladesh. Already our journal has been approved by Bangladesh Medical & Dental Council (BMDC). We invite the doctors of medical colleges and institutes to submit their research articles to the journal committee for publication. We accept both hard & soft copies of the articles. We go through the papers and if necessary, communicate the authors. We also thank all the authors for giving us opportunity to publish their research papers in this journal. We have tried our best to avoid erroneous information. We like to add here that DCIMC Journal and its editorial board accept no liability for any inaccurate and misleading information, opinion and statements. It is the responsibility of the individual author (s). We have mentioned the instruction for the authors in this issue. We request the contributing authors to follow the instructions for their manuscripts. We appreciate our chairman, editors, members and advisors for their encouragement and also appreciate the contributors and reviewers for their participation. Last of all we welcome valuable suggestion, opinion, advice and constructive criticisms for improvement of the quality of the journal.



Prof. Dr. Abul Bashar Md. Abdul Matin
Editor-in- Chief

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Guidelines for the Authors:

The Dhaka Central International Medical College Journal provides publication (six monthly) of articles in all areas of the subject. The Journal welcomes the submission of manuscript that meets the general criteria of significance and scientific excellence.

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

Article types:

Five types of manuscripts may be submitted:

Editorials:

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

Original articles:

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

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

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

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Condition for submission of manuscripts:

- All manuscripts are subject to peer-review.
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4. Each of the following section should begin separate page:
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    - Summary/abstract
    - Text
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Page should be numbered consecutively at the upper right hand corner of each page beginning from the title page

I. A. 1.a. General Principles:

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

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

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1. Article title. Concise title is easier to read than long, convoluted ones. Titles that are too short may, however, lack important information, such as study design (which is particularly important in identifying type of trials). Authors should include all information in the title that will make electronic retrieval of the article both sensitive and specific.
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- Describe your selection of the observation or experimental participants (patients or laboratory animals, including control) clearly, including eligibility and exclusion criteria and a description of the source population. Because the relevance of such variables as age and sex to the object or research is not always clear, authors should explain their use when they are included in a study report-for example, authors should explain why only participants of certain ages were included or why women were excluded. The guiding principle should be clear about how and why a study was done in a particular way. When authors use such variables as race or ethnicity, they should define how they measured these variables and justify their relevance.

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

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

I. A 9. References:

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  - Statistical analysis and software used.
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  - Avoid data redundancy
  - Use table information at the end of the sentence before full stop between the small bracket
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  - Avoid unnecessary explanation of someone else work unless it is very relevant to the study
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  - Give your conclusion
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- **Acknowledgement:**
  - Acknowledge any person or institute who have helped for the study
- **Reference:**
  - Abide by the Vancouver style
  - Use reference at the end of the sentence after the full stop with superscript
- **Legends:**
  - Table
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The editor reserves the right to style and if necessary, shorten the material accepted for publication and to determine the priority and time of publication

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DCIMCJ

Editorial
DCIMCJ 2024 January;11(1):13-15

Global Warming and its Effect on Health

Matin ABMA[1], BegumR[2]

Overview:

Global warming refers to climate change that causes an increase in the average of Earth's temperature. Global warming is the long term warming of the planet's overall temperature. Since the 19th century, the earth has warmed by about 1.1C. It may not sound like much but the effects of global warming be it a few tenth of a degree, may create a dramatic difference, such a change has the potential to expose tens of millions of more people around the world to dangerous heat waves. Natural events and human influences are believed to be top contributions towards the increase in average temperatures. Global warming is a rise in the surface and atmospheric temperature of the earth that has changed various life forms on the earth. The issues that ascertain global warming are divided into two broad categories – "natural" and "human influences" of global warming.

Natural causes of global warming:

The climate has been continuously changing for centuries. One natural cause of global warming is greenhouse gases. The main greenhouse gases in the earth`s atmosphere are water vapor H_2O, CO_2, CH_4,N_20, Ozone (O_3). It traps the solar rays and prevents them from escaping the surface of the earth. This causes an increase in the temperature of the earth. Volcanic eruptions are another reason for global warming. Increased carbon dioxide leads to a rise in the temperature of the earth. Also, methane gas is another contributor to global warming. Methane is also a greenhouse gas. Methane is twenty times more effective in trapping heat in the atmosphere than carbon dioxide. Usually, methane gas is released from many areas like animal waste, landfill, natural gas, and others.

1. Dr. Abul Bashar Md. Abdul Matin, Professor & Head, Department of Surgery, Dhaka Central International Medical College.

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

Human influences on global warming:

Human influence has been a very serious issue now as it is contributing more than natural causes of global warming. Since human evolution, the earth has been changing for many years until now and it is still changing because of our modern lifestyle. Human activities include industrial production, burning fossil fuel, and mining of minerals, cattle rearing and deforestation. Industries, transportation such as cars, buses, trucks burn fuel to power machines, which eventually releases carbon dioxide and monoxide from the exhaust, leading to an increase in a temperature rise of Earth's atmosphere. Deforestation is a human influence because human have been cutting down trees to produce paper, wood, build houses and more. Trees can absorb carbon dioxide from the atmosphere and their absence can lead to the concentration of such gases.

The effect of global warming:

The impact that global warming is causing on earth is extremely serious. There are many hazardous effects that will happen in the future if global warming continues. It includes melting of polar ice caps, leading to an increase in sea level drowning coastlines and slowly submerging continents.The World Health Organization (WHO) reports that climate change is responsible for at least 150,000 deaths per year, a number that is expected to double by 2030.

The effects of rising temperature include soil degradation, loss of productivity of agricultural land, desertification, loss of biodiversity and degradation of ecosystems, reduced fresh-water resources, acidification of the oceans, and the disruption and depletion of stratospheric ozone. All these have an impact on human health, causing non-communicable diseases such as injuries during natural disasters, malnutrition during famine, and increased mortality during heat waves duetocomplications in

chronically ill patients. Direct exposure to natural disasters has also an impact on mental health and, although too complex to be quantified, a link has even been established between climate and civil violence. Climate change scenarios include a change in distribution of infectious diseases with warming and changes in outbreaks associated with weather extreme events. After floods, increased cases of leptospirosis, campylobacter infections and cryptosporidiosis are reported. Global warming affects water heating, rising the transmission of water-borne pathogens. Pathogens transmitted by vectors are particularly sensitive to climate change because they spend a good part of their life cycle in a cold-blooded host invertebrate whose temperature is similar to the environment. A warmer climate presents more favorable conditions for the survival and the completion of the life cycle of the vector, going as far as to speed it up as in the case of mosquitoes. Diseases transmitted by mosquitoes include some of the most widespread worldwide illnesses such as malaria, dengue and viral diseases. Another effect is climate change leading to the extinction of various species. More hurricanes, cyclonic storms, heat waves, drought, and extreme rainfalls will occur causing disaster to humankind. Climate change represents one of the main environmental and health equity challenges of our time because the burden of climate-sensitive diseases is the greatest for the poorest populations.

Preventive measure to stop global warming:

All humans need to work together towards the prevention of global warming. To reduce global warming contribute by reducing the production and concentration of greenhouse gases in the atmosphere. We need to curb usage of gasoline, electricity and other activities including mining and industrialization that cause global warming. Another way to reduce global warming is through recycling. Recycling can help reduce open burning of garbage by reusing plastic bags, bottles, papers or glass. We need to stop open burning dry leaves or burning garbage. It contributes to releasing carbon dioxide andtoxins.

Besides, we should reduce deforestation and startplantingmoretreesTo prevent the spread of infectious and vector-borne diseases, it would be necessary to establish an integrated notification network of veterinary, entomological and human survey, with particular attention to avoid the introduction of new human and animal pathogens. Health professionals everywhere have a responsibility to put health at the heart of climate change negotiations. Firstly, be-cause climate change already has a major adverse impact on the health of human populations. Secondly, because reducing greenhouse gas emissions has unrivalled opportunities for improving public health.

Conclusion:

A great attention has been given to the relationship between climate change and rising risk of infectious diseases, mostly to the vector-borne infections. However, non-communicable diseases can also heavily affect human health. From today's scenario, we can derive that our earth is "sick" and we humans need to "heal" it. Global Warming has already caused many problems for human and we need to prevent disasters of the future. Our generation needs to take care of the earth with immediate effect to safeguard future generations or they will suffer the consequences of global warming. Health system needs to strengthen primary health care, develop preventive programs, put special attention towards the vulnerable communities and regions, encourage community participation in grass root planning, emergency prepared-ness, and make capacity to forecast future health risks.

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DCIMCJ

Original Article

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Relationship of Serum Calcium and Inorganic Phosphate Levels with Total Count of WBC in Acute Leukaemia

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Abstract:

Background: Leukaemia is uncontrolled proliferation of white blood cell caused by mutation of myelogenous or lymphogenous cell which are usually characterized by increased number of abnormal white blood cell in the blood. Leukaemia accounts for about four percent of all death from malignant disease. Serum calcium level decreased and negatively correlated with total count of WBC but serum inorganic phosphate level increased and positively correlated with total count of WBC in acute Leukaemia patients. Objective: To observe the relationship of serum calcium and inorganic phosphate levels with total count of WBC in pre chemotherapeutic stage of acute Leukaemia patients. Method: This cross sectional analytical study was conducted at the department of physiology, department of Medicine, Rangpur medical college and hospital, Rangpur. Result: Total 60 patients of acute Leukaemia were included in this study. 30 acute Leukaemia patients with WBC count below 50,000/cmm of blood were included in group A and 30 acute Leukaemia patients with WBC count above 50,000/cmm of blood were included group B. Serum calcium (total and ionized) levels were significantly lower ($p<0.001$) and serum inorganic phosphate level were significantly higher in acute Leukaemia patients with WBC count above 50,000/cmm of blood than that of total count of WBC below 50,000/cmm of blood.Conclusion: Increase serum inorganic phosphate and decrease serum calcium levels in acute leukaemic patients with WBC count is above 50,000/cu mm of blood is most probably due to large amount of phosphorus released from malignant blood cells.

Keywords: Serum calcium, serum inorganic phosphate, acute leukaemia

Introduction:

Leukaemia is uncontrolled production of white blood cells can be caused by cancerous mutation of myelogenous or lymphogenous cell which are usually characterized by greatly increased number of abnormal white blood cells in the circulating blood[1]. The incidence of Leukaemia is about 10 per 1,00000 per year[2]. Acute leukaemia may occur at any age[3]. The cause of acute Leukaemia is unknown in the majority of patients. Males are affected more frequently than females and the ratio being about 3:2 in acute leukaemia[4]. A significant increase in incidence has occurred over the past 10 years[5]. Several factors like ionizing radiation, heredity, exposure to benzene, chemicals, plastic, rubber and pharmaceutical industries, smoking ,exposure to petroleum products, paint, ethylene oxide, herbicides and pesticides have also been associated with an increase risk of acute myeloid leukaemia[5].

Acute Leukaemia are divided into two general types: Acute Myeloid Leukaemia and acute lymphoblastic leukaemia[6]. Acute Leukaemia are a heterogeneous group of disorders characterized by neoplastic transformation and abnormal differentiation of haemopoietic progenitor cells. These diseases are rapidly fatal if untreated[7]. Common effects in leukaemia are the development of infection, malaise, weakness, anorexia, fever, severe anemia and a bleeding tendency which are manifested by epistaxis, gum bleeding or haematuria caused by thrombocytopenia[1,8].

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Acute Leukaemic patients have elevated serum uric acid, inorganic phosphate and creatinine level and decreased serum calcium level[9]. These elevations are caused by rapid destruction of malignant cells and abrupt release of intracellularions, nucleicacids, proteins and their metabolites into the blood[10].

Elevation of serum uric acid, inorganic phosphate and creatinine are more in those leukaemic patients who have WBC count more than 50,000/cu mm of blood[11].

There is an inverse relationship between the concentration of calcium and phosphate in plasma. As the phosphate level rises so the calcium level will fall and vice versa[12]. In massive cell lysis, large amounts of phosphate are released from nucleoproteins into the circulation and renal function must be adequate for its excretion[12].So the kidneys try to eliminate the excess inorganic phosphate by increasing urine output and reducing the amount of inorganic phosphate reabsorption. But eventually the kidneys reach such a point where they can no longer compensate and inorganic phosphate accumulates in the bloodand hypophosphatemia develops[13].

As serum phosphate levels increase, negatively charged phosphate ions combine with positively charged calcium ions resulting in decreased serum calcium levels and hypocalcaemia occurs[12].

Increased serum concentration of uric acid, inorganic phosphate, creatinine and decrease concentration of calcium can overwhelm the body's homeostatic mechanism and life-threatening metabolic derangements develops[14]. These cells degradation by products exceeds the clearance ability of the kidneys resulting in the renal damage and further worsening of the aforementioned metabolic disturbances[15].

Management of metabolic disturbances in acute leukaemia requires an initiation of preventive and supportive measure in high risk patients prior to cancer treatment[16]. High risk patients should be monitored by the determination of calcium, phosphorus, uric acid and creatinine every 12 hours for the first three days before anticancer treatment[17].

The study was carried out by the investigations including Hb%, total and differential count of WBC, PBF, bone marrow study, total serum calcium, serum ionized calcium, serum inorganic phosphate, serum albumin.

Objective:

To observe the relationship of serum calcium and inorganic phosphate levels with total count of WBC in prechemotherapeutic stage of acute leukaemic patients.

Material and methods:

This cross sectional analytical study was conducted at the department of physiology, department of Medicine, Rangpur medical college and hospital, Rangpur from July 2011 to June 2012. A total 60 consecutive diagnosed patient were included in the study. Data were collected in a preformed questionnaire, CBC, PBF, bone marrow examination, serum calcium, serum inorganic phosphate were performed.

Result:

Table-I: Showing mean of age, sex and total count of WBC of the study subjects of different groups.

Group	Age - Year Mean (L-H)	Sex Male (M) Female (F)	Total count of WBC/cu mm of blood
A n=30	35.00 (18-60)	**M** = 18 **F** = 12	18383.33
B n=30	33.20 (19- 70)	**M** = 21 **F** = 9	142833.33

A= Acute leukaemic patients with WBC count below 50,000/cu mm of blood.

B = Acute leukaemic patients with WBC count above 50,000/cu mm of blood.

n = Number of subject

L = Lowest value

H =Highest value

M = Male

F = Female

Serum total calcium

Results are expressed as below:

The mean ± SD serum total calcium levels were 1.9270 ± .14454 mmol/ L in group A and 1.7740 ± 2.52016 mmol/L in group B.

The mean serum total calcium level was compared between group A and group B. There was no significant difference (P > 0.05) between two groups (Table-II)

Table - II:Showing mean ± SD serum total calcium level in group A and group B

Group	Serumtotalcalcium level Mean ± SD mmol/L Range (L –H) mmol/L	"t " value	" P " value
A n= 30	1.9270 ± .14454 (1.77 – 2.32)	8.863	< 0.001***
B n = 30	1.7740 ± 2.52016 (.42 – 1.80)		

Serum ionized calcium:

Results are expressed as below:

The mean ± SD serum ionized calcium levels were .8480 ± .23665 mmol/L in group A and .5540 ± .15653 mmol/L in group B.

The mean serum ionized calcium level was compared between group A and group B. There was significant difference (P<0.001) between two groups (Table-III)

Table -III:Showing mean ± SD serum ionized calcium level in group A and group B

Group	serum ionized calcium level Mean ± SD mmol / L Range (L - H) mmol / L	" t " value	"P" value
A n = 30	.8480 ± .23665 (.61 – 2.02)		
B n = 30	.5540 ± .15653 (.12 -.81)	5.675	< 0.001 ***

Serum inorganic phosphate

Results are expressed as below:

The mean ± SD serum inorganic phosphate levels were 2.1543 ± 1.88889 mmol/L in group A and 3.0550 ± .50232 mmol /L in group B.

The mean serum inorganic phosphate level was compared between group A and group B. There was significant difference (P < 0.05) between two groups (Table-IV)

Table - IV:Showing mean ± SD serum inorganic phosphate level in group A And group B

Group	Serum inorganicphosphate level Mean ± SD mmol/L Range (L –H) mmol/L	't' value	'P' value
A n= 30	2.1543 ± 1.88889 (1.03 – 12.06)	-2.524	< 0. 05*
B n = 30	3.0550 – .50232 (5.00 -14.7)		

Serum albumin:

Results are expressed as below

The mean ± SD serum albumin levels were 3.7733 ± .38768 gm/dl in group A and 3.7533 ± .35982 gm /dl in group B.

The mean serum albumin level was compared between group A and group B. There was no significant difference (P>0.05) between two groups (Table-V)

Table - V:Showing mean ± SD serum albumin level in group A and group B

Group	Serum albumin Mean ± SD gm/dl Range (L –H) gm/dl	"t " value	" P " value
A n = 30	3.7733 ± .38768 (3.00 – 4.80)		
B n = 30	3.7533 – .35982 (3.30 -4.60)	.207	> 0.005NS

Relationship of study variables with total count of WBC in different groups:

To observe the relationship of different study variables with total count of WBC in different groups. Pearson's Correlation coefficient tests of total serum calcium, ionized serum calcium, serum inorganic phosphate levels with total count of WBC were done and following findings were observed.

The results are shown in Table –VI:

Serum calcium (Total and ionized) were negatively correlated with total count of WBC in group A and B but the relationship of serum total calcium was statistically significant in group A and non significant in group B. Ionized serum calcium was non significant in both groups.

Serum inorganic phosphate was positively correlated with total count of WBC in A and B groups but the relationship were statistically non significant.

Table-VI: Relationship of different study variables with total count of WBC in different groups (n=60)

Parameters	Groups			
	Group – A		Group – B	
	r value	p value	r value	P value
Total Serum Calcium	-0.379	0.031*	-0.128	0.501ns
Serum Ionized Calcium	-0.239	0.204ns	-0.099	0.604ns
Serum Inorganic Phosphate	0.168	0.374ns	0.329	0.076ns

Discussion:

The present study was carried out to asses the relationship of serum calcium, inorganic phosphate with total count of WBC below and above 50,000/cu mm of blood in age matched acute leukaemic patients. In addition fasting serum glucose, serum total protein and serum albumin levels were estimated in both the groups of the present study for exclusion of diabetes mellitus and liver diseases. The values of fasting blood sugar, serum total protein and serum albumin were within the normal range. Serum total protein was estimated in both the groups of the present study for calculation of ionized calcium level. Serum albumin and total protein were estimated also for indication of protein bound form of serum calcium.

In this study the mean serum total calcium level decrease in acute leukaemic patients. It was found that serum total and ionized calcium levels were significantly lower ($p<0.001$) in those patients whose WBC count is above 50,000/cmm of blood. On the other hand the mean serum inorganic phosphate level was increase in acute leukaemic patients and it was found that serum inorganic phosphate level was significantly higher ($p<0.05$) in those patients whose WBC count is above 50,000/ cmm of blood.

These two findings are similar with those reported by Lorigan et al[12], Kopecna et al[20], Solh[15], Warmkessel[13], and Hochberg et al[14], Lee et al[10], Bahar et al[21], Srelkhatim et al[16]. These two findings are not similar with other studies done by Montesinos et al[9], Riccio Bet al[18], Akoz et al[19] where they shows serum calcium level were also significantly lower and serum inorganic phosphate level were also significantly higher in acute leukaemia patients whose WBC count is below 50,000/cmm of blood.

However, in our country no published data are available regarding these types of findings for comparison.

In the present study, serum inorganic phosphate levels are increasedand serum total and ionized calcium level are decrease significantly in acute leukaemic patients with WBC count above 50,000/cumm of blood than acute leukaemic patients with WBC count below 50,000/cmm of blood.

Conclusion:

In this study, a significant increase in serum inorganic phosphate levels and a decrease in serum calcium levels were observed in acute leukemia patients with WBC counts above 50,000/cmm of blood compared to those with lower WBC counts. This phenomenon is likely due to the large amount of phosphate released from malignant blood cells. The increase in phosphate levels may lead to the binding of negatively charged phosphate ions with positively charged calcium ions, resulting in reduced ionized serum calcium levels and subsequent hypocalcemia. Early identification of these risks allows timely intervention to prevent complications and improve outcomes.

Recommendations:

To be more conclusive the following recommendations are proposed for further studies in acute leukaemia.

- Similar type of study with larger sample size in different age.
- Similar type of study with different type of acute leukaemia.
- Estimation of urinary calcium and phosphate concentration.
- Follow up study after chemotherapy.

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DCIMCJ

Original Article

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Effect of Aqueous Extract of Aegle Marmelos Fruit and Leaf on Cholesterol of Non-diabetic and Type -I Model Diabetic Rats

Debnath R[1], Aziz M[2], Akhter M[3], Ayub TE[4], Haque F[5]

Abstract:

Introduction: Diabetes mellitus (DM) is one of the commonest endocrine and metabolic disorders affecting mankind all over the world. This creates a great challenge to the health care system, since diabetes is a life-long disease and requiring daily treatment. Due to limitations of the available therapeutic agents against diabetes there is still search for better and safer alternate agents. Plants are reported to have multiple therapeutic poroperties such as antidiabetic, antihyperlipidaemic. Aegle marmelos has already shown great potential as a plant source. So the study was undertaken to explore effect of aqueous extract of Aegle marmelos fruit and leaf and also to investigate the effects of the agent on serum cholesterol of the non diabetic rat and type 1 diabetic model rats. Method: The study was conducted at Biomedical Research Group (BMRG) and Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorder (BIRDEM) Dhaka in Bangladesh. Two groups of the study subjects included 23 adult Long Evans non diabetic rats and 24 Type 1 diabetic model (T1DM) rats.The diabetic rats were induced by a single dose of STZ. Both groups were fed with fruit and leaf extract of Aegle marmelos at a dose of 250 ml/Kg/body weight /day Results: No significant change was shown on serum cholesterol in both of nondiabetic & type 1 diabetic rats. Conclusion: It was concluded that Aegle marmelos do not reduce serum cholesterol of diabetic rats.

Keywords: AMFE= Aegles marmelos fruit extract, AMLE= aegles maemelos leaf extract, STZ= streptozotocin

Introduction:

Diabetes mellitus (DM) is one of the commonest endocrine and metabolic disorders affecting mankind all over the world. It is widely recognized as one of the leading causes of death and disability worldwide[1]. People of the developing countries are the worst victims of such life-long diseases because of the lack of organized health care delivery. In observational and interventional studies obesity and physical inactivity represent the most important modifiable risk factor interventional studies obesity and physical inactivity represent the most important modifiable risk factors for DM. Changes in human behavior and lifestyle over the last century have resulted in a dramatic increase in the incidence of diabetes worldwide.

Obesity and Diabetes are major causes of morbidity and mortality worldwide.Evidence from several studies indicates that obesity and weight gain are associated with an increased risk of diabetes[2]. Conventionally, Type 1 Diabetes Mellitus (T1DM) have been treated with exogenous insulin and Type 2 Diabetes Mellitus (T2DM) with synthetic oral hypoglycemic agents like sulphonylureas and biguanides.

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A substantial proportion of T2DM also require insulin. However, the existing therapeutic agents have considerable limitations in the management of this complex disorder and search for alternate agents are continuing all over the world. Plants are considered to bean an attractive source, as there are multiple therapeutic properties like antiulcer, antidiabetic, antihyperlipidemic, antioxidant and effects. Plants have been used for thousands of years for the treatment & prevention of diabetes and it seems to have a strong potential as a cost effective solution for combating the problem[3]. Among traditional medicinal plants, Aeglemarmelos (Bael in Bengali) has enormous traditional uses. Aeglemarmelos was originated in India and is presently growing in most of the countries of Southeast Asia. The tree grows wild in dry forests on hills and plains of Bangladesh. It prefers dry and sunny or warm parts of the hill slopes with well-drained loamy soil. Bael leaf extracts at 100 mg/kg doses for 35 days have shown significant improvement on the activities of marker enzymes, decrement of lipid peroxides, plasma lipids and lipoproteins in isoproterenol treated rats, suggesting its antihyperlipidemic effect[4]. Oral administration of the aqueous extracts of bael fruits and seeds separately at a dose of 250 mg/kg to STZ induced diabetic ratssignificantly lowered the serum and tissue lipid profile[5]. Thus the present study, dealing with the serum cholesterol reducing properties of a traditional plant, has both scientific and social consequences.

Subjects:

The subjects of the study were two groups of adult Long Evans rats: Nondiabetic rats and Type 1 diabetic model (T1DM) rats.

Collection of plant materials:

Aegle marmelos leaves and fruits were collected from Chapainawabgonj, a district of Rajshahi division. The study was done during the period of January 2011 to December 2011 and was conducted in the Biomedical Research Group (BMRG), Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorder (BIRDEM) Dhaka.

Preparation of aegles marmelos fruit powder:

Fruit pulp was dried in sunlight for 5/6 days, coarsely powdered by grinder machine and stored in room temperature until the making of extracts.

Preparation of aegle marmelos leaf powder:

All the collected leaves were washed carefully again and again to get neat and clean leaves. Wet leaves when primarily spread over brown paper to soak the extra water. After soaking the water the leaves were spread over aluminium foil and crisp dried for 3 days at 48^0C in an oven. The dried leaves were crushed in an electric grinder to make a fine powder stored in room temperature until the making of extracts.

Preparation of aqueous extract of a marmelos fruit and leaf power:

Every 100 gram amarmelos fruit and leaf powder with 500ml distilled water in a beaker was mixed. This mixer was mixed nicely with a spoon. The beaker was covered by aluminium foil and placed over magnetic stirrer with a magnate inside the beaker. The mixer was rotated at a rotation cycle of 600 rotations /min. The mixer was stirred for 8hr. The mixer was sieved in beaker. The hard pellet was again mixed with 100ml distilled water and again stirred for one hour and sieved. Combined Liquid was taken in a round bottom flask and evaporated and concentrated in rotary evaporator under a temperature ranging from 40°-50°C and under rotation 60rotation/min. It was concentrated till the total liquid was changed into a viscous pest. This pest was freeze dried under vacuum of gel solid yield. The dry sample was stored in a reagent bottle at 4^oC in a freezer[6].

Experimental details:

The aqueous extract of A. marmelos fruit and leaf was made by standard method. Fourty seven long-evans rat was taken for the experiment among which 23 was nondiabetic and 24 was diabetic. This diabetic model rat was induced by single injection of STZ.

After 7 days of injection, injected rats were tested whether they had T1DM or not. T1DM and nondiabetic rats were again divided into two sub

group, A. marmelos fruit treated group with normal diet and A. marmelosleaf treated group with normal diet. The drug dose was 250 ml/Kg/10 ml. On '0' day after 12 hour fasting, blood was collected from the tail tip by giving mild anesthesia, centrifuged and serum used for measuring cholesterol.

Then for 14 days extract was feed with normal diet. On the 15th day, blood was taken from tail tip by giving mild anesthesia on them. And again serum cholesterol was measured.

Results:

Effect of aqueous extract of A. marmelos fruit and leaf on cholesterol of nondiabetic rat during 0-15 days.

Cholesterol (mg/dl, Mean ± SD) of the AMFE group (n=8) was 66.81±13.80 (on `0′ day) and 50.25±6.54 (on `15′ day), AMLE group (n=4) was 44.39±10.91 (on `0′ day) and 40.65±9.99 (on `15′ day).

In AMFE group percentage deviation '0' day Vs '15' day (mg/dl, Mean ± SD) was 20.79±22.83 and in AMLE 2.43±42.69. In percentage deviation, no significant difference was found between any two of the three groups.

Cholesterol decreases significantly in AMFE group at 15 day(p=0.025).

Table -1: Effect of aqueous extracts of A. marmelos fruit and leaf on Cholesterol of nondiabetic rat.

Group & parameter	0 day (M±SD)	15 day	t/p value	Deviation from 0 day (%)
CHOLESTAROL(mg/dl)				
AMFE (n=9)	66.81±13.80(100)	50.25±6.54 (79.21±22.83)	2.76/.025	20.79±22.83
AMLE (n=4)	44.39±10.91(100)	40.65±9.99(97.56±42.69)	.43/.694	2.43±42.69

Comparison between 0 day 15 day values of the same group were compared by Paired- t test. Values were expressed as Mean± SD. P<0.05 was considered as statistically significant, n= number of subjects; AMFE group=Aegle marmelos fruit extract treated group, AMLE group=Aegle marmelos leaf extract treated group, WC=Water Control.

Table 2 shows effects of aqueous extracts of Amarmelos fruit and leaf on cholesterol of diabetic rats during 0-15 days time period.

Cholesterol (mg/dl, Mean ± SD) of the AMFE group (n=8) was 46.52±17.98 (on `0′day) and 42.52± 10.48 (on`15′ day), AMLE group (n=7) was 62.89±17.99 (on `0′ day) and 51.48±5.46 (on`15′ day)

In AMFE group percentage deviation '0' day Vs '15' day (mg/dl, Mean ± SD) was -1.04±38.42 and in AMLE 13.29±23.60. In percentage deviation, no significant difference was found.

In paired't' test, no significant difference was found

Table-10:Effect of aqueous extract of A. marmelos fruit and leaf on Cholesterol of diabetic rat.

Group & parameter	0 day (M±SD)	15 day	t/p value	Deviation from 0 day(%)
CHOLESTEROL(mg/dl)				
AMFE (n=8)	46.52±17.98(100)	42.52±10.48(101.03±38.42)	.50/.631	1.04±38.42
AMLE (n=7)	62.89±17.99(100)	51.48±5.46 (86.71±23.60)	1.69/.142	13.29±23.60

Comparison between 0 day 15 day values of the same group were compared by Paired- t test. Values were expressed as Mean± SD. P<0.05 was considered as statistically significant, n= number of subjects; AMFE group=Aegle marmelos fruit extract treated group, AMLE group=Aegle marmelos leaf extract treated group, WC=Water Control.

Discussion:

The baseline values of cholesterol did not differ significantly between the nondiabetic (Table 1) and diabetic rats (Table 2) as these values were measured after only 7 days of induction of diabetes. In different similar type of studies we see that experimental rats were treated with aqueous extract of Aeglemarmelos for 28 days at a dose of 250mg/kg body weight & then blood was collected[7]. In another study we see that aqueous extract of aegle marmeloswas given in experimental rats was given for 60 days at the same dose[8]. But in our study the intervention period of 15 day was also too limited for detecting changes in these lipids. Probably for this reason our result was not significant. For this limitations neither of the extracts showed any effect on cholesterol in nondiabetic rats& diabetic rats.

Conclusion:

It may be concluded that due to some limitations this study did not show any cholesterol lowering activity.

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Original Article

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Work Posture and Musculoskeletal Problems of Garment Workers During Natal Period

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Abstract:

Background: Bangladesh is the tenth most densely populated country in the world, with one of the fastest growing global economies. A major contributor of this economic boom has been the readymade garment (RMG) and textile manufacturing (TM) industries. This industry has provided 4 million people, of whom 80% are female to participate in income-earning activities. Working in this industry has made women economically independent and empowered. Objective: To find out the mode of delivery of the respondents, to explore the association of age and common disease pattern, to determine the association between work posture and musculoskeletal problems during natal period. Methodology: A descriptive cross-sectional study was performed among 380 puerperal mothers working in garment industry of Dhaka and Chittagong district. Results: The findings of the study showed that most (36.3%) of the respondents belonged to 20-24 years of age. More than two third (75.8%) of the respondents had given TT vaccination in their last pregnancy, 61.3% of the respondents had term pregnancy and among them 68.2% of delivery was done at home. More two third (76.6%) of the respondents had normal vaginal delivery. About 32.9% used nothing for contraception and more than one fifth (21.3%) of the respondents used injection as a method of contraception. Nearly two third (74.5%) of the respondents had history of MR and about 69.6% had history of at least 1 MR. More than half (55.8%) of the respondents worked by standing posture and 54.9% of the respondents who had standing posture suffered musculoskeletal problems and the relationship between posture and musculoskeletal problems was statistically non-significant (p= 0.384). The association between age and problems due to working environment was statistically significant (p=0.002). Conclusion: The health issue of pregnant garment workers should be highly prioritized in order to provide all medical facilities regarding health education about pregnancy and reproductive health, institutional service for delivery.

Keywords: Musculoskeletal problem, natal period, work posture etc.

Introduction:

Readymade Garment (RMG) sector is the main source of earning foreign currencies in the economy of Bangladesh. There are about 35 lakh garment workers working in 4,500 factories across the country[1] where more than 80% of them are female who mainly came from the rural areas of Bangladesh.

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The female workers in the garment sector mainly stitch up the fabrics. They had to workfor along period without movement from their desk. High and most of them experience abortions more than once[3].

Due to the nature of job the back pain is a common phenomenon to the majority of female workers[2]. The rate of miscarriage among garments workers is very Ready-Made Garments (RMG) industry, are the main contributor to our export earning, employs who often suffer from health issues including malnutrition, communicable diseases, pregnancy complications, reproductive infections, inappropriate use of birth control materials and other such diseases related to sexual and reproductive health. This adverse condition of women workers impacts badly their lives as well as their productivity from which the RMG sector suffers consequently[4].

Every occupation is associated with one or other ill effects on health[5]. One such occupational group, causing a wide range of co–morbid conditions are the garment industry. Garment workers are susceptible to various health problems by virtue of their workplace and working conditions[6]. Today is an era of women who have diverse role to play in society. Often they handle two or more tasks simultaneously. They are therefore prone to suffer from work related diseases, which are further complicated by social, psychological and physiological issues. Roughly, 1 out of 300 female is suffering from some occupation related disease[7].

Pregnancy is a very special and critical time for women where motherhood starts through pregnancy. Pregnancy demands special care and attention for mother and their offspring. Most of the female workers in garments mainly doing low-skilled jobs; like operator or helper where they have to work in a noxious environment like improper ventilation, crowded area, improper sitting arrangement or long time standing condition, lack of safe water supply, poor sanitation facilities etc[8].

Materials and method:

It was a descriptive type of cross-sectional study conducted among puerperal mothers. The study was conducted in four selected garments in Dhaka and Chattogram city from July 2019 to June 2020. The study population were puerperal mothers who had ANC card or valid document worked in garment industry. They were in their home for maternity leave. A purposive sampling method was followed to select 380 respondents for the study. Data collection instrument were pre-tested by semi- structured questionnaire which were collected by face to face interview, record review and observation from household of the respondents. Based on the results of pre-testing, little modification was done and the questionnaire was finalized. Data entry, cleaning, and analysis were done by using SPSS 24 version.

Results:

This cross-sectional descriptive study was conducted among 380 respondents. Most of the respondents (36.3%) were aged between 20-24 years and their mean age was 23.3 ± 4.52 years (Table-1).

Table -1: Distribution of respondents by age.

Variable	Frequency	Percentage
Age group (Years)		
< 20	100	26.3
20-24	138	36.3
25-29	102	26.8
30-34	34	8.9
> 35	6	1.6
Mean ± SD	23.3 ± 4.52	

More than two third (75.8%) of the respondents had given TT vaccination in their last pregnancy and only less than one third (24.2%) were not vaccinated at all. Most (61.3%) of the respondents had term pregnancy and among them 68.2% of delivery was done at home. More two third (76.6%) of the respondents had normal vaginal delivery(Table-2)..

Table- 2:Information regarding recent pregnancy.

Variable	Frequency	Percentage
Tetanus vaccination in last pregnancy		
Yes	288	75.8
No	92	24.2
Duration of pregnancy		
Premature delivery	117	30.8
Term delivery	233	61.3
Post- dated delivery	30	7.9
Mode of delivery		
Normal delivery	291	76.6
C-section	89	23.4
Place of delivery		
Home delivery	259	68.2
Institutional delivery	121	31.8

More than one fifth (21.3%) of the respondents used injection, OCP 14.5%, IUCD 7.9% and condom 10.3% as a method of contraception. About 32.9% of the respondents used nothing as contraceptive. Nearly two third (74.5%) of the respondents had history of MR and among them about (69.6%) had history of at least 1 MR (Table-3).

Table-3:Information regarding behavior of respondents.

Variable	Frequency	Percentage
Prevalence of contraceptive		
Condom	39	10.3
OCP	55	14.5
IUCD	30	7.90
Implant	42	11.0
Injection	81	21.3
Nothing	125	32.9
Others	08	2.1
History of MR		
Yes	283	74.5
No	97	25.5
No of MR (n=283)		
01	197	69.6
02	52	18.4
>3	34	12.0

More than half (55.8%) of the respondents worked by standing posture and 44.2% worked by sitting(Table-4).

Table-4: Distribution of respondents by work posture.

Variable	Frequency	Percentage
Work posture		
Sitting	168	44.2
Standing	22	55.8

The problems due to working environment was more among >35 years of respondents than any other age group and the association between age and problems due to working environment was statistically significant (p=0.002)

Table -5: Distribution of respondents by age and problems due to working environment.

Age (yrs)	Problems due to working environment								Total	Test statistics
	Swelling of feet	Back pain	Leg pain	Eye problem	Headache	Abdominal Pain	Earache	Others		
<20	24	19	33	07	22	08	22	09	**144**	$\chi 2$=
20-24	11	15	13	04	27	06	10	05	**91**	60.31
25-29	08	12	09	03	16	04	12	06	**70**	
30-34	10	25	11	05	11	16	09	03	**90**	P value= 0.002
>35	09	48	12	11	50	15	12	15	**172**	
Total	**62**	**119**	**78**	**30**	**126**	**49**	**65**	**38**	**567**	

More than half (54.9%) of the respondents who had standing posture suffered musculoskeletal problems and the relationship between posture and musculoskeletal problems was statistically non-significant **(p= 0.384).**

Table- 6: Distribution of respondents by work posture and musculoskeletal problems.

Work position	Musculoskeletal problems					Chi square	P value
	Yes	%	No	%	Total		
Sitting	134	45.1	45	54.2	169	**8.931**	**0.384**
Standing	163	54.9	38	45.8	211		
Total	**297**	**100**	**83**	**100**	**380**		

Discussion:

This cross sectional study was aimed to describe the perceptions and attitude of pregnant garment workers of Chattogram district. Nearly two third (74.5%) of the respondents had history of MR and among them about (69.6%) had history of at least 1 MR. This is similar to a study carried out in Bangladesh.More than two third (75.8%) of the respondents had given TT vaccination in their last pregnancy and only less than one third (24.2%) were not vaccinated at all. The result of our study is consistent with a study carried out in Bangladesh. Most (61.3%) of the respondents had term pregnancy and 68.2% had home delivery.

More two third (76.6%) of the delivery was done normally. The result had inconsistency with a study[9] due to more no of respondents.In our study, data regarding contraceptive prevalence showed more than one fifth (21.3%) of the respondents used injection, OCP 14.5%, IUCD 7.9% and condom 10.3% as a method of contraception. About 32.9% of the respondents used nothing as contraceptive. This result is comparable with a study[10] carried out in Bangladesh. In this study, it was revealed that more than half (55.8%) of the respondents worked by standing posture and 44.2% worked by sitting.

This result was consistent with a study[11] carried out inBengaluru, India**.** The result of our study showedmore than half (54.9%) of the respondents who had standing posture suffered musculoskeletal problems and we have found a significant association between posture and musculoskeletal problems of the respondents which has a consistency with a study[11] carried out in Bengaluru, India.

Conclusion:

The findings from this study shows that more than half of the respondents worked by standing posture and among them 54.9% suffered musculoskeletal problems. The problems due to working environment was more among >35 years of respondents than any other age group and the association between age and problems due to working environment was statistically significant. They have to work for a long time in different position and so it can recommended that by increasing awareness regarding ergonomically designed work posture and regular antenatal visit to the doctor can minimize the problems.

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Original Article

DCIMCJ

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Analgesic Efficacy of Paracetamol Versus Tramadol Hydrochloride after Upper Limb Vascular Surgery: A Prospective Single Blind Study

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Abstract:

Background: Although opioids are the main choice for acute post operative pain control many side effects have been reported for them. NSAIDs and paracetamol have been used extensively as alternatives and it seems that they are more effective for minor to moderate pain control post-operatively when have been used alone or in combination with opioids. Objectives: The objective of this study was to compare the efficacy and effectiveness between paracetamol and tramadol for acute postoperative pain and their side effects after upper limb vascular surgery. Method: This was a randomized single-blind study. Sixty (60) patients 30-60 years of age, of ASA I/II were randomized into two equal groups of 30 patients each. Patients of group P received intravenous paracetamol 1gm and group T received intravenous tramadol hydrochloride 100mg just after skin closure. Postoperative pain was evaluated by standard 10cm linear visual analogue scale (VAS) at different time intervals. When VAS was more than 3 additional analgesic doses was given. Results: In group P that was paracetamol group and group T that was tramadol group the visual analogue scale (VAS) almost similar but total analgesic consumption in paracetamol group were slightly higher than tramadol group. In paracetamol group 6 patients and in tramadol group 4 patients required additional analgesic dose. But in tramadol group postoperative complications (nausea, vomiting & drowsiness) were higher than paracetamol group which was statistically significant ($p<0.05$). Conclusion: Our results suggests that IV paracetamol and tramadol hydrochloride has almost similar analgesic effect but post operative complications like nausea, vomiting & drowsiness are more common in tramadol group after upper limb vascular surgery.

Keywords: Paracetamol, tramadol, upper limb vascular surgery

Introduction:

Pain is a major public health issue throughout the world and represents a major clinical, social, and economic problem[1].Postsurgical pain is normally perceived as nociceptive pain. Surgical trauma has beenknown to induce central and peripheral sensitization and hyperalgesia, which in untreated cases could lead to chronic postoperative pain after surgery[2]. Postsurgical pain is normally perceived as nociceptive pain. Surgical trauma has been known to induce central and peripheral sensitization and hyperalgesia, which in untreated cases could lead to chronic postoperative pain after surgery[3]. Hand and foot surgery procedures are usually performed on an ambulatory basis, and postoperative pain is a major problem[4,5]. Patient pain is commonly treated with oral medication that can be taken easily. The drugs used are nonsteroidal anti-inflammatory, paracetamol, and opioid[6]. Several studies have shown that traditional analgesic drugs fail to provide adequate analgesia in many patients[4-7], and these is evidence of a better treatment with a combination of two drugs[8,9].

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The use of opioid drugs for the pain control during and after surgery is a common procedure in anesthesia[10]. However, the use of these medications is associated with side effects such as nausea, vomiting, sedation, and respiratory depression. Prescribed method for reducing and minimizing opioid side effects is concomitant administration of a non-opioid analgesic[11]. The decision to mix drugs should not be made without the knowledge of theircompatibility. Some of these medications are nonsteroidal anti-inflammatory drugs, including aspirin and Acetaminophen (Paracetamol). Primary mechanism of these analgesic drugs is to inhibit the cyclooxygenase and prostaglandin synthesis which is considered as an important environmental factor in the prevention of hypersensitivity and pain[10]. Recently discovered COX 3 (COX-3) has been proposed as a central mechanism for the analgesic effect of acetaminophen[12]. Nonsteroidal anti-inflammatory drugs are usually effective for mild to moderate pain control. The effectiveness of these drugs has been identified as opioids adjuvant for moderate to severe pain. Recent studies have known that nonsteroidal anti-inflammatory drugs are effective for pain control rather alone or combined with opioids, which are more than what has been assumed so far[13, 14].

Materials & methods:

This randomized single-blind study was conducted from 1st July '2022 to 30th June '2023 at the department of General Anaesthesiology and Vascular surgery, Ibrahim Cardiac Hospital & Research Institute (ICHRI), Shahbagh, Dhaka, Bangladesh. After institutional ethical committee approval and informed written consent, a total number of 60 adult patients were randomly allocated into two groups (n=30) using a computerized random number table. Patients with ASA physical status I & II, aged between 40 and 59 years, scheduled for upper limb vascular surgeries (Bracheo-basilic transposition fistula, Arterio-venous malformation, and acute limb ischemia) were enrolled in this study.

Exclusion criteria included local infection at the site of puncture, patients having any neurological deficit in the upper limb, severe renal, hepatic, respiratory, hematological disorders, alcoholism, drugdependency, psychiatric disease, pregnancy and lactation and known allergy to study drugs. Preoperative assessment included detailed history, physical examination, systemic examination, airway assessment and routine investigations, such as hemoglobin, total blood cell count, differential white blood cell count, platelet count, blood glucose, blood urea and serum creatinine. ECG and X-ray were also performed. The block procedure and the Visual Analogue Score (VAS) were also explained to the patient. Preoperative baseline vital parameters were recorded.

On arrival to the post operative word, the vital parameters including systolic blood pressure (SBP), diastolic blood pressure (DBP), mean arterial blood pressure (MAP), heart rate (HR) and visual analogue scale (VAS) were recorded at immediate postoperative, 1st hour, 2nd hour, 4th hour, 6th hour, 8th hour, 12th hour and 24th hour. Post-operative pain was assessed by using visual analog scale (VAS) scoring from 0 to 10. Score 0: no pain. Score 10: maximum imaginable pain. Rescue analgesia was given if VAS >4. The postoperative side effects like nausea, vomiting, drowsiness and dizziness were recorded. Any complication including vascular puncture, Horner's syndrome, pneumothorax, and phrenic nerve palsy were also observed.

Data processing:

All data presented as mean (standard deviation) unless otherwise indicated. Analysis of variance unpaired student t test and chi-square test used to detect the demographic data among the two groups. Chi-square test, with any correction needed (e.g., Yates's continuity correction) used to analyze the collected data. Data collected on a predesigned data collection sheet and later on compiled on a master chart. A p value of <0.05 accepted as statistically significant. Statistical analysis carried out using Statistical Package for Social Science (SPSS) for Windows version 22.0.

Results:

Sixty patients who underwent upper limb vascular surgery were enrolled in this study. Among them 41 male and 19 female. Demographic data for each group was similar (Table-1). There was no statistically significant difference among the two groups with regard to the duration of surgery and the distribution of cases of ASA I and II (Table-1). Postoperative satisfaction with the IV paracetamol and IV tramadol analgesia was almost similar with median scores of 72 (IV Paracetamol) and 74 (IV tramadol) (VAS; 100mm= extremely satisfied) in the first 24 hour after operation. There was no significant difference between groups for heart rate (Figure 1), systolic blood pressure (Figure-2), diastolic blood pressure (Figure-3) and postoperative analgesic requirements (Figure 4). Total analgesic consumption in paracetamol group36gram was slightly higher than tramadol group 3400mg which was not statistically significant. In paracetamol group 6 patients and in tramadol group 4 patients required additional analgesic dose. Postoperative nausea, vomiting was found in 12 patients in tramadol group and 4 patients in paracetamol group but drowsiness were found in 4 patients in tramadol group which was statistically significant ($p<0.05$) (Table-2). Our postoperative repeated visits for early detection of pain and provide increased patient satisfaction.

Table -1: Demographic variables.

Variables	Group-P	Group-T	p value
Age (years)	50.40±11.12	52.20±12.55	0.56^{ns}
Sex (M/F)	21/09	20/10	0.78^{ns}
Weight (kg)	62.30±9.44	61.67±8.13	0.55^{ns}
ASA grade (I/II)	30/10	32/08	0.788^{ns}
Duration of surgery (min)	88.82±2.85	89.12±2.59	0.69^{ns}

All values were presented as mean± SD or in frequencies. Data were analysed using unpaired student t-test. Statistically significance was set at p-value <0.05. (S=significance, NS=not significant)

Table showed that the demographic data for each group was similar. There was no statistically significant difference among the two groups with regard to the duration of surgery and the distribution of cases of ASA I and II.

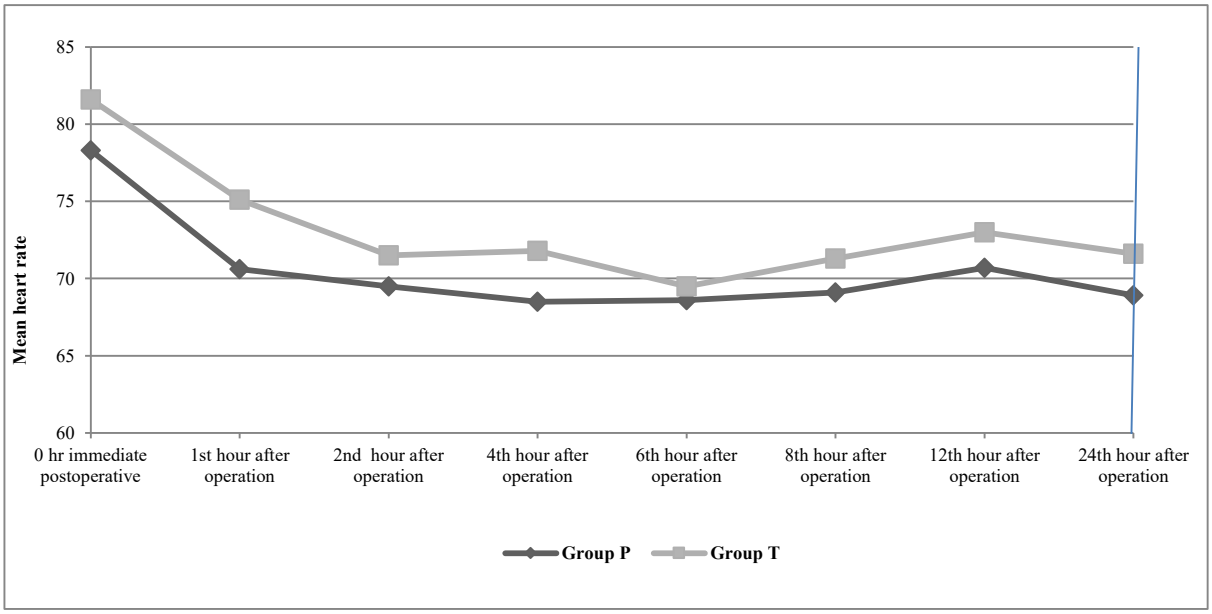


Figure-1: Line diagram showing postoperative heart rate in two groups.

The mean heart rate at different time in postoperative period compared between two groups. No statistically significant were observed in between groups ($p > 0.05$).

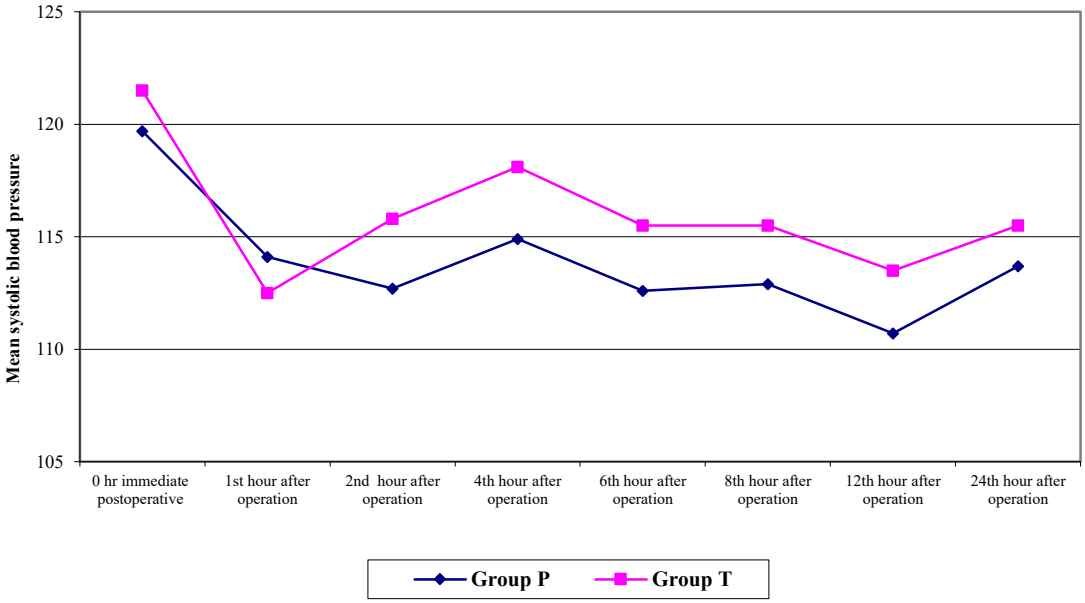


Figure-2: Line diagram showing postoperative mean systolic blood pressure in two groups.

The mean systolic blood pressure at different time in postoperative period compared between two groups. No statistically significant were observed in between groups ($p > 0.05$)

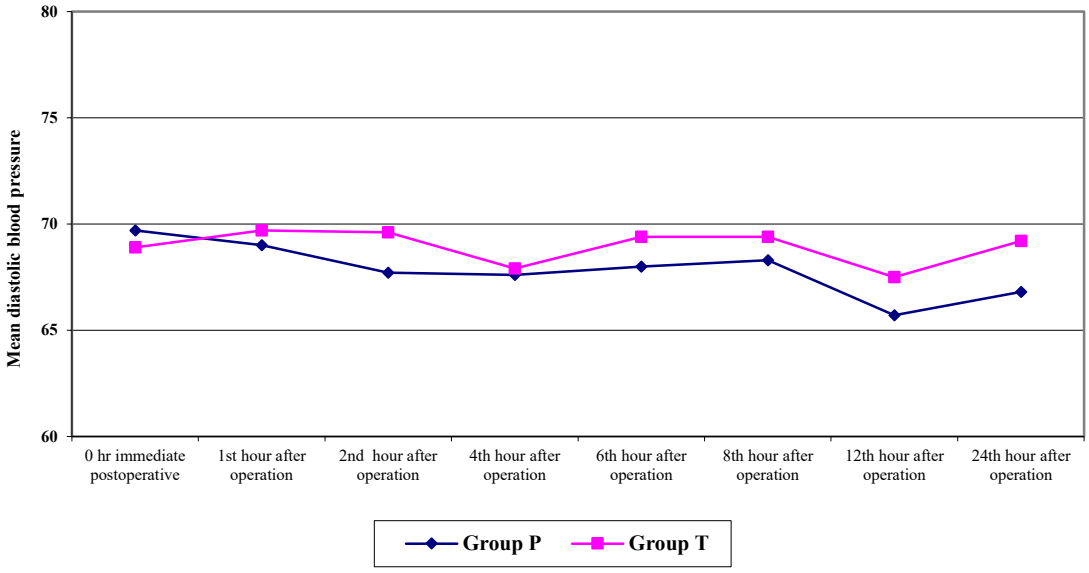


Figure-3: Line diagram showing postoperative mean diastolic blood pressure in two groups.

The mean diastolic blood pressure at different time in postoperative period compared between two groups. No statistically significant were observed in between groups ($p > 0.05$).

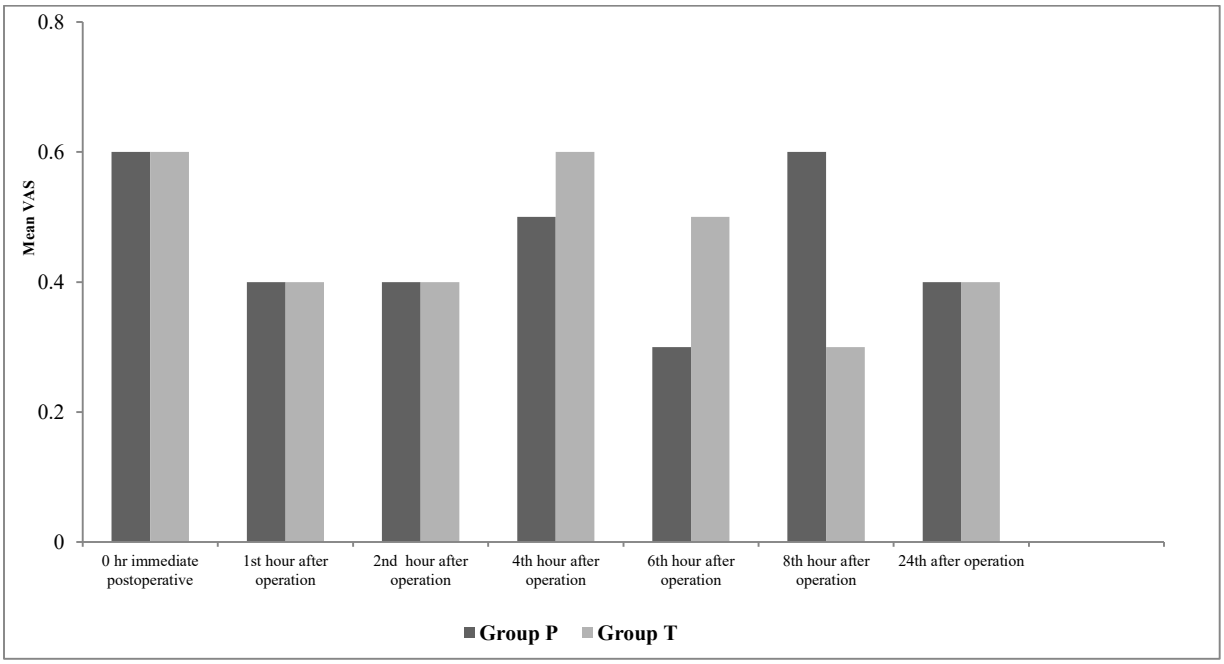


Figure-4: Diagram showing VAS score in two groups.

The mean VAS at postoperative period compared between two groups. No statistically significant were observed in between groups ($p > 0.05$)

Table- 2 Comparison of postoperative complications of the study respondents (n=60)

Complications	**Group-P**	**Group-T**	**p value**
Nausea and vomiting	04	12	<0.001 [s]
Drowsiness	00	04	<0.001 [s]

All values were presented as mean± SD or in frequencies. Data were analysed using unpaired student t-test. Statistically significance was set at p-value <0.05. (S=significance, NS=not significant)

Discussion:

Effective postoperative pain management has been demonstrated to improve clinical outcome. Opioids are widely used to relieve postoperative pain due to their efficacy and effectiveness. However, their adverse effects such as nausea, vomiting, itching, and respiratory depression are of concern. In patients who underwent upper extremity surgery under brachial plexus block, when local anesthetic was completely absorbed, the patients felt pain and required an analgesic at different doses. Multimodal analgesia, which is a combination of analgesic drugs, provides more effective pain relief than relying on one drug alone and plays an important role in reducing adverse effects.

Paracetamol is a drug with analgesic and antipyretic effect, and a weak anti-inflammatory action. It is a cyclooxygenase (COX) inhibitor resulting in the inhibition of prostaglandin synthesis predominantly in the central nervous system rather than in peripheral tissues. It is widely used as an analgesic. In combination with nonsteroidal anti-inflammatory drugs (NSAIDs) or opioids, it is also used in the management of more severe pain (such as cancer pain). The main mechanism of action is reducing the oxidized form of COX, preventing it from forming proinflammatory chemicals, which are important mediators of inflammation, pain, and fever[15].

Rawalet al[16]. Compared oral metamizol, oral tramadol and IV paracetamol for the postoperative analgesia at home after ambulatory hand surgery. This study showed that tramadol provided the most effective analgesia as compared with the other group. But in this study, side effects were higher in tramadol group. Our study also found that post operativeanalgesic efficacy was almost similar in both group but side effects were more in tramadol group.

Varrassi et al[17] compared the analgesic efficiency and tolerability of proparacetamol and ketorolac after gynecologic surgery. In this study they demonstrate that the relative morphine requirement of the proparacetamol group was similar to that of the ketorolac group. This suggests that proparacetamol is effective in the management of postoperative pain when combined with an opioid analgesic. Our study was also found that paracetamol were almost similar efficacy as like tramadol group.

Raffa et al found that tramadol increased the incidence of side-effects, particularly postoperative nausea (24%-40%), vomiting (9%- 17%), dizziness (26%-33%), headache (18%-32%), and sedation (16%-25%)[18]. In our study we have also found that the post operative side effects like nausea, vomiting and dizziness were more common in tramadol group.

Conclusion:

Our study has shown that intravenous paracetamol almost similar as effective as tramadol in the management of mild to moderate pain patients undergoing upper limb vascular surgery.

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Original Article

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Evaluation of Extensions of Sinonasal Malignancy by Clinical, Surgical & CT Scan Findings

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Abstract:

Background: Sinonasal malignancies are a diverse group of rare cancers that originate in the nasal cavity and paranasal sinuses, encompassing a spectrum of histological subtypes. Due to their anatomical proximity to critical structures, early detection and accurate evaluation of these malignancies are paramount for optimizing patient outcomes. Objective: Extent of Sinonasal Malignancy as Assessed by Clinical, Surgical, and CT scanFindings. Methods: The study was a "cross-sectional" one. This prospective research was conducted by the Department of Radiology & Imaging, Marks Medical College & Hospital, Dhaka. Patients of any age or gender who have a clinical suspicion of having sinonasal growth & patients had a straightforward X-ray diagnosis of sinonasal growth were included. Results: Positive correlations were found between CT results and clinical and surgical outcomes in this investigation. However, this correlation was very significant when compared to surgical results. Clinical examination in this research was 100% specific and had a sensitivity of 28.8%. There was a perfect positive predictive value (PPV) and a 9.1% NPV. The CT assessment has a sensitivity of 78.6% and a specificity of 100%. There was a one hundred percent PPV and a twenty-five percent NPV. The diagnostic accuracy of surgery was 99.1 percent. There was a perfect positive predictive value (PPV) and a 50% NPV. Conclusion: CT examination proves to be a useful tool for the assessment of sinonasal masses, given its reliable correlation with histopathological outcomes.

Keywords: CT scan, Sinonasal malignancy, nose and paranasal sinus.

Introduction:

Sinonasal malignancies are a diverse group of rare cancers that originate in the nasal cavity and paranasal sinuses, encompassing a spectrum of histological subtypes. Due to theiranatomical relatively uncommon, accounting for approximately 3% of all head and neck cancers, making them a formidable diagnostic and therapeutic dilemma for healthcare providers. The rarity of sinonasal malignancies presents several unique challenges, including delayed diagnosis, limited treatment options, and a lack of standardized management guidelines[4-6] proximity to critical structures, early detection and accurate evaluation of these malignancies are paramount for optimizing patient outcomes[1-3].

Sinonasal malignancies represent a challenging subset of rare diseases characterized by the development of malignant tumors within the nasal cavity and paranasal sinuses. These malignancies are Sinonasal malignancies often present with nonspecific symptoms, such as nasal obstruction, epistaxis (nosebleeds), facial pain, and rhinorrhea. These symptoms can mimic benign conditions like sinusitis or nasal polyps, leading to diagnostic delays. Additionally, patients may initially seek care from various medical professionals, further complicating the diagnostic process.

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Sinonasal malignancies encompass a wide range of histological subtypes, including squamous cell carcinoma, adenocarcinoma, olfactory neuroblastoma, and esthesioneuroblastoma among others[7]. Each subtype presents distinct clinical features and growth patterns, making accurate diagnosis and staging even more challenging.

Due to their rarity, many healthcare providers may have limited experience in managing sinonasal malignancies. As a result, misdiagnosis or delays in referral to specialists can occur, negatively impacting patient outcomes. Moreover, imaging modalities, especially computed tomography (CT) scans, play a pivotal role in the assessment of sinonasal malignancies. CT scans provide detailed anatomical information, allowing clinicians to visualize the extent of tumor involvement, assess bone erosion, and evaluate the proximity of tumors to vital structures like the orbit and brain[8]. The assessment of sinonasal malignancies necessitates a multifaceted approach, involving clinical examination, surgical exploration, and advanced imaging techniques such as computed tomography (CT) scans. This comprehensive evaluation allows healthcare professionals to not only establish a precise diagnosis but also determine the extent of tumor involvement and the potential for surgical resection. In this context, this study delves into the crucial role played by clinical, surgical, and CT scan findings in the assessment of sinonasal malignancies, shedding light on the significance of each modality in guiding treatment decisions and improving patient care.

Objective:

Extent of Sinonasal Malignancy as Assessed by Clinical, Surgical, and CT scan Findings.

Methods:

The study was a "cross-sectional" one. This prospective research was conducted between July 2017 and June 2023 by the department of Radiology & Imaging, Marks Medical College & Hospital, Dhaka. There were a total of 30 participants.

Patients of any age or gender who have a clinical suspicion of having sinonasal growth & patients had a straightforward X-ray diagnosis of sinonasal growth were included.

Tissues removed after surgery underwent histological analysis, and the results were compared with those of the CT scan. Patients were given detailed information about the study's goals before giving their signed permission. Information was gathered via in-person interviews, patient history sheets, computed tomography scans, and pathology reports. A structured data collecting sheet was used to capture all of the information.

After data gathering, we validated and collated all of the information. The information was examined with the use of SPSS (Statistical Package for the Social Sciences) software. In light of the aims of the research, a strategy for analysis has been created.

After histological diagnostic confirmation, the study's validity was assessed by calculating sensitivity, specificity, accuracy, positive and negative predictive values. Where appropriate, a chi-square test was run to determine the statistical significance of the discrepancies. P 0.05 was chosen as the threshold for statistical significance, and a 95% confidence range was established.

Results:

Table-1 shows age distribution of the patients where most of the patients belongs to (41-50) age group, 57%.

Table-1: Age distribution of the patients.

Age group	Percentage (%)
41-50	57%
51-60	28%
61-70	15%

In figure-1, gender distribution of the patients are shown, where out of 30 patients 54% were male and 46% were female.

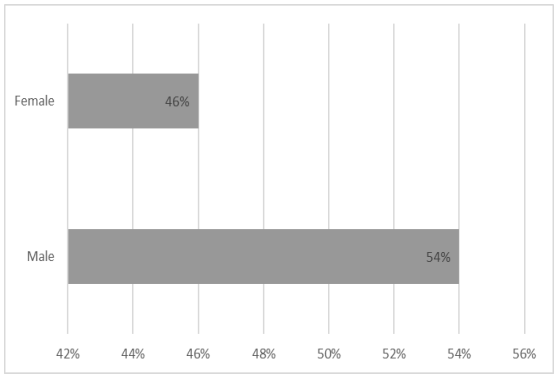


Figure-1: Gender distribution in the patients.

In this study, study subjects were presented with nasal obstruction (24; 80%), headache (10; 33.33%), swelling face (12; 40%), epistaxis (6; 20%), proptosis (10; 33.33%), nasal discharge (14; 46.67%), facial pain (6;20%), reduced smell (4; 13.33%), loosening of tooth (2; 6.67%), palatal budging (4;13.33%) and visual impairment (2; 6.67%). (Table-II)

Table-II:Distribution of study population according to clinical presentation (n=30).

Variable	Present	%	Absent	%	p value
Nasal obstruction	24	80.00	6	20.00	0.001[s]
Headache	10	33.33	20	66.67	0.067[ns]
Swelling face	12	40.00	18	60.00	0.271[ns]
Epistaxis	6	20.00	24	80.00	0.001[s]
Proptosis	10	33.33	20	66.67	0.067[ns]
Nasal discharge	14	46.67	16	53.33	0.711[ns]
Facial pain	6	20.00	24	80.00	0.001[s]
Reduced smell	4	13.33	26	86.67	<0.001[s]
Loosening of tooth	2	6.67	28	93.33	<0.001[s]
Palatal budging	4	13.33	26	86.67	<0.001[s]
Visual impairment	2	6.67	28	93.33	<0.001[s]

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Table- III: Distribution of study subjects according to CT findings (n=30).

Variable	Involved	%	Not involved	%	p value
Anatomical site Maxillary sinus	18	60.00	12	40.00	0.121[ns]
Nasal cavity	5	16.67	25	50.00	<0.001[s]
Nasal cavity and maxillary antrum	6	20.00	24	46.67	<0.001[s]
Ethmoid sinus	1	3.33	29	96.67	<0.001 [s]
Extension Hard palate	10	33.33	20	66.67	0.001 [s]
Alveolar process of maxilla	8	26.67	22	73.33	<0.001 [s]
Cheek (Subcutaneous tissue)	6	20.00	24	80.00	<0.001 [s]
Skin	5	16.67	25	83.33	<0.001 [s]
Nasal cavity	5	16.67	25	83.33	<0.001 [s]
Orbital cavity	4	13.33	26	86.67	<0.001 [s]
Pterygoid space	4	13.33	26	86.67	<0.001 [s]
Maxillary antrum	4	13.33	26	86.67	<0.001 [s]
Ethmoid sinus	2	6.67	28	93.33	<0.001[s]
Frontal sinus	2	6.67	28	93.33	<0.001[s]
Maxillary sinus	2	6.67	28	93.33	<0.001[s]
Nasopharynx	1	3.33	29	96.67	<0.001 [s]
Intracranial	2	6.67	28	93.33	<0.001[s]
Bone erosion	10	33.33	20	66.67	0.001[s]
Bone destruction	14	46.67	16	53.33	0.603[ns]
EnhancementMild	2	6.67	28	93.33	<0.001[s]
Faint	2	6.67	28	93.33	<0.001[s]
Heterogeneous	10	33.33	20	66.67	0.001[s]

Table -IV: Distribution of study subjects according to surgical findings (n=30).

Variable	Involved	%	Not involved	%	p value
Anatomical site Maxillary sinus	18	60.00	12	40.00	0.121[ns]
Nasal cavity	5	16.67	25	50.00	<0.001[s]
Nasal cavity and maxillary antrum	6	20.00	24	46.67	<0.001[s]
Ethmoid sinus	1	3.33	29	96.67	<0.001 [s]
Extension Hard palate	10	33.33	20	66.67	0.001 [s]
Alveolar process of maxilla	10	33.33	20	66.67	0.001 [s]
Cheek (Subcutaneous tissue)	8	26.67	22	73.33	<0.001 [s]
Skin	5	16.67	25	83.33	<0.001 [s]
Nasal cavity	5	16.67	25	83.33	<0.001 [s]
Orbital cavity	4	13.33	26	86.67	<0.001 [s]
Pterygoid space	4	13.33	26	86.67	<0.001 [s]
Maxillary antrum	4	13.33	26	86.67	<0.001 [s]
Ethmoid sinus	2	6.67	28	93.33	<0.001[s]
Frontal sinus	2	6.67	28	93.33	<0.001[s]
Maxillary sinus	2	6.67	28	93.33	<0.001[s]
Nasopharynx	1	3.33	29	96.67	<0.001 [s]
Intracranial	4	13.33	28	93.33	<0.001[s]
Bone erosion	14	46.67	16	53.33	0.603[ns]
Bone destruction	10	33.33	20	66.67	0.001[s]

In this study, CT findings were positively related with clinical and surgical findings. This relation was strongly significant with surgical findings.

In the current investigation, the clinical examination had a sensitivity of 28.8% but a specificity of 100%. Negative predictive values came in at 9.1%. The PPV was perfect at 100%. The CT assessment has a sensitivity of 78.6% but a specificity of 100%.

Table -V: Correlation of clinical and surgical findings with CT findings (n=30).

	Variable	r value	p value
CT findings	Clinical findings	0.302 +	0.105[ns]
	Surgical findings	0.784	<0.001[s]

Spearman's rho correlation coefficient test was performed and $p<0.05$ was accepted as level of significant.

Discussion:

Sinonasal cancers are difficult not just to diagnose but also to treat, which adds to the complexity of the problem. The CT (computerized tomography) scan, which is a cross-sectional imaging technique that is widely accessible, may be used to efficiently examine the lesion's extensions. The CT scan is another helpful diagnostic technique that may be used to investigate the recurrence of the tumor. This study aims to highlight the significance of a 'CT Scan of paranasal sinuses' in the overall management of sinonasal malignancies. This significance includes the prediction of malignancy, the identification of extensions, the determination of the area that needs to be explored during surgery, and the correlation of CT Scan findings with clinical and surgical findings in order to plan appropriate treatment planning.

In the current research, the participants had a variety of symptoms, including nasal blockage, headache, facial edema, epistaxis, proptosis, nasal discharge, facial discomfort, decreased sense of smell, tooth loosening, palatal budging, and vision impairment. Llorente et al[9],Dhillon et al[10]and Bist et ai[11]came to the same conclusions as our study. According to their findings, symptoms such as nasal blockage, face discomfort, chronic rhinorrhea, and epistaxis are generic and are often difficult to differentiate from the symptoms that patients experience when they have benign sinonasal illness. Patients whose malignancies have progressed to an advanced stage may also exhibit symptoms such as proptosis, diplopia, or neurological problems.

After undergoing a clinical examination for this study, the researchers discovered a mass in both the maxillary cavity and the nasal cavity. Furthermore, this mass spread into the nasal cavity, the hard palate, and the cheek. Llorente et al[9] reported that clinical evaluation of patients with suspected sinonasal tumor with a full medical history and a comprehensive ear, nose, and throat (ENT) examination, including assessment of the cranial nerves and neck. This was done on patients who had undergone a biopsy. In most cases, anterior rhinoscopy only provides a limited amount of information.

As a result, nasoendoscopy is able to give helpful data while also providing the capability to obtain a biopsy. Imaging tests that do not involve the patient's body being penetrated are also very important since they have the ability to reveal whether the tumor is benign or malignant.

After CT evaluation, maxillary mass, nasal cavity mass, mass in the nasal cavity and maxillary antrum and ethmoid sinus was found and these masses were found extended into hard palate, alveolar process of maxilla, cheek, Skin, nasal cavity, Orbital cavity, pterygoid space, maxillary antrum, ethmoid sinus, frontal sinus, maxillary sinus, nasopharynx, opposite nasal cavity and intracranium. In 33,33 percent of the patients, bone erosion was seen, and in 46.67 percent of the cases, bone destruction was observed. There were 6.67% of instances that showed mild enhancement, 6.67% of cases that showed weak enhancement, and 33.33% of cases that showed heterogenous enhancement. On CT scan, there was no obvious sign of any neck nodes. These results were consistent with those found in studies carried out by academics from a variety of nations[8,12].During the surgical examination, an ethmoid sinus mass, a maxillary mass, mass in the nasal cavity, the antrum of the nasal cavity and the maxillary antrum were detected. This mass expanded into the hard palate (33.33 percent), the alveolar process of the maxilla (33.33 percent), the cheek (26.67 percent), and the skin (16.67 percent).

Moreover, these mass also expanded into the maxillary sinuses (6.67%), ethmoid sinuses (6.67%), frontal sinuses (6.67%), nasal cavity (16.67%), orbital cavity (13.33%), pterygoid space (13.33%) and maxillary antrum (13.33%).

Sixty percent of patients had maxillary sinusitis, 3.33 percent had nasopharyngitis, and 13.33 percent had intracranial extradural extension. In 46.67% of the instances, there was evidence of bone erosion, and in 33.33% of the cases, there was evidence of bone destruction.

In two of the four instances, eyelid spearing and orbital exenteration were performed since the tumor had spread to periorbital regions. The other two patients did not provide their permission for the procedures. During the operations, an intracranial extension of the extradural space was found in four of the patients. Following surgery, those patients who had severe disease were given recommendation to undergo radiation.

The results of the CT correlated well with those of the clinical and surgical examinations. However, our data from surgery showed that this association was quite substantial. Because of the differences in their methodologies, we were unable to find any studies that were comparable to our own. However, Kandukuri and Phatak[13] found a correlation between the clinical diagnosis and the CT diagnosis and the ultimate diagnosis, which was established by nasal endoscopy/FESS and histological results.

In the current investigation, the clinical examination had a sensitivity of 28.8% but a specificity of 100%. Both the positive and negative predictive values came in at 9.1%. The PPV was perfect at 100%. The CT assessment has a sensitivity of 78.6% but a specificity of 100%. The positive predictive value (PPV) was one hundred percent, whereas the negative predictive value (NPV) was twenty-five percent. The surgical examination has a sensitivity of 92.9% and a specificity of 100%. Both the positive and negative predictive values came in at 100% for the PPV and 50% for the NPV respectively. According to the findings of Islam et al[8] the sensitivity of CT scans for diagnosing malignant sinonasal mass was 93.30 percent, while its specificity was 96.7 percent, its positive predictive value was 87.5 percent, and its negative predictive value was 98.3 percent. According to the findings of Kandukuri and Phatak[13] the sensitivity of a CT scan to identify a malignant sinonasal mass was 94.1%, while its specificity was 99.3%, its positive predictive value was 99.27%, and its negative predictive value was 98.7%.

Conclusion:

The current study's findings suggest a clear relationship between CT scan findings and clinical and surgical outcomes. However, there is a considerable correlation between CT with surgical results. Evaluation of sinonasal malignancy using CT scans and surgical results demonstrates higher sensitivity and specificity.

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DCIMCJ

Original Article

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A Leading Cause of Death- Road Traffic Accident (RTA): A Post Mortem Study in ShSMC Morgue

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Abstract:

Background: RTA is one of the leading cause of death and create a major public health concern in Bangladesh. Now RTA is considered eighth common cause of death globally and more than 1.35 million death annually among total 50 million victims. It is not only affect victim's physical, psychological and financial sufferings but also create a detrimental negative impact on functioning the whole family. Objective: To assess the current situation of RTA in Dhaka city and surrounding area. To find out the pattern of injuries present in dead bodies, the exact cause of death, frequency of RTA in relation with socio-demographic character of the victims and to identify the measures to minimize the incidence of RTA. Methods: A descripective cross-sectional study was conducted in the department of Forensic Medicine & Toxicology, Shaheed Shorawardy Medical College (ShSMC). Results: A total of 327 medicolegal cases of RTA were brought to the mortuary of ShSMC is the basis of our study. The greater number of accidents occur during June 18.23% (60 cases), and August 16.27% (53 cases). Most of the fatalities were among the age group 22-27 years 31.19% (102 cases), followed by 28-33 years age group 20.79% (68 cases). Considering the injury patterns, all victims had multiple bruise and abrasions. Head injury 206 cases (63%), Fracture of hip bone 63 cases (19.25%), Fracture of skull bones 141 cases (43.25%), Fracture of the ribs 60 cases (18.33%) and Intracranial hemorrhage also found with all the cases of head injuries. Among the survivors, most of the injuries were grievous in nature and continue the rest of the life with different degree of disabilities. Conclusion: Huge numbers of RTA death can be reduced in a significant percentage by creating public awareness among the all road users about traffic signals and traffic safety rules.

Keywords: RTA, head injury, intracranial hemorrhage, grievous injury

Introduction:

Road traffic accident (RTA) is increasing alarmingly throughout the globe as same scenario in our country also. As we are approaching to developed country, industrialization causes increase social mobility. A huge burden of population about 200 millions, impose a pressure on transportation system.

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Disproportional increase of the number of different types of vehicle, in relation to the existing road area. There are so many causes of RTA in Bangladesh. Global main concern regarding RTA is by taking some steps, we can prevent or at least minimize a huge number of early deaths. According to Bangladesh Jatri Kalyan Samity (BJKS), RTA claim 7902 lives in 2023 and 10372 injured in 6261 incidents. In the same period, 2031 motorcycle accidents killed 2152 and injured 1339 people which

was 32.43% of the total accidents. On which 27.23% of the dead and 12.90% of the injured[1]. From the annual report of the BJKS, The number of registered vehicles as well as small vehicles like motorcycle, easy bike, Nasimon, Three wheelers etc has increased by 4 to 5 times in last 9 yrs. By ignoring the banned imposed by the government, these dangerous non-registered vehicle is found in all national and regional highways, which causes more number of accident and fatalities[3].

If we summarize the common reasons of RTA, we may find the following causes- 1) Reckless driving, 2) Violation of traffic rules, 3) Overloading of transportation vehicle, 4) Poor maintenance and fitness of the vehicles, 5) Fatigue and alcohol induced driver, 6) Lack of awareness among the road users including drivers and pedestrians, 7) Use of mobile phone while driving or walking, 8) Poor road and environment, 9) Lack of use of safety measures like, seatbelt, helmet[4] etc.

RTA not only occur by the collision of two vehicles, but also includes collision of vehicles with pedestrian, animals, road debris or other barriers like trees, utility poles, as well as derailing of the vehicles into nearby house or shops also included. Victims of RTA can be classified into 3 categories-1) Pedestrians, 2) Cyclist (Pedal or motor), 3) The drivers and passengers of vehicles, of them pedestrian are most often injured[5].The greater the speed of the vehicle at impact, the more severe injuries or fatal outcomes are likely to occur[6].

The usual characteristic injuries in pedestrians are bruise, abrasion, lacerations, fractures of the bones & dislocation of joints, Injuries of the head with Crushing of the head, avulsed lacerations in the limbs, blunt trauma to the chest & abdomen , Rupture of the viscera and vital organs. The characteristic injuries sustained by front seat passengers including drivers are abrasions, lacerations, fracture of the lower limb commonly around knee area, posterior dislocation of hip joints, steering wheel may cause bruise with severe internal injuries, fracture of the ribs & sternum, cardiac contusions, hemothorax and pneumothorax, rupture of the liver and spleen, laceration of the aorta, Intestinal avulsion, angulation injury to the spinal cord commonly in cervical region[7].

With such high costs for such a preventable problem, the world has taken RTA some innovative. According to the World Health Organization (WHO), road traffic injuries are the sixth leading cause of death in developing countries, with a greater share of hospitalization, deaths, disabilities and socio-economic losses in the young and middle-aged population. The present study is aimed to analyze the demographic features, injury pattern and outcome in different road-user categories.

Methods & materials:

This retrospective study was conducted in the department of Forensic Medicine & Toxicology, Shaheed Shorawardy Medical College (ShSMC) during the period of Jan'2022 to December '2023. A total of 327 medicolegal cases of RTA were examined and recorded. Data was collected from Inquest reports, Chalan and post mortem reports. Collected data were analyzed and were presented in tables.

Result:

Table -1: Month wise recorded cases of RTA at ShSMC morgue (n=327).

Month	No. of cases	Percentage
January	34	10.37
February	25	07.72
March	19	05.87
April	17	05.20
May	26	07.82
June	60	18.23
July	19	05.87
August	53	16.27
September	13	03.87
October	11	03.29
November	18	05.62
December	32	09.87
Total	**327**	**100.00**

Table-1 shows that maximum no. of cases recorded in month of June (18.23%), then in August (16.27%) and in January (10.37%).

Table -2:Distribution according to the sex of the victims (n=327).

Sex	Frequency	Percentage
Male	243	74.27
Female	84	25.73
Total	**327**	**100.00**

Table-2 shows with a donut chart that maximum no. of RTA victims are male (74.27%).

Table -3:Age wise distribution of no. of death in RTA (n=327).

Age group (Year)	Frequency	Percentage
10-15	17	05.19
16-21	21	06.53
22-27	102	31.19
28-33	68	20.79
34-39	21	06.53
40-45	38	11.67
46-51	25	07.73
52-57	15	04.53
58-63	11	03.27
64 and above	09	02.57
Total	**327**	**100.00**

Table-3 shows that most affected age group is 22-33 years (52%). Least no. of deaths are 64 years and above group (2.57%).

Table- 4: Distribution of cases based on site of mechanical injury (n=327).

Site of mechanical injury	Number of patients	Percentage
Head	206	63.0
Neck	5	1.60
Injuries to the thorax	25	7.50
Abdomen, lower back, lumbar spine and pelvis	11	3.5
Shoulders and upper arm	67	20.50
Elbow and forearm	46	14.00
Wrist and hand	34	10.50
Hip and thigh	14	4.25
Knee and lower leg	91	27.75
Ankle and foot	27	8.25
Involving multiple body regions	9	2.75

Table-4 shows majority of dead body (63%) have injury to the head, next is Injury to knee & lower leg (27.75%).

Table-5:Frequency of types of injuries present on the dead body (n=327).

Injury type	Frequency	Percentage
Abrasion	327	100
Bruise	327	100
Laceration	154	47.0
Fracture Hip bone	63	19.25
Fracture of Ribs	60	18.33
Fracture of Sternum	13	3.93
Head Injury	206	63
Intracranial hemorrhage	206	63
Fracture of skull	141	43.23
Fracture of upper limbs	11	3.41
Fracture of limbs	77	23.67

Table-5 shows, commonest injuries are abrasion & bruise (100%), second common injuries are head injuries and Intracranial hemorrhages (63%).

Table-6:Frequency of RTA death according to the types of vehicle (n=327).

Vehicle	Frequency	Percentage
Bus	46	13.95
Trucks, Pick-ups, Covered vans, Lorries	80	24.50
Cars, Jeeps, Microbuses	23	6.95
Auto Rickshaws	20	6.22
Motorcycle	93	28.59
Battery Powered rickshaws	31	9.42
Locally made small passengers vehicle	27	8.32
Unknown	7	2.50

Table-6 shows, Motor cycle is the main culprit of RTA death (28.59%), second common vehicles are Truck, Pick-ups, Covered vans and Lorries (24.5%).

Discussion:

Globally, Road Traffic Injuries (RTIs) have increased in the last twenty years; this makes RTIs one of the main five causes of morbidity and major cause of fatality all over the world particularly in the lowand middle-income countries world[8].

In our study, the number of RTA deaths, were highest in June 60 (18.23%), followed by August 53(16.27%). Among 327 victims, males were 243 (74.27%) probably due to more exposure to the road. Here we found majority of the victims were in the age range of 22-33 years 170 (52%), next to this age group was 40-51 years 63 (19.40%).

In this study showed almost two third (63.0%) patients were found head injury followed by 27.75% knee and lower leg, 20.50% shoulders and upper arm and 14.0%elbow and forearm. Shakeer Kahn et al.[9] head injury is commonest (68.8%) followed by knee, lower leg (32.7%) and shoulder, upper arm (23.9%). Multiple body regions were involved in 4.3% of cases. Similar observations were observed in studies where head and neck, upper and lower limb injuries constituted 66%, 44% and 41% respectively[10]. In contrast some studies found that the site of the body mostly injured was musculoskeletal extremeties[11,12]. Mishra et al.[13] found from 360 RTA cases 156 (43.32%) had head injury.

In, this study showed 31 patients were found accident in motorcycle hit among them 11(35.5%) patients in simple injury and 20(64.5%) in grievous injury. Fifteen patients were found accident in unknown vehicle hit among them 2(13.3%) patients in simple injury and 13(86.7%) in grievous injury. The difference was statistically significant ($p<0.05$) between two groups.UlBaset et al.[14] reported around 40.0% of road traffic injuries occurred while an individual was on his way to work and 21.5% occurred among individuals who were wandering on the streets. One-fifth of the victims were engaged in driving. It has been reported in different studies that more RTIs were seen among students and laborers[15]. The open design of a rickshaw could be one reason why such rickshaw pullers are at higher risk.[16]This could be clarified by the fact that people mostly travel on foot in rural areas of Bangladesh and these areas are not equipped with properly designed roads. This puts pedestrians at a higher risk of being knocked down by motor vehicles[17].

Conclusion:

Huge numbers of RTA death can be reduced in a significant percentage by creating public awareness among the all road users about traffic signals and traffic safety rules. Driver's education, fitness, restriction of alcohol intake is of a great importance. Proper implementation of existing traffic laws, can also play a vital role in minimizing the RTA. Social, electronic and print media should play a vital role in creating public awareness about RTA. Maintaining the fitness of every vehicles, limiting the additional passengers on the vehicles, mandatory use of seat belts and other safety measures, renewal of licenses by BRTA regularly, should be monitored strictly.

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DCIMCJ

Review Article

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Malnutrition: An Evergreen Issue in Nephrology

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Abstract:

Summary: Malnutrition is a common but neglected event in patients with chronic kidney disease and dialysis. The causes are multifactorial, like food restriction by the physicians, more restriction by patients, ongoing primary disease, co-morbid conditions, like infection, inflammation, cardiac cachexia and loss of nutrients in dialysis. Expensive treatment, financial constrain, depression and loss of helping hand also contribute to under-nutrition of the patient. This neglected issue acts as a risk factor for morbidity, repeated hospitalization and over-all mortality. There are many tools for assessing the severity of malnutrition. Several management protocols have been proposed by many guidelines. More attention should be paid for diagnosis and management of malnutrition for better outcome of these patients.

Keywords: Chronic kidney disease, dialysis, malnutrition, leaching technique.

Introduction:

CKD is defined as abnormalities of kidney structure or function, present for >3 months, with involvement or association or implications for health. Diabetes mellitus, hypertension and glomerulonephritis cover more than 80% causes of CKD in Bangladesh. Malnutrition is common in CKD due to injudicious food restriction by the patients and physicians as well. Up to 50% of dialysis patients may be affected due to anorexia, inflammation, infection, uremia, metabolic acidosis and loss of protein, amino acids, lipid and many vitamins in hemodialysis[1]. CAPD patient may loss protein into the dialysate fluid up to10g/day. Therefore, patients with CKD stage 3-5, dialysis or post kidney transplantation, nutrition screening should be considered at least every six months to identify those at risk of malnutrition.

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Assessment of nutritional status in kidney patients:

1. **Assessment of dietary intake:** A detailed history can identify ongoing medical (e.g. uncontrolled DM, proteinuria) and psychosocial problems (e.g. depression, poverty) which may influence nutritional intake loss. Dietary surveys should cover short-term dietary recalls (e.g., 24 hr), long-term dietary records (3-7 days) and food frequency questionnaires (FFQs).

   Alldietary surveys are limited by patient recall and generally underreported. Dietary surveys should ideally be performed by dieticians.

2. **Nutritional scoring systems:** Subjective Global Assessment - Dialysis Malnutrition Scoring (SGA-DMS) system is recommended as a reliable tool for assessing nutritional status in adults with dialysis. SGA-DMS consists of 7 features. Each component has a score from 1 (normal) to 5 (very severe[2]).

I. Weight change in past 6 months (in %):

1) No change,
2) Weight loss <5%,
3) Weight loss 5-10%,
4) Weight loss 10-15%,
5) Weight loss >15%.

II. **Dietary intake:**
1) No change,
2) Suboptimal solid diet,
3) Full liquid,
4) Hypocaloric liquid,
5) Starvation.

III. **Gastro-intestinal symptoms (>2 weeks):**
1) No symptom,
2) Nausea,
3) Vomiting,
4) Diarrhea,
5) Severe anorexia.

IV. **Functional capacity:**
1) Normal activity,
2) Difficulty with ambulation,
3) Difficulty in normal activity,
4) Light activity,
5) Bed or chair bound with no activity.

V. **Co-morbidity:**
1) mHD<12 months and otherwise healthy,
2) mHD 1-2 years or mild co-morbidity,
3) mHD 2-4 years or age >75 years or moderate co-morbidity,
4) mHD>4 years or severe co-morbidity,
5) Very severe multiple co-morbidity.

VI. **Loss of subcutaneous fat (below eyes, chests, biceps, triceps):**
1) None,
2) Mild,
3) Moderate,
4) Moderately severe,
5) Severe.

VII. **Signs of muscle wasting (deltoids, quadriceps):**
1) None,
2) Mild,
3) Moderate,
4) Moderately severe,
5) Severe.

Scoring system:
Range from 1 (normal) to 5 (very severe). Malnutrition score ranges from 7x1=7 (well nourished) to 7x5=35 (very severely malnourished). Lower score means better nutritional status. Higher score means protein energy wasting (PEW) with mild, moderate, moderate to severe and severe malnutrition.

3. Anthropometric measurements:
Anthropometric parameters are cheap and easy to measure. But they are limited by relatively wide ranges of inter- and intra-patient variability. However serial measures are useful to monitor changes in the same patient, in conjunction with other nutritional indices.

a) BMI (weight in kg/height in m^2) is the most commonly used parameter for nutritional assessment (Table 1). However, weight does not distinguish between muscle, fat mass and body fluid, therefore it may not represent the nutritional status of the patient.

Table -1: Anthropometric measurements.

BMI (Kg/m2)	Category
<18.5	Underweight
18.5 to 24.9	Normal
25 to 29.9	Overweight
30 or more	Obese

b) Percentage of weight loss:
- An unintentional weight loss of <5% would be interpreted as a normal intraindividual variation.
- An unintentional weight loss of 5% to 10% would be interpreted as an earlier indicator of increased risk of undernutrition.
- An unintentional weight loss of >10% would be interpreted as clinically significant for undernutrition[3].

a) Triceps skin fold thickness: It is an indicator of fat mass.

b) Mid-arm muscle circumference (MAMC): It is an indicator of fat-free mass. The midpoint of the upper dominant (usually right) arm is used because this is the arm less likely to have an arteriovenous fistula.The measurement is taken after dialysis for patients on mHD.

MAMC (cm) = Mid-arm circumference (cm) - (3.14× Triceps skin fold) (cm)

4. Body composition:

a) Bioelectrical impedance analysis (BIA):

- BIA is a method for estimating body composition, in particular body fat, lean tissue (muscle mass and water) and bone. Here the patient is placed on a special scale with metal plates. These plates emit a weak electrical current that travels up the body.

- BIA scale shows the amount of fat, muscle, water and even calories body burns throughout the day. BIA takes consideration of age, sex, height, physical activity and disease of the individual. In healthy people of 25 to 60 years male and female, average fat mass is 15 to 25% and 25 to 35%, respectfully. Similarly lean tissue mass is 55 to 60% and 40 to 45%, respectfully. BIA also analyses hydration of the patient. Reference values for water levels in women is 45 to 60% and in men 50 to 65%.

- A serial measures of bioelectrical impedance are increasingly used in clinical assessment of body composition of dialysis patients after dialysis. Bioelectrical impedance has some limitations and is not routinely available in all dialysis centers[4].

b) DEXA scan can be done for diagnosis of osteopenia and osteoporosis, as a component of renal osteodystrophy.

5. **Biochemical measurements:**

a) Low serum albumin reflects less protein intake, ongoing infection and inflammation. Hypoalbuminemia predicts future mortality in new dialysis patients.

b) In dialysis-dependent patients, a pre-dialysis low blood urea, creatinine, phosphate and potassium levels may indicate a decrease in protein intake.

c) A low serum total cholesterol level (below 150 mg/dl) may indicate a poor calorie intake.

d) Adequacy of dialysis: Inadequate dialysis is a common contributing factor to malnutrition. Dialysis adequacy should be assessed by urea reduction ratio, URR (target is 67%), single pool, spKt/V (target 1.4), equilibrated, eKt/V (target 1.2),weekly standard, stdKt/V (target 2.1).

6. **Functional assessment:**
Grip strength is an important tool for functional test.

Nutritional management in CKD and dialysis patients: (5)

A recent meta-analysis looked at seven studies where healthy dietary patterns with higher fruit, vegetables, fish, legumes (e.g. lentils, peanuts, beans, peas, etc), whole grain (rice, wheat, corn, barley, oats, rye, etc), and fiber and lower in red meat, salt, and refined sugars (white sugar, brown sugar, palm sugar, high fructose juice, etc.) were consumed by adults with CKD and demonstrated that these eating patterns were consistently associated with lower mortality[6].

Fluid restriction:

It is important to prevent volume overload in CKD stages 4 –5 and dialysis patients. In an oliguric patient on dialysis, daily fluid intake and weight gains should be nearly 1 kg. In an anuric patient, this should be nearly 750 – 1,000mL daily. This must be combined with salt restriction.

Protein intake:

A low-protein diet has been shown to slow the progression of CKD[7]. This may cause dangerous malnutrition, as well. Most advocate moderate protein restriction. Sources: mainly meat, fish, eggs, milk, nuts, pulses, and beans. Daily protein intake:

- CKD stages 1– 3 patents: 1.0 g / kg per day.
- CKD stages 4 – 5 patents: 0.8 – 1.0 g / kg per day.
- CKD5D (hemodialysis) patients: 1.2 g / kg per day
- CKD5PD- Peritoneal dialysis patients: 1.3 g / kg per day.
- In nephrotic-range proteinuria: 0.8-1 gram/kg (ideal body weight) /day + 1 gram protein intake for 1 gram protein loss in urine (maximum 5 gram/day).
- In non-nephrotic proteinuria with eGFR<60 ml/min: 0.8 gram/ kg/ day.

Carbohydrate intake:

Adequate energy intake is essential for patients with CKD, especially those undergoing protein restriction. Target is 30 – 35 kcal/kg per day. Sources: mainly complex carbohydrates, some from mono- or polyunsaturated fats. Examples: rice, bread, sugar, honey, jams, high-energy drinks. Combining a diabetic diet with a renal diet may be difficult and requires expert opinion from renal dietician.

Phosphate restriction:

Urine is the main route of phosphate excretion. Because hyperphosphatemia is a strong risk factor for cardiovascular mortality, predialysis serum phosphate levels should be lowered toward the normal range in all patients. Phosphate-rich foods include all protein-containing diet, examples: milk and milk-products, cheese, different types of legumes, cola and chocolate products, soft drinks, beer and other convenient food. Management of hyperphosphatemia is based on phosphate removal by dialysis, dietary phosphate restriction, and intestinal phosphate binding with phosphate binder medication. Phosphate removal is improved by high-flux HD, larger dialyzer surface area, by longer or higher frequency dialysis schedules, such as daily short HD or daily nocturnal HD.

Potassium restriction:

Potassium restriction is necessary esp. in patients taking ACE-I, ARBs, spironolactone, etc.K^+-rich foods include milk and milk products, potatoes (chips, french fry), some fruits (bananas, coconut water, grapes, dried fruit, fresh pineapple), fresh fruit juice, tomatoes, mushrooms, chocolate, and coffee. Recent studies suggest that a higher intake of dietary fibers from more plant-based sources can enhance bowel movement and gastrointestinal (GI) potassium loss and may reduce hyperkalemia and acidosis[8].

Salt restriction:

Aim for daily table salt intake is less than 2 gm (less than half of tea spoon). Salt restriction is helpful in high BP ± volume overload. Sodium-rich foods include cheese, salted butter and biscuits, tinned meat, instant noodles and soups, chips, soy sauce, tomatosauce, prickles, salted nuts, food with preservatives and coloring agents. They increase thirst, fluid intake, blood pressure and interdialytic weight gain with edema. Therefore, patient should be habituated with no added salt with meal.

Folic Acid and vitamin B complex:

In adults with CKD 1-5D or post kidney transplantation, folate, vitamin B12, and other B-complex supplements are suggested to correct deficiency based on clinical signs and symptoms.

Vitamin C supplementation:

In adults with CKD 1-5D or post kidney transplantation who are at risk of vitamin C deficiency, supplement the recommended daily intake of 90 mg for men and 75 mg for women.

Vitamin D supplement:

Daily vitamin D requirement is 1000 IU. Take oily fish 2 days/week. Sunlight exposure can produce vitamin D. Spending 15 to 30 minutes in the sun around midday (11 am to 2 pm) 3 to 4 times a week

is enough to maintain healthy level of vitamin D. Serum 25(OH)D (calcidiol) levels are low with eGFR 30mL/min or less. There are two vitamin D treatment strategies in CKD. The conventional rationale is to suppress parathyroid hormone (PTH) and control secondary hyperparathyroidism (SHPT). Failure of the kidney to produce active 1,25(OH) $_2$D is a key part of SHPT.1,25(OH)$_2$D or calcitriol is the active vitamin D normally made in kidney and widely used now-a-days.

Newer vitamin D analogue 'paricalcitol' treatment reduces PTH concentrations more rapidly with fewer hypercalcemia and high Ca x P product in comparison to calcitriol therapy.A newer justification for vitamin D treatment is correction of vitamin D 'substrate' deficiency, using non-activated vitamin D3 (cholecalciferol). Benefits of non-activated vitamin D3 is local conversion of 25(OH)D (calcidiol) to 1,25(OH) $_2$D (calcitriol) in tissues[2].

Monitoring:

Serum 25(OH)D less than 30ng/mL represents insufficiency which is usually treated with calcium 600mg with vitamin D3(cholecalciferol) 400 units. Alternate treatment is vitamin D3 colecalciferol: 40,000-unit capsule once daily for 7 days, then maintenance 40,000-unit capsule monthly.Monitor serum Ca^{2+}, PO_4, and PTH (monthly initially). Avoid high Ca^{2+} and PTH over-suppression. In adults with CKD 5D who exhibit inadequate dietary intake for long, it is reasonable to consider supplementation with multivitamins and essential trace elements to prevent or treat deficiencies[9].

Appetite stimulating agents:

Megestrol acetate is a promising progesterone derivative that improve appetite moderately in HD patients. But it has some adverse effects like hypertension, breakthrough bleeding, deep vein thrombosis, pulmonary embolism and larger trials are required before recommendations can be made for CKD patients. In some centers, mirtazapine, an antidepressant, and cannabis-based agents are considered[10].

Kidney-specific enteral supplementation:

Food supplements, in the form of high-protein, high-calorie drinks, powders, and puddings, should be considered when there are signs of protein energy wasting in dialysis patients. A systematic review suggested that enteral multinutrient support increases serum albumin concentration and improves total dietary intake in patients receiving maintenance dialysis[11].

Intradialytic Parenteral Nutrition (IDPN):

The GI is the preferred route for nutritional supplementation; however, for patients who cannot tolerate GI administration of nutrients (e.g. due to chronic pancreatitis, small gut diseases, etc.) intradialytic parenteral nutrition (IDPN) is used to provide intensive parenteral nutrient therapy. Here a concentrated hypertonic solution is infused into the venous blood channel three times weekly over 4 hours during HD treatments. IDPN typically provides 800 to 1200 kcal supplement three times weekly, in the form of glucose, fat emulsion and 30 to 60 g of protein.

IDPN therapy increases prealbumin levels and is superior after 4 months. The EuropeanSociety of Enteral and Parenteral Nutrition (ESPEN) has provided criteria for use of IDPN[12].

Practical cooking counseling:

Cooking techniques can promote the intake of legumes and vegetables by removing potassium, sodium and phosphate. This removing technique is called leaching.

1. Peel and place potatoes and other vegetables in cold water.
2. Slice into 1/3rd cm thick pieces and briefly rinse in warm water.
3. Soak in warm water for a minimum of 2 hours. Use 10 cups of water for 1 cup of vegetables. Rinse in warm water for a few minutes.
4. Cook vegetables. Use 5 cups of water for 1 cup of vegetables.

5. However, leaching does not remove enough potassium from all vegetables.
6. Soak lentils in water for 12 hours. Rinse for few minutes. Boil for 10 minutes and discard the water. Cook lentils.
7. Water soluble vitamins like vitamin B, C are lost in this method.

Constipation in kidney patients:

Usually kidney patients suffer from chronic constipation due to sedentary lifestyle, dietary habit, less fluid intake, medication (e.g. calcium, iron etc.) and primary disease (e.g. DM). To minimize constipation brown bread, brown rice, oats, selected fruits and vegetables are helpful. Take 2 less potassium containing fruits daily, like apple, guava, papaya. Take 3 types of fiber-rich vegetables daily, like lao, potol, carrot, papaya. Fluid intake medication for constipation (lactulose, lubiproston, etc) must be as per physician's advice. 30 minutes daily walking and exercise is also helpful for management of constipation. Use toilet in squatting position for better defecation.

Conclusion:

In patients with CKD 3 to 5, dialysis or post transplantation, it is reasonable for the registered dietician in close collaboration with a kidney disease physician, to assess dietary intake periodically and to consider supplementation for individuals with inadequate intake. Occult infection (e.g. gingivitis) should be looked for and treated. Renal-friend oral supplements with low salt (sodium), potassium, phosphate and low fluid volume (concentrated) should be considered. Appetite stimulants also may be helpful.Nutrition screening should be considered at least every six months to identify those at risk of malnutrition.

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DCIMCJ

Case Report

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Hydrops Fetalis with Multiple Congenital Cardiac Disease: A Case Report

Hasi HH[1]

Abstract:

Hydrops fetalis is an excess accumulation of fluid in the fetus. It occurs when abnormal amounts of fluid build up in two or more body areas of a fetus or newborn. It is a symptom of underlying problems. Depending upon the severity and causes of hydrops, there may be edema of fetus and placenta, ascites, pleural effusions and/or pericardial effusions. In previous years, most cases of hydrops were caused by severe erythroblastosis fetalis secondary to Rh isoimmunization. But most cases of hydrops fetalis are now caused by other conditions and are known as nonimmune hydrops. Here is a case of primigravida with 32 weeks pregnancy with non immune hydrops with severe fetal tachycardia suggestive of multiple congenital cardiac diseases with breech presentation.

Keywords: Hydropsfetalis, congenital cardiac disease

Introduction:

Hydrops fetalis is the Latin word for edema of the fetus. Ballantyne first described hydrops fetalis in 1892, although this condition had been recognized for almost 200 years[1]. The hallmark of the disease is the abnormal accumulation of fluid in body cavities pleural, pericardial, peritoneal and soft tissues with a wall thickness of greater than 5 mm. In addition, hydrops fetalis is associated with polyhydramnios and a thickened placenta (>6 cm) in as many as 30–75% of patients. Many affected fetuses also have hepatosplenomegaly[2,3]. The basic problem in hydrops fetalis is an imbalance in fluid homeostasis, with more fluid accumulating than can be resorbed. This imbalance can result from two broad categories of pathologies, namely, those of an immune origin and those of a nonimmune origin[4,5].

Case history:

A young lady of 26 years old,primigravida, admitted to CMH Dhaka at her 32 weeks of pregnancy with the complaints of-Less perception of fetal movement for last 2 days.AccordingtoherLMP and early USG her EDD was dated on 16th December 2016. She is married for 5 years. It was her planned pregnancy and her pregnancy was uneventful up to 20 weeks of gestation. At her 20 weeks of gestation she was admitted to CMH Dhaka for viral hepatitis A infection. After that she reported to OPD at her 32 weeks of gestation for less perception of fetal movement and was advised for USG of pregnancy profile which revealed fetal hydrops with fetal tachycardia.

On physical examination all vital parameters were within normal limit. On per abdominal examination-symphysiofundal height was 34 cm and there was a single fetus with longitudinal lie with breech presentation and liquor volume was seems to be adequate. FHR was 240 beats/min to 250 beats/min.

USG of pregnancy profile showed - 35 weeks single live pregnancy with severe fetal tachycardia (FHR-245-260b/min), bilateral moderate pleural effusion, large ascites, moderate scalp edema, bilateral hydrocele with breech presentation.

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Fetal Echocardiogram was done which revealed:

- Pulmonary atresia, RVOT appears blind
- Large ASD Secendum measuring 06mm
- Large VSD almost amounting to single ventricle.
- Pulmonary venous connection appears normal.
- Huge pericardial effusion 13 mm seen all around the heart compressing the heart walls.
- Tamponed effect noticed

TORCH Panel was done and CMV IgG and HSV Type -1 IgG was found positive. Her Hb% was 9.5 gm/dl and Blood group was B positive.

The patient was treated with joint consultation with Obstetrician, Fetomaternal specialist, Pediatric cardiologist and Neonatologist. She was treated with-Inj Dexamethasone, Tab Digoxin, Tab Calcium, Iron and Vitamins. But fetal tachycardia did not improve and patient party was properly counseled about the present condition and future prognosis of the baby. Due to strong desire of the patient party the baby was delivered by LSCS. A male baby of 2.3 kg was delivered. Baby was admitted to NICU and diagnosed as a case of preterm low birth weight baby with complex congenital heart disease with hydropesfetalis.

In NICU chest x-ray, ECG, Echocardiography of the baby was done and found large ASD, large PDA, pericardial effusion with supraventricular tachycardia. Coagulation profile was done and found APTT, PT were raised, INR-2.42.

The baby was put on CPAP and treated with broad spectrum antibiotic, Inj Lasix, Inj Digoxin, Injvit-k, InjEsmolol and fresh frozen plasma. But the condition of the baby detoriated and baby was put on mechanical ventilator. In addition of previous treatment, the baby was given Tab Propranolol, Tab Sildenafil, Inj Dopamine, Inj 20% Human Albumin and Inj Ranison. On 4th day aspiration of pleural fluid was done but the baby developed bradycardia and Injdobutamin, Inj Adrenalin, Inj Cotson was given. But in spite ofgiving all supports the baby died at 4th day after delivery.

Discussion:

Hydrops fetalis refers to fluid accumulation in serous cavities and/or edema of soft tissues in the fetus. It is characterized as nonimmune if there is no indication of a fetomaternal blood group incompatibility[6]. The incidence is approximately 1 in2500 to 1 in 3500 neonates. Hydrops fetalis usually stems from fetal anemia, when the heart needs to pump a much greater volume to deliver the same amount of oxygen. But nonimmune hydrops can also be unrelated to anemia. The increase demand of cardiac output leads to heart failure and corresponding edema[7]. The causes of nonimmune hydrops can be grouped in broad categories like Cardiovascular (21.7%), Chromosomal (13.4%), Hematologic (10.4%), Anemia (9.3%), Infection (6.7%), Placental (5.6%), Syndromic, Skeletal dysplasias, Extra thoracic tumors, Twin –twin transfusion (donor)[8, 9-12]. Cardiac causes of non anemichydropsfetalis (NAHF)include-structural heart disease, fetal tachyarrhythmia, cardiomyopathy, and myocarditis. Structural heart disease has been reported in 13.8 to 40% of all NAHF cases[12,13]. After 24 weeks of gestation, congenital heart disease is the most common cause of hydrops fetalis[10,11].

Congestive heart failure is the primary cause in these cases and can be due to major anatomical cardiac anomalies such as a large atrio-ventricular septal defect (16%), hypo plastic left or right heart condition, and critical aortic stenosis[14]. Fetal echocardiography is a useful tool for diagnosis and monitoring the progress of disease. Sustained fetal supraventricular tachycardia is rare, but frequently leads to NAHF. NAHF due to Wolff-Parkinson-White syndrome or tachyarrhythmia due to atrial flutter can be successfully treated with anti-arrhythmic medication[10,15,16].Maternally administered Digoxin is the first line treatment option to resolve fetal hydrops due to cardiac arrhythmia. Sotalol, Amiodarone can also be used to convert normal sinus rhythm in utero.

Conclusion:

Hydrops fetalis is a challenging entity for both the obstetrician and the neonatologist. This case report

has highlighted the association between congenital cardiac disease and hydrops fetalis. Early detection by fetal anomaly scan and fetal echocardiography is needed to ensure early start of management. As the fetal mortality rate (intrauterine or after birth) is very high, parents counselling is also a very important part of management.

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