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INFORMATION FOR AUTHORS

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General Instructions

◗ Type manuscripts double-spaced, on a good quality A4 sized paper, including references, figures with legends and tables on one side of the page only.

◗ Use Times New Roman 12 sized font.

◗ Leave a margin of 1-inch on all sides of the page. Beginning with abstract page, all the pages (including pages containing tables, figures and references) will contain page numbers at the lower right hand corner.

◗ Cite each reference in text in numerical order and list in the reference section.

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◗ Present the text in the sequence of Introduction, Methods & Materials, Results and Discussion.

◗ Use SI units of measurements (for blood pressure use mm of Hg).

◗ Define Statistical methods in method section of the paper.

◗ Use standard abbreviations, the full forms of which should precede in its first use in the text

◗ As a general rule, articles should not exceed 10-12 pages. Too much large volume manuscripts will not be accepted for publication

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Title page with author information (first page, but do not number).

Text page must include:

◗ Full title of the article not exceeding 50 characters with three to five key words for use as indexing terms and as running title for use on top of the text pages

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The acknowledgments pages (Second page, but do not number)

◗ List all sources of funding for the research, plus substantive contributions of individuals. (Note: If the article is published, this section will be printed at the end of the text).

Abstract page (First numbered page)

◗ Do not cite references in the abstract. Be concise (250 words, maximum).

◗ Limit use of acronyms and abbreviations. Abbreviations must be defined at the first mention.

◗ The abstract should cover Background and Purposed (description of rationale for study); Methods (brief description of methods); Results (presentation of significant results); and Conclusion (succinct statement of data interpretation) in a running manner and not under separate headings.

The Text

The following are typical main headings:

Introduction, Materials and Methods, Results, Discussion and Conclusion

◗   Introduction: Summarize the rationale for the study with pertinent references. The purpose(s) of the study should be clearly stated.

◗   Materials and Methods: Identify type of study and describe the study subjects and methods used. Provide methods of statistical analysis, Cite reference(s) for standard study and statistical methods. Describe new or modified methods. Identify apparatus (with name and address of manufacturer) used. Generic names of drugs must be given. Manuscripts that describe studies on humans must indicate that the study was approved by an Institutional Ethical Committee and that the subjects gave informed consent. Add statistical analysis.

◗   Results: Present only important results/observations in logical sequence in the text, tables or illustrations with relevant statistics.

◗   Discussion: Emphasize new and important results and the conclusions that follow including implications and limitations. Relate observations to other relevant studies.

◗   Reference - Accuracy of reference data is the author's responsibility. Verify all entries against original sources, especially journal titles, inclusive page numbers, publication dates. All authors must be listed if less than six. Use et al, if more. Personal communications, unpublished observations, and submitted manuscripts must be cited in the text as "([Name(s)], unpublished data, 20XX)." Abstracts may be cited only if they are the sole source and must be identified in the references as "Abstract". "In press" citations must have been accepted for publication and add the name of the journal or book including publisher. Use Vancouver style, for example.

   1.   World Health Organization: WHO Recommendations: Obesity: Preventing and Managing the Global Epidemic. Geneva, World Health Org., 2000 (Tech. Rep. Sen, no. 894).

   2.   Rashid M. Food and Nutrition. In Rashid KM, Rahman M, Hyder S eds. Textbook of Community Medicine and Public Health 4th edn. RhM Publishers 2004;126-140.

   3.   Sayeed MA, Hussain MZ, Banu A, Rumi MAK, Azad Khan AK. Prevalence of diabetes in a suburban population of Bangladesh. Diab Res Clin Pract 1997;34:149-155.

   4.   Jarrett RJ. Insulin and hypertension (Letter). Lancer 1987; ii: 748-749.

Tables

◗   Each table must be typed on a separate sheet and double-spaced. The table number should be Roman, followed by a brief informative title. Place explanatory matter in footnotes. For footnotes use symbol in this sequence. *, **, t, tt" etc.

Figures

◗   Line drawings, photomicrographs, colour prints and halftones should be camera ready, good quality glossy prints (highest quality reproduction with 300 dpi or higher). Submit only originals of laser prints, not photocopies. A set of original figures must be submitted. Indicate figure number, short figure title on top of figure lightly in pencil. Any abbreviations or symbols used in the figures must be defined in the figure or figure legend. Legends or captions for figures should be listed on a separate page, double spaced. Keep an extra set of original figures for your records.

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Contents

Editorial

MULTI-DRUG RESISTANT TUBERCULOSIS (MDR-TB)

MDR-TB is a social problem, because the most serious danger of MDR-TB is that it is much more difficult to treat even where second line drugs are available. Treatment of MDR tuberculosis can take at least two years & the results are poor. Second line drugs cost is 30 times more. Patients with MDR-TB may need to be hospitalized & isolated which adds to the cost of treatment to prevent.

Multidrug Resistant Tuberculosis (MDR-TB)

Multidrug resistant tuberculosis is defined as tuberculosis resistant to at least isoniazid & rifampicine, the two most potent anti-TB drugs. (1)

MDR-TB : Bangladesh perspective.

There is no national data on drug resistance in Bangladesh. In collaboration with CDC, ICD-DR.B, Bangladesh conducted drug-susceptibility testing sample of 657 patient showing 3% & 15% MDR-TB among new & previously treated TB patients respectively.(2)

Damien Foundation has also conducted two drug-resistance studies in 1995 & 2001 comprising 645 & 1041 patients. the 1995 stusy showed 0.7 % and 6.8% MDR-TB among new and previously treated TB patients.(3)

A study conducted in 2005- 2006 showed that Category II failures 88% had MDR-TB.(4)

Causes of multidrug-resistant TB

Although its causes are microbial, clinical & programmatic, MDR-TB is essentially a man-made phenomenon.

from a microbiological perspective, resistance is caused by a genetic mutation that makes a drug ineffective. An inadequate or poorly administrated treatment regimen allows drug-resistant mutants to become the dominant strain in patient infected with tuberculosis.

Factors of inadequate anti-TB treatment are noncompliance with national guidelines, poor training, no monitoring of treatment of health-care providers & also poor quality of anti-TB drugs, unavailability of drugs or poor storage conditions or may be wrong dose or combination.

Types of drug resistance

1. **Mono-resistance**

   Resistance to one type of drug e.g isoniazid.

2. **Poly-resistance**

   Resistance to more than one type of drug e.g streptomycin, isoniazid & ethambutol.

3. **MDR-TB**

4. **Extremly   drug-resistance   tuberculosis (XDR-TB)**

   This is subcategory of MDR-TB. XDR-TB is defined as MDR-TB plus resistance to

   quinolone & an injectable second line drug(kanamycin, capreomycine).

So MDT-TB is an emerging health problem all over the world, specially in developing countries and all the concerned authority engaged in National Tuberculosis & Leprosy Control   Program should give emphasis to this emerging public health problem.

Prof. Dr. Md. Azfarul Habib

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TMSS Medical College, Bogra.

Reference

1. DGHS & WHO, 4th edition
National guidelines & operational manual
for tuberculosis control.

Original Articles

Role of recombinant kinetoplast 39 immunochromatographic test for diagnosis of post kala-azar dermal leishmaniasis

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Abstract

Background: Post kala-azar dermal leishmaniasis (PKDL) is a sequel of visceral leishmaniasis (VL) and PKDL patients are an important reservoir for anthroponotic transmission of VL. Therefore, diagnosis and treatment of PKDL is important for the kala-azar elimination program in South Asia, including Bangladesh. While definitive diagnosis of PKDL is still based on microscopy, despite the low sensitivity of this method of diagnosis. Recombinant kinetoplast 39 Immunochromatographic test (rK39 ICT) for detection of kinetoplast antibody against Leishmania parasites from blood is expected to be a rapid and sensitive diagnostic method. **Objective:** To see the efficacy of rapid diagnostic test of rK39-based ICT in comparison with skin biopsy specimens for LD body detection in PKDL cases endemic area. **Mathodology:** This cross sectional comparative study will explore the rapid sensitive method for diagnosis of PKDL. Both skin biopsy specimens and blood samples were collected from 91 patients suspected to have PKDL from six upozilla health complexes in Mymensingh district, Bangladesh. After smear preparation and staining LD bodies were detected from skin biopsy and antibody ware detected from blood by using rK39 ICT method. For all the statistical analysis p<0.05 was considered as significant. **Result:** Using microscopy, we identified 57 samples (62.6%) that were positive for Leishmania. rK39-based ICT indicated that 85 samples (93.4%) were positive for Leishmanial antibody which were statistically significant. **Conclusion:** rK39-based ICT for detection of antibody from blood is the most sensitive and easier method for diagnosis of Post Kala-Azar Dermal Leishmaniasis patients from an endemic area of Bangladesh.

Key wards: Recombinant kinetoplast 39 ICT, Leishman Donovan body, PKDL

Introduction

Kala-azar or visceral leishmaniasis (VL) is a symptomatic infection of the liver, spleen, and bone marrow that is caused by Leishmania donovani complex, L.donovani, L. infantum (syn. L. chagasi). Leishmania currently infects about 12 million people in 88 countries, causing approximately 57,000 deaths annually, with 350 million individuals at risk. More than 90% of all VL cases are from India, Nepal, Bangladesh, southern Sudan, and northeast Brazil[1]. In Bangladesh, the highest number of VL cases was recorded in the district of Mymensingh, where the average annual incidence rate between 1994 and

2004 was 5.8/10,000; currently, the incidence rate is as high as 300/10,000 in the most affected communities[2,3]. Post kala-azar dermal leishmaniasis (PKDL) is a complication or sequel of VL and occurs in nearly 10–20% of patients who have been cured of VL in India and approximately 50–56% of such patients in Sudan[4,5]. In India, the disease occurs 1–20 years after recovery from VL. In contrast, in Sudan, PKDL most often develops during treatment or within months after completion of VL treatment and the symptoms may persist for decades in some patients. Clinically, the condition is characterized by the appearance of macules, papules, or nodules in the skin[6]. Affected persons,

though clinically well, harbor the Leishmania parasite in their skin lesions, and thus become an important reservoir in anthroponotic transmission of leishmaniasis[7]. Although PKDL has been commonly diagnosed by microscopy, the sensitivity of this technique is low due to the very low number of parasites in slit skin smears and skin biopsy specimens. So, aim of this study is to find out rapid and most sensitive method for diagnosis of PKDL cases.

Materials and Methods

Study area and population

This cross sectional comparative study was conducted at the Department of Microbiology Mymensingh medical College including five upozilla health complexes of Mymensingh district since January 2011– December 2011. The total sub-centres of these health complexes are endemic for leishmaniasis in Bangladesh. A predesigned questionnaire was used to fill up regarding history of kala-azar and treatment received along with other demographic parameters after obtaining verbal consent.

Case definitions

Probable PKDL is a patient from endemic area for kala-azar with multiple hypopigmented macules, papules or plaques or nodules with no sensitivity loss. Confirmed PKDL is a patient from an area endemic for kala-azar with multiple hypopigmented macules, papules, plaques or nodules who is positive for parasite in a slit skin smear and/ or rk39 ICT test. A cure case is defined as complete disappearance of skin lesion(s) after treatment, as reported by the patient and assessed by the clinician and also negative by Microscopy and rK39 ICT.

Laboratory methods

All rk39 positive cases with or without history of kala-azar but having signs of PKDL and hence considered as probable PKDL cases were examined clinically. Slit skin a scraping was collected from lesion for diagnosis by two different methods.

Collection of slit skin scraping for smear for microscopy

The affected area of the skin was cleaned with 70% v/v alcohol and allowed to dry completely. The margin of the lesion was squeezed firmly between the finger and the thumb to drain the area of blood. Using a sterile scalpel blade, a small incision was made into the dermis. The cut surface was then scraped in an outward direction to obtain the tissue fluid and cells for smear.

Examination for LD body

Smears were prepared on clean glass slide and one part of the scraping sample was examined by two experts' microbiologist following Giemsa staining.

Examination for *M. leprae*

Another part of slit skin smears examined following Ziehl-Neelsen staining to exclude *Mycobacterium leprae*.

Data analysis: Chi-square test was used to compare the sensitivity of two diagnostic methods.

Result

rK39 ICT exhibited a considerably higher positive rate (93.4%) than microscopy (62.6%) among the macular, papular and nodular specimens, which were the most common. The detection rates in papular and nodular lesions were higher using the two detection methods (Table 1 & 2). This finding suggests that macules do not contain as much Leishmania parasite as papules and nodules. In all patient groups, regardless of time after VL treatment, the highest detection rates were obtained using ICT followed by microscopy.

Table 1: Result of rK39 ICT of PKDL cases

Forms	Total	Positive	Percent
Macular	13	10	76.9
Papular	24	23	95.8
Nodular	54	53	98.1
Total	91	85	93.4

Figure 1: Result of rK39 ICT of PKDL cases

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.816(a)	2	0.090
N of Valid Cases	91		

a   1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.86.

Table 4: Age group distribution of positive Microscopy cases (n=57)

Age group	Microscopy		Total
	Found	Not found	
6-10 yrs	15(71.4%)	6(28.6%)	21
11-15 yrs	23(67.6%)	11(32.4%)	34
16-20 yrs	9(60.0%)	6(40.0%)	15
21-25 yrs	3(50.0%)	3(50.0%)	6
25-30 yrs	3(42.8%)	4(57.2%)	7
> 30 yrs	4(50.0%)	4(50.0%)	8
Total	57	34	91

Table 2: LD body detection by Microscopy

LD body	Frequenc y	Percent
Found	57	62.6
Not found	34	37.4
Total	91	100.0

Figure 2: LD body detection by Microscopy
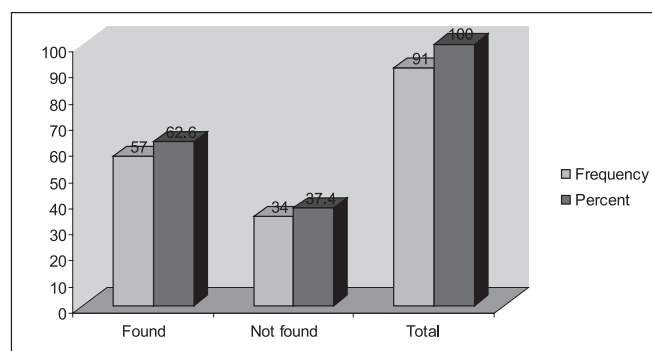
L.D body detection rate comparatively higher in nodular lesion than other clinical types (Table-3) and age group between 6-10 years (Table-4).

Table 3: Distribution of positive Microscopy cases (n=57) among the lesions

Form	Total sample	LD body found	Percent
Macular	13	5	38.5
Papular	24	14	58.3
Nodular	54	38	70.4
Total	91	57	62.6

Chi-Square Tests

	Value	df	Asymp. Sig.(2-sided)
Pearson Chi-Square	3.228(a)	5	0.665
N of Valid Cases	91		

a   5 cells (41.7%) have expected count less than 5. The minimum expected count is 2.24.

Discussion

There are few reports of community-based study regarding prevalence of PKDL in endemic areas of India[7,9]. In our study 57 patients developed PKDL out of 91 individuals having past history of VL with a prevalence of 62.6% which is higher than that reported from India[7,8], Bangladesh[11] and Nepal[10]. These patients have all been detected by active survey during house-to-house visit. Among 57 PKDL cases, 38 patients had nodular forms from whom parasite could be detected quite easily, which implies that these lesions are more accessible to KA vector–sandfly. The role of nodular PKDL forms in transmission of kala-azar is significant[12].

Any delay in detection of macular forms of PKDL may have double impact: further transmission of PKDL by vector and subsequent development into nodular forms where parasites are easily accessible to the sandfly. Proper diagnosis of PKDL cases in the field level which is primarily dependant on clinical manifestations is a real problem[8].

Previous reports indicated that microscopy had a detection rate between 4% to 58% for LD bodies in skin smears[6,12,13]. The sensitivity of this technique is low due to the very low number of parasites in slit skin smears and skin biopsy specimens. The rate of detection of PKDL cases by microscopy from skin scraping sample depends upon the selection of lesion site and collection of scraping sample which varies from person to person as the distribution of parasite throughout the lesion is not homogeneous. The low sensitivity of the diagnostic technique prolongs the time to diagnosis[9].

The immunochromatography test (ICT) with rK39, a recombinant antigen, has been found to be highly sensitive and specific for detection of antibodies in patients with VL and PKDL[15]. In the present study all suspected PKDL cases and those with past history of VL tested positive for anti-leishmanial antibody. Though this test is sensitive, diagnosis based on rK39 strip test is not conclusive for PKDL because of the persistence of anti-leishmanial antibodies after *L donovani* infections[16].

A PCR based diagnostic method for leishmaniasis, in which conserved sequences in leishmanial kinetoplast mini-circle DNA is amplified, has been developed in recent years. The PCR-based molecular diagnostic method is anticipated to provide a powerful approach to the diagnosis of leishmaniasis[14,17,18]. This PCR-based molecular diagnosis was done in Microbiology laboratory at MMC and detection rate that

sensitivity of primary PCR was 65.4% (17 out of 26) which increased to 88.5% (23 out of 26) in nested PCR. So in cases having no past VL history, rK-39 test is sufficient for differential diagnosis but in cases with history of VL, PCR is the only way to solve the problem.

Conclusion

rK39-based ICT for detection of antibody from blood is the most sensitive and easier method for diagnosis of Post Kala-Azar Dermal Leishmaniasis patients from an endemic area of Bangladesh.

Conflict of interest: None to declare.

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Association of Serum Calcium with Acute Myocardial Infarction

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Abstract

Background: Acute myocardial infarction (AMI) is a leading cause of morbidity and mortality worldwide. The incidence of AMI is dependent on certain traditional predisposing risk factors. In addition with the traditional risk factors, raised serum calcium level is also being considered as an associated factor for AMI. **Objective:** The aim of the study is to evaluate the association of serum calcium level with acute myocardial infarction in a tertiary level hospital in Bangladesh. **Materials and Methods:** A case control study was conducted in the Department of Biochemistry, Dhaka Medical College, Dhaka from January 2013 to December 2013. In this study, 50 diagnosed cases of AMI from DMCH and 50 age and sex matched apparently healthy subjects were selected from DMCH purposively according to the selection criteria. Blood pressure, height and weight were measured and BMI was calculated. Biochemical parameters-serum calcium and fasting blood glucose in two groups were estimated in mmol/L respectively. Then serum calcium was compared between two groups to observe the association with AMI. Results were analyzed statistically in SPSS version 17.0. Unpaired student's t-test and Spearman correlation analysis were done. All the results were expressed as mean ±SD and p value <0.05 was accepted as level of significance. **Results:** Present study showed that serum calcium level was significantly higher in cases when compared with that of controls (p=0.001) which was 2.61±0.15 mmol/L and 2.13±0.15 mmol/L in cases and controls respectively. Serum calcium also showed a significant positive correlation with AMI (rho=0.858, p=0.001). **Conclusion:** Findings of study concludes that increased serum calcium is associated with AMI in a tertiary level hospital in Bangladesh.

Key words: Acute myocardial infarction, Serum calcium, Hypercalcemia.

Introduction

The calcium ion is an essential regulator in many homeostatic systems, including vascular tone, hormone secretion, and intermediary metabolism (Campbell et al., 1983)[1]. Calcium is also essential for nerves, muscles, heart and other body system to work properly.

Calcium ion not only plays a role in regulating variety of physiological events, it is also involved in developing pathological condition mainly in heart. Increased level of calcium causes coronary artery and peripheral arteriolar constriction by binding with the heart and smooth muscle through calcium receptor and thus increases cardiac contractility and causes diminished oxygen supply to myocardium. This eventually increases the risk of cardiovascular disease. According to Nadia (2011)[2], increased level of calcium causing abnormality of heart leading to excessively forceful or tight contraction causes increased and irregular heartbeat (tachycardia and arrhythmia).

A calcium overload also causes increased blood pressure, coronary artery calcification[3, 4, 5] and progression of atherosclerosis that involves lipid as well as collagen, elastin and calcium accumulation in coronary vasculature. Myocyte infiltration, endothelial injury, smooth muscle proliferation and migration are also involved in coronary atherosclerosis. Several of these processes are also mediated by calcium ion[6].

Moreover, calcium is involved in other events such as coronary spasm, thrombus formation and disruption of atherosclerotic plaque, occlusion of coronary artery following rupture of vulnerable atherosclerotic plaque which can cause myocardial infarction and sudden death[7]. Various studies in different parts of the world suggest that serum calcium is strongly associated with myocardial infarction[8, 9]. In a study Lind et al. (1997)[9], serum calcium has been found to be an independent, prospective risk factor for myocardial infarction in Swedish middle-aged men. In another study by Palmer et al. (1987)[10] suggested that not only hypercalcemia is associated with AMI, but also slightly elevated serum calcium levels within the normal range are of importance.

The incidence of myocardial infarction is also increasing in Bangladesh. Rates of cardiovascular disease have risen greatly in low-income and middle-income countries[11, 12,13] with about 80% of the burden now occurring in these countries. Effective prevention needs a global strategy based on knowledge of the importance of risk factors for cardiovascular disease in different geographic regions and among various ethnic groups. Risk factors for coronary heart disease vary between populations, e.g., lipids are not associated with this disorder in South Asians[13] and increases in blood pressure might be more important in Chinese people.[14] Known risk factors (generally smoking, hypertension, raised lipids, and diabetes) are being identified and treated. But the incidence rate is still high because these risk factors have been claimed to account for only about half the risk of a myocardial infarction[13]. So, there is a pressing need to identify the associated risk factors of AMI to reduce the incidence and mortality rate.

The relationship between serum calcium and AMI is becoming clear day by day from different studies done around the world. But very little study is reported so far in Bangladesh. Thus, the present study was designed to observe the association of serum calcium concentration with acute myocardial infarction in Bangladeshi population.

Materials and Methods

A case control study was conducted in the Department of Biochemistry, Dhaka Medical College, Dhaka from January 2013 to December 2013. In this study 50 diagnosed cases of AMI and 50 age and sex matched apparently healthy subjects were selected purposively according to selection criteria. The cases were selected from DMCH. The diagnosis of AMI was based on the electrocardiogram, ischemic cardiac pain lasting at least 30 min, and change in Troponin I. Variables such as smoking, history of hypertension, diabetes mellitus, hypercholesterolemia, height, body weight, current medication prior to the AMI during admission were recorded. Blood pressure, height and weight were measured and BMI was calculated. Biochemical parameters- fasting serum glucose and serum calcium in two groups were estimated in mmol/L respectively. BMI, blood pressure, serum calcium and fasting serum glucose were compared between cases and controls. Results were analyzed statistically in SPSS version 17.0. Unpaired student's t-test and Spearman correlation were done. All the results were expressed as mean ±SD and p value <0.05 was accepted as level of significance.

Results

Demographic characteristics of the patients are presented in table I. All general characteristics are significantly different between cases and controls except for ages and blood glucose. Mean (±SD) of age (in years) of the cases and controls were 53.30±6.74 and 51.86±7.30 respectively. There was no statistically significant difference of mean age between two group (p=0.308).

Table I: Demographic characteristics of the subjects

Variables	Case n=50 Mean±SD	Control n=50 Mean±SD	p value
Age (years)	53.30 ± 6.74	51.86 ± 7.30	0.308
Male sex n (%)	31 (64%)	31 (64%)	
Female sex n (%)	19(38%)	19(38%)	
SBP (mm of Hg)	137.80±14.92	124.70±11.35	0.001
DBP (mm of Hg)	88.70±10.24	79.60±7.61	0.001
BMI(Kg/m²)	27.34±3.37	25.30±3.42	0.001

Unpaired students t-test was done to measure the level of significance; Significance = (p<0.05).

Table I also showed that mean of SBP was significantly higher in cases when compared with that of controls (p =0.001) which were 137.80±14.92 mm of Hg and 124.70±11.35 mm of Hg respectively. Mean (±SD) of DBP was also significantly higher in cases than that of controls (p=0.001).

Table II: Biochemical parameters of study subjects

Variable	Case (n=50) Mean±SD	Control (n=50) Mean±SD	P value
Serum calcium (mmol/ L)	2.61 ± 0.16	2.13 ± 0.15	0.001
Fasting blood sugar (mmol/L)	5.3±0.821	5.2±0.709	0.297

Unpaired student's t-test was done to measure the level of significance. Significant= (P<0.05).

Table II shows the biochemical parameters of the study subjects. Mean (±SD) of serum calcium were 2.61±0.16 mmol/L and 2.13±0.15 mmol/L in cases and controls respectively and it was significantly higher in cases (p=0.001). Fasting blood glucose of the cases and controls were 5.3±.821 and 5.2±.709 respectively. There was no statistically significant difference of mean blood glucose between two group (p=0.297).

Table III: Correlation between s. calcium and AMI (yes/no).

Study subjects	rho value	p value
AMI (Y/N)	0.858	0.001

rho= Spearman's correlation coefficient; Significant= (P<0.05).

The correlation of serum calcium and AMI was done by Spearman correlation test. The result shows significant positive correlation (rho=.858, p=.001) between serum calcium and AMI (Table III).

Discussion

In the present study, Serum glucose was estimated in cases and controls to exclude diabetes. All the subjects in the study were non diabetic with the mean (±SD) fasting serum glucose 5.3±8.21 mmol/L and 5.2±.709 mmol/L in cases and controls respectively. Serum Troponin I was estimated and ECG monitoring was done to diagnose the AMI.

The present study revealed that the mean (±SD) serum calcium concentration was 2.61±.16 mmol/L and 2.13 ± 0.15 mmol/L in AMI cases and healthy controls respectively. In the current study we found that, serum calcium level was significantly higher (p=.001) in AMI cases than that of controls. Similarly, previous study by Lind et al. (1997)[9] found that subjects with a history of MI had significantly higher serum calcium than those without infarction. Our finding of a positive association between elevated serum calcium level and AMI is also consistent with other studies[8, 15]. Herrmann et al. (1986)[16] demonstrated that increased serum calcium predisposes calcific deposition in the valve cusps and coronary arteries, which could cause significant aortic valve stenosis and accelerate coronary atherosclerosis, this can mismatch the myocardial oxygen supply and demand.

The mechanisms underlying the associations between circulating calcium, cardiovascular risk factors and cardiovascular disease appear to be multiple and complex. The calcium-sensing receptors are expressed in the vascular smooth muscle and endothelial cells and mediate some of the effect of circulating calcium on vascular tone[17]. Thus, serum calcium may be involved in regulating blood pressure by controlling vascular smooth muscle cell contractility and modulating peripheral vascular resistance[18, 19].

The present study showed mean ($\pm$SD) of SBP and DBP in cases were 137.8$\pm$ 14.92 mm of Hg and 88.70$\pm$10.24 mm of Hg and in controls 124.7$\pm$ 11.35 mm of Hg and 79.60$\pm$ 7.61 mm of Hg respectively. This findings supports the study in a Swedish population where it has shown that the mean value of SBP and DBP were 138$\pm$21 mm of Hg and 87$\pm$13 mm of Hg in cases and 132$\pm$17 mm of Hg and 83$\pm$10 mm of Hg in controls respectively[9]. Current study showed that the difference was statistically significant between two groups (p=0.001) in respect of SBP and DBP. In contrast to our findings, the study by Buckley (1987)[20] in 325 males and the study by Andersen (1984)[21] in 70 men and women from Denmark have reported hypertension is associated with lower serum calcium. These inconsistencies might have occurred due to different selection criteria used for study subjects and population, and different methodology.

In this study, mean ($\pm$SD) of BMI was 27.34$\pm$3.37 Kg/m^2 in AMI cases which was significantly higher that of controls (p=.001). In this study subjects with AMI has higher BMI and higher serum calcium than that of controls, similar to other studies[9, 22]

In our study, Spearman correlation coefficient shows a significant positive correlation between serum calcium and AMI subjects (rho=0.858, p=.001) suggesting increased serum calcium level significantly increases the chances of AMI. Similarly, Cohort study by John et al. (2013)[23] suggested that plasma calcium is a predictor of CVD and a predictor of MI[8, 9] as well as a predictor of cardiovascular mortality[24, 25]. However, in Framingham study and Atherosclerosis risk in Communities (ARIC) study calcium was not found to be a predictor of cardiovascular disease in age- and sex-adjusted or multivariable-adjusted models[26, 27]. Another study done by Jin Y et al. (2013)[28] demonstrated that serum calcium levels are not associated with IHD. The conflicting results from these studies may reflect demographic differences between participants or differences in analysis. Findings of our study suggested that, increased serum calcium is positively associated with AMI in both sexes.

Conclusion

This study permits to conclude that increase serum calcium is associated with AMI. However, the combined evaluation of increased serum calcium and other risk factors might help to assess the risk of future occurrence of acute myocardial infarction as well as reduce the incidence of AMI.

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Evaluation of Serum Creatinine in Essential Hypertension

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Abstract

Back ground: Persistent hypertension is one of the major risk factors and is a leading cause of chronic kidney disease (CKD). Mild to moderate essential hypertension usually causes significant renal function impairment only after a number of years. So, we designed this present study to evaluate serum creatinine and creatinine clearance in hypertensive patients. **Objectives:** To assess the renal function of hypertensive patient and compare the findings with those found in normotensive person. **Materials and Methods:** This case control study was done at Department of Biochemistry, Mymensingh Medical College, Mymensingh during the period of January 2010 to December 2010. A total of 143 subjects of both sexes were selected for the purpose. Out of them 73 were case and 70 were control. The subjects were classified into following groups ; Group I includes of 73 were essential hypertensive subjects. Group II includes of 70 were apparently healthy adult. All statistical parameters analysis were done by SPSS 12.0 P value,<0.05 was considered as significant. **Results:** There was significant (P<0.05) increase in serum creatinine in subjects with hypertension in comparison to that of the control. There was significant (P<0.05) decrease in creatinine clearance (CrCl) in subjects with hypertension in comparison to that of the control. **Conclusion:** Monitoring of serum creatinine and creatinine clearance before and during treatment of hypertension is required to prevent end stage renal disease (ESRD) and other consequences.

Key words: Essential hypertension, Creatinine clearance, Renal function, End Stage renal disease (ESRD).

Introduction

Hypertension (HTN) or high blood pressure is a chronic medical condition in which the blood pressure is elevated. It is classified as either primary (essential) or secondary. About 90-95% cases are termed as primary hypertension , which refers to high blood pressure for which no medical cause can be found. The remaining 5-10% cases (secondary hypertension) are caused by another conditions that affect the kidneys, arteries, heart or endocrine system[1]. Persistent hypertension is one of the risk factors and is a leading cause of chronic kidney disease (CKD). Increasing evidence suggests renal involvement in hypertension related to cardiovascular and cerebrovascular diseases[2].

Hypertension is the commonest cardiovascular disease in all over the world including Bangladesh[3]. Surveys indicate that 15-20% of the adult population (18 years and above) in Bangladesh suffers from hypertension. About 70% of strokes, 23% of myocardial infarction and 11% of renal failures are due to hypertension in Bangladesh[4].

Hypertension and renal function are closely related. The kidney has several functions including the excretion of water soluble waste e.g. urea and creatinine and foreign materials like drugs. It is responsible for electrolyte balance and acid/base status[5]. When kidneys lose their filtering ability, dangerous levels of fluid and waste

accumulate in the body-a condition known as kidney (renal) failure. There is now increasing evidence that essential hypertension is a serious risk factor for renal insufficiency. Mild to moderate essential hypertension causes significant renal function impairment only after a number of years[6]. The most common alteration of renal function observed in humans from early stage of essential hypertension. Deranged renal function contributes to the development of arterial hypertension and secondary vascular damage at the glomerular[7].The kidney can suffer the consequences of persistently elevated blood pressure.

Serum creatinine is commonly used to screen for renal disease, hypertension, abnormal urinary sediment or non specific symptoms-tiredness. Serum creatinine and calculated creatinine clearance yield a reasonable estimation of renal function with minimal cost and inconvenience[8]. Creatinine is excreted exclusively by the kidneys and its level in blood is proportional to the glomereular filtration rate. High blood pressure is one of the leading causes of kidney failure, also called end stage of renal disease (ESRD). Early kidney disease is a silent problem like high blood pressure and does not have any symptoms[9]. The GFR of a person indicates how well the kidney that works and filtration rate is a measure how kidney can filter waste product from the blood. GFR is estimated from a routine measurement of creatinine. Estimate of GFR may help to facilitate early identification of patient with renal impairment in hypertension[10].

The kidney is a main target of organ damage in hypertension, and long term exposure to elevations in Blood pressure (BP), even within the normotensive range, can induce early renal damage[11]. Current expert guidelines for the management of hypertension recommend determination of the serum creatinine concentration in all patients with hypertension as a marker of target organ damage. Nevertheless, few data exist about the prognosis value of normal or minimally elevated creatinine level in hypertension[12].

Creatinine clearance determines how efficiently the kidneys are clearing creatinine from the blood and serves as an estimate of kidney function. The standard measure of renal function is creatinine clearance. The patients at risk should have assessed their renal function . The creatinine clearance rate (CrCl) can be measured directly by using 24 hour urine collection for creatinine or by using the Cockcroft-Gault formula[13]. Estimation of Serum creatinine and creatinine clearance are used as markers of renal function, which may give prior intimation for alerting hypertensive patient of developing ESRD. A reduction in renal function is associated with high cardiovascular morbidity and mortality in hypertension[14].

In summary, altered renal functions are independent predictors of cardiovascular morbidity and mortality . Kidney function can be evaluated by measuring substance in the blood that are filtered and excreted by the kidney[15]. Elevation in these substances may indicate inadequate clearing and filtering of creatinine. Small amount are typically excreted in the urine. Creatinine is more specific[9].

In the recent days, many studies were done throughout the world on that basis, but ability to predict the condition has not improved significantly. There is now increasing evidence that essential hypertension is a serious risk factor for renal insufficiency[16]. It has been known for many years that essential hypertension rapidly cause deterioration of kidney function. Mild to moderate essential hypertension cause significant renal function impairment only after a number of years[6].

Materials and Methods

It was a case control studywhich was doneat Department of Biochemistry, Mymensingh Medical College, Mymensingh during the period of January 2010 to December 2010. A total of 143 subjects of both sexes were selected for the purpose. Out of them 73 were case and 70 were

control. The subjects were classified into following groups; Group I includes of 73 were essential hypertensive subjects. Group II includes of 70 were apparently healthy adult. In this study, all the subjects were selected from the patients who visited the outpatient department of medicine of Mymensingh Medical CollegeHospital, Mymensingh.

The subjects were selected by non random purposive and convenient sampling. Permission for the study was taken from the concerned authorities. All the subjects include in the study were informed of the purpose of the study.Written consent was taken after detailed explanation about study.

Inclusion criteria for case: Age group between 30 to 55 years of both sex. Diagnosed as essential hypertensive patients SBP>=140mmHg DBP>=90mmHg. Known hypertensive patients but are normotensive by taking drugs.

Inclusion criteria for control group: Age group between 30 to 55 years of both sex.

Exclusion criteria for control group: Apparently healthy normotensive adult.SBP: 120 , DBP: 80. Subjects with diabetes mellitus, history of renal failure, acute liver diseases, pregnancy, taking OCP, lipid lowering agents, HRT etc. were excluded from the study. After selection of the study subjects, 5 ml of blood was collected from each of the subjects with all aseptic precaution for estimation of serum creatinine Colorimetric Jaff'e endpoint with deproteinization method (Bartles 1972) and creatinine clearence rate (CCR) was estimated by Cockcroft-Gault formula. Experiments were carried out as soon as possible after sample collection.

All statistical analysis were done by SPSS (Statistical Package for Social Science) version 12. Mean value of the findings were compared between two groups. Categorical variables were analyzed by using students unpaired "t" test and x^2 (chi-square) test. For analytical tests, the level of significance was 95% confidence limit (p < 0.05) was taken as level of significance.

Results

In the present study, a total of 143 subjects aged from 30 to 55 years were included. Creatinine were expressed in mg/dl. CrCl were estimated by Cockcroft-Gaultformula. CrCl were expressed in ml/min. Serum creatinine and creatinine clearance were compared in group I and group II**.**

Table 1: Serum creatinine levels in hypertensive and normotensive subjects

Biochemical Variables	Group-I n=73 Mean ± SD	Group-II n=70 Mean ± SD	P value
Serum creatinine (mg/dl)	1.42 ± 0.23	0.87 ± 0.15	<0.001

P value less than 0.05 was taken as the level of significance. The mean (± SD) serum creatinine levels of group I (case group) and that of the subjects of group II (normotensive) were 1.42 ± 0.23 and 0.87 ± 0.15 mg/dl respectively (Table 1). There was significant (P<0.05) increase in serum creatinine in subjects with hypertension in comparison to that of the control."t" value: 17.094 ; Df : 141 .

Table 2: Distribution of the study subjects according to Creatinine level

Range	Frequencies		P value
	Group I	Group II	
<1.2 mg/dl	16 (22)	67 (96)	
1.2 mg/dl	57 (78)	03(04)	<0.001
Total	73 (100)	70 (100)	

Serum creatinine level in study subjects
In case group, serum creatinine level < 1.2 mg/dl was found in 16 (22%) subjects and serum creatinine level 1.2 mg/dl was in 57 (78%) subjects. In control group, serum creatinine level was < 1.2mg/dl in 67 (96%) subjects and 1.2 mg/dl in 03(4%) subjects. The distribution showed significance difference between case and control group (P<0.001) (Table 2). Chi-Square: 79.91. ; Df: 1. Figures in parenthesis show percentage**.**

Table 2: CrCl lavels in hypertensive and normotensive subjects

Biochemical Variables	Group-I n=73 Mean ± SD	Group-II n=70 Mean ± SD	P value
CrCl (ml/min)	48.28 ± 9.60	83.47 ± 19.72	<0.001

Creatinine Clearance (CrCl) in group I and group II

The mean (± SD) CrCl of hypertensive subjects (group I) and that of the normotensive subjects (group II) were 48.82 ± 9.60 and 83.47 ± 19.72 ml/min respectively (Table3). There was significant (P<0.05) decrease in creatinine clearance (CrCl) in subjects with hypertension in comparison to that of the control. "t" value: 13.269; Df : 141. P value < 0.05 was taken as the level of significance.

Table 4: Distribution of CrCl level in the study subjects

Range	Frequencies		P value
	Group I	Group II	
<70 ml/min	68 (93)	18 (26)	<0.001
70 – 140 ı	04(05)	50 (71)	
> 140 ml/ɱ	01(01)	02(03)	
Total	73 (100)	70 (100)	

Creatinine clearance in study subjects

In case group, creatinine clearance was <70 ml/min in 68(93%) subjects, 70-140 ml/min was in 04(5%) subjects and >140ml/min was in 01(1%) subjects. In control group, creatinine clearance <70 ml/min in 18(26%) subjects, 70-140 ml/min was in 50(71%) subjects and >140ml/min was in 02(3%) subjects. The distribution showed significant difference in between case and control subjects (P<0.001) (Table 4). Chi-Square: 68-556;Df: 2. Figures in parenthesis show percentage.

Discussion

Hypertension (HTN) or high blood pressure is a chronic medical condition in which the systemic arterial blood pressure is elevated. It is classified as either primary (essential) or secondary. About 90-95% of cases are termed as primary hypertension, which refers to high blood pressure for which no medical cause can be found[17]. The remaining 5-10% of cases is caused by other conditions that affect the kidneys, arteries, heart or endocrine system. The kidney and hypertension are closely related. It has been known for many years that malignant essential hypertension rapidly causes deterioration of kidney function and most patients with end stage renal disease (ESRD) have hypertension[6]. So monitoring of renal function before and during treatment of hypertension may provide an option to understand the problems and help to prevent serious adverse effects. Early changes in biochemical parameters may be important and indicate the need for more frequent monitoring[18]. Renal function is an important predictor in hypertensive patient at high risk[2].

Variable results are found in case of serum creatinine, creatinine clearance rate. From this view, present study was designed to observe the changes of serum creatinine, creatinine clearance (CCR). For these purpose a total 143 subjects (both sex) aged from 30 to 55 years were selected. The studied population consisted of 73 hypertensive subjects (Group I) as a case and 70 normotensive subjects (Group II) denoted as control group. Cases and controls were selected according to inclusion and exclusion criteria. In the present study, assessment of renal function in hypertensive patients were observed. Initially we estimate renal function in study subjects. Then a comparison was made between group I and group II.

In present study, mean study (±SD) serum creatinine levels in case and control group were (1.42±0.23) and (0.87±0.15)mg/dl respectively. We found that serum creatinine level in case

group was significantly higher, large group of hypertensive subjects suffered (78%) from increase creatinine level, indicate impairment of renal function also. This findings supported by the studies of the following authors [12,19,20,21].

Schillaci et al[12] conducted a case control study in relation to serum creatinine with essential hypertension. He found significantly higher mean (±SD) serum creatinine level (1.45±0.21 vs 0.72±0.12) mg/dl (P=<0.005) in case group in comparison to control group. He explained that determination of serum creatinine concentration was recommended in all patients with hypertension as a marker of target organ damage. The glomerular filtration rate is usually not significantly reduced until late in the course of the disease, an elevated serum creatinine level is therefore a late sign of renal damage in essential hypertension. On the other hand a case control study was conducted by Josef Coresh[20] demonstrated clearly that; elevated serum creatinine level was 8 times more common in hypertensive (9.1%) individuals. These variations of results may be due to different inclusion, exclusion criteria and methods also. The increased level of serum creatinine concentration explained the altered renal function in hypertension, so our findings supported the hypothesis that serum creatinine is increased in hypertension. Luis et al[19] explains that an increase of serum creatinine level in essential hypertension is commonly attributed to nephrosclerosis.He found significantly higher level of serum creatinine Blood pressure levels are reliable predictors of renal outcome. Both absolute systolic and diastolic blood pressure correlate with the risk of renal damage. If the kidneys are not filtering well, perhaps as the result of untreated hypertension, the creatinine level in the blood will be higher than normal. Some studies also found serum creatinine is an inadequate marker of renal insufficiency prevalence in essential hypertension[1].This result is contradictory to our findings.

In our study, mean (±SD) creatinine clearance rate (CrCl) in hypertensive patient (Gr-I) and normotensive subjects (Gr-II), were (48.28±9.60) & (83.97±19.72) ml/min respectively. We observed that mean (±SD) CrCl was significantly decrease in case group than control group (P=<0.001). About 93% hypertensive subjects were suffered from decrease creatinine level, which mean a large number of hypertensive people towards to CKD. Our findings are in agreement with those of [22,23].They clearly explained that there is an association between a decreased creatinine clearance and hypertension.

On the other hand, Kadiri and Ajay[22] are established that creatinine clearance rate was significantly lower in hypertensive than normotensive. So the result of our study states that ClCr decreased in hypertension, which is supported by other studies[11]. It was well recognized that serum creatinine level provides a quick general estimation of assesment renal function[24]. So early changes in biochemical parameters may be important and indicate the need for more frequent monitoring to prevent end stage renal disease (ESRD).

Conclusion

From the statistical analysis of the result obtained in present study and their comparison with those of the pre existing reports, it may be concluded that there is significant alterations in serum creatinine, creatinine clearance rate levels in hypertensive subjects. Therefore monitoring of renalfunction before and during treatment of hypertension may help to prevent serious adverse effect. Early changes in biochemical parameters may be important and indicate the need for more frequent monitoring. Close monitoring of hypertensive patients is required to prevent end stage renal disease (ESRD), coronary heart disease and other consequences. It is needed to reinforce the investigations of these parameters in daily practice.

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The correlation between lipid profile and serum albumin level in adult nephrotic syndrome patients in Bangladeshi population

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Abstract

Background: The nephrotic syndrome is a constellation of abnormalities that includes massive proteinuria, hypoalbuminemia and edema. Lipid abnormalities has an important biochemical basis in the disease process of adult nephrotic syndrome patients. Dyslipidemia in nephrotic syndrome involved in the cardiovascular risk and also accelerates the progression of glomerular dysfunction. **Objective:** 1. To determines the lipid profile of patients with nephrotic syndrome. 2. To determine the relationship between TC, TAG, HDL-C and LDL-C with serum albumin. **Methods:** This observational study was carried out in the Department of Biochemistry, Dhaka Medical College, Dhaka, during the period of July 2013 to June 2014. A total number fifty (50) study subjects, age range from 20-50 years of both sexes were selected. Serum lipid profile and S. albumin were assessed. Mean values of the variables were determined. Correlations between variables were determined by Pearson's correlation test by using SPSS for windows version 20.0. For all the statistical analysis $p < 0.05$ was considered as significant. **Result:** Mean ($\pm$SD) values of serum total cholesterol (Tchol), TAG, HDL-C and LDL-C in adult nephrotic syndrome patients were 288.23$\pm$35.67, 174.53$\pm$18.86, 23.71$\pm$4.58 and 231.16$\pm$34.28 respectively. Mean value of serum albumin levels in study subjects was 1.87$\pm$0.54. Significant ($p < 0.05$) negative correlation was found between S. albumin and Tchol (r= -0.387), TAG(r= -0.325), LDL-C (r= -0.321) and significant ($p < 0.05$) positive correlation was found between S. albumin and HDL-C (r= 0.233). **Conclusion:** Dyslipidemia is associated with adult nephrotic syndrome and possess a significant relationship between dyslipidemia and hypoalbuminemia which could predispose them to develop coronary artery disease.

Keywords: Nephrotic syndrome, Dyslipidemia

Introduction

Nephrotic syndrome is a clinical entity with multiple causes characterized by increased glomerular permeability and manifested by massive proteinuria.[1] Nephrotic syndrome is represented as urinary total protein excretion more than 3.5 gm/day, low serum albumin level (< 2.5gm/dl) and peripheral edema.[2] Nephrotic syndrome can affect any age, although it is found with a ratio of adults to children of 26:1.[3] The incidence of nephrotic syndrome is 90-100/ million in the Indian subcontinent including Bangladesh.[4] Nephrotic syndrome is a chronic relapsing disease. Relapse is also higher in children of Bangladesh which is 36.4%. This frequent or infrequent relapse in the nephrotic syndrome may continue even in adult age.[5] Lipid abnormalities have an important biochemical abnormalities in nephrotic syndrome. Although pathophysiological aspects of abnormal lipid metabolism have not been completely identified, hypoalbuminemia, increases lipoprotein synthesis and decreases lipoprotein lipase activity are described as the important causal factor.[6]

In nephrotic syndrome, generally, when edema regresses, lipid abnormalities tends to being normal but in some cases it may continue after the

edema has disappeared. However it may persist in some cases, leading to increased risk of atherosclerosis in later life.[7] The magnitude of the most pronounced secondary changes in lipoprotein metabolism in nephrotic syndrome patients correlates with the severity of the syndrome.[8]

Dyslipidemia in nephrotic syndrome not only involved in the cardiovascular risk but also accelerates the progression of glomerular dysfunction.[9] Elevation of serum lipid concentrations is an independent risk factor for coronary artery disease and cerebrovascular disease. Concurrent elevation of lipid profile increase these risks.[10]

Abnormalities in serum lipid profile has been paralleled by an increase in the incidence of the disease. Glomerular disease is a common cause of ESRD (End stage renal disease) and comprises 25-45% cases of ESRD in developing nation including Bangladesh.[11] These formidable enemies of health are joining forces to impose a double burden of disease. Limited published data has yet been found regarding this content, though several studies have been done in abroad to establish the relationship between serum lipid profile and nephrotic syndrome. So the present study was designed in a small group of Bangladeshi population to evaluate the correlation between serum albumin and biochemical parameters in serum lipid profile related with adult nephrotic syndrome.

Materials And Methods

This observational study of one year duration from July 2013 to June 2014 was designed to evaluate the correlation of dyslipidemia with serum albumin level among the adult patients with nephrotic syndrome. The study protocol was approved by the institutional Ethical committee. Informed written consent was obtained from all the study subjects. Study sample was consists of fifty (50) adult nephrotic syndrome patients who were selected as diagnosed and admitted patients

in Department of Nephrology of Dhaka Medical College Hospital on the basis of following criteria: serum albumin <2.5 gm/dl, UTP is >3.0 gm/day with generalized edema.

Along with the baseline information, 3 ml of fasting (at least 12 hours devoid of meal) blood sample were collected and analyzed for Tchol, TAG, LDL-C, HDL-C and serum albumin level for all participants of the study. Total cholesterol (Tchol), triacylglycerol (TAG), high density lipoprotein (HDL-C) were assayed by semi automated biochemical analyzer. Low density lipoprotein (LDL-C) was calculated by Friedwald equation.[12]

Statistical analysis was performed by using the SPSS version 20.0 for windows. All data were processed to compute mean and standard deviation and expressed as mean±SD. Pearson's correlation coefficients were used to analyze linear correlations between variables. For all the statistical analysis $p < 0.05$ were considered as significant.

Results

Table- I shows the baseline information of study subjects. The mean ± SD age of nephrotic syndrome patients was 34.62±6.45. Among the total study subjects 21 (42%) were male and 29 (58%) were female. The mean ± SD of systolic and diastolic blood pressure of nephrotic syndrome patients were 133.52±7.56 and 85.16±7.36 respectively. Mean±SD of serum albumin of study subjects was 1.87±0.54.

Table-II shows the mean±SD of serum lipid profile in adult nephrotic syndrome patients comparing to normal range. The mean±SD of serum Tchol, TAG, HDL-C and LDL-C were (288.23±35.67), (174.53±18.86), (23.71±4.58) and (231.16±34.28) respectively.

Table-III shows the correlation between serum albumin level and the four components of serum lipid profile of study subjects. Which implies that, significant (p<0.05) negative correlation was

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found between S. albumin and Tchol (r= -0.387), TAG(r= -0.325), LDL-C (r= -0.321) and significant (p<0.05) positive correlation was found between S. albumin and HDL-C (r= 0.233).

Table-I : Base line information of study subjects (n=50)

Base line informations	Adult patients with nephrotic syndrome (Mean±SD)
Age (yrs)	34.62±6.45
Sex: Male, n=21 (42%) Female, n=29 (48%)	
Systolic blood pressure (mm of Hg)	133.52±7.56
Diastolic blood pressure (mm of Hg)	85.16±7.36
Serum albumin (gm/dl)	1.87±0.54

Table-II : Serum albumin level and lipid profile in adult nephrotic syndrome (NS) patients (n=50)

Parameters (mg/dl)	Adult NS patients (Mean±SD)	Normal range [Unit (mg/dl)][13]
S. Tchol	288.23±35.67	180-200
S. TAG	174.53±18.86	100-150
S. HDL-C	23.71±4.58	40-60
S. LDL-C	231.16±34.28	100-130

Table-III : Correlation between S. albumin and lipid profile in adult nephrotic syndrome (NS) patients (n=50)

Variables (gm/dl)	(mg/dl)	r values	p values
S. albumin	Tchol	0.387	0.0026*
	TAG	0.325	0.0086*
	HDL-C	0.233	0.0487*
	LDL-C	0.321	0.0076*

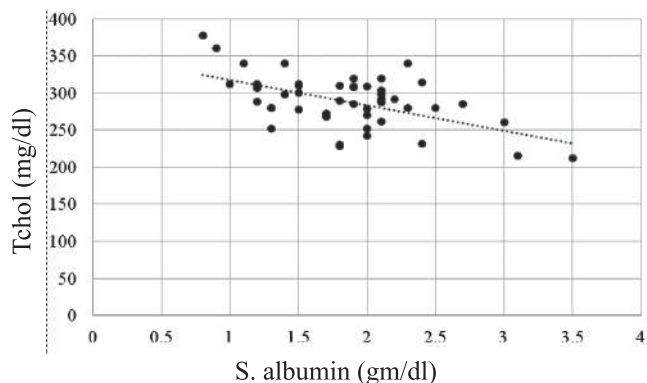Level of significance, p<0.05 * significant.

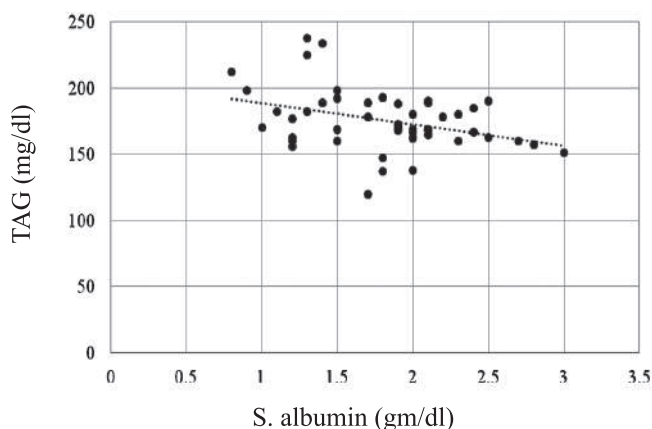Fig. I: Correlation between S. albumin & Tchol in adult NS patients

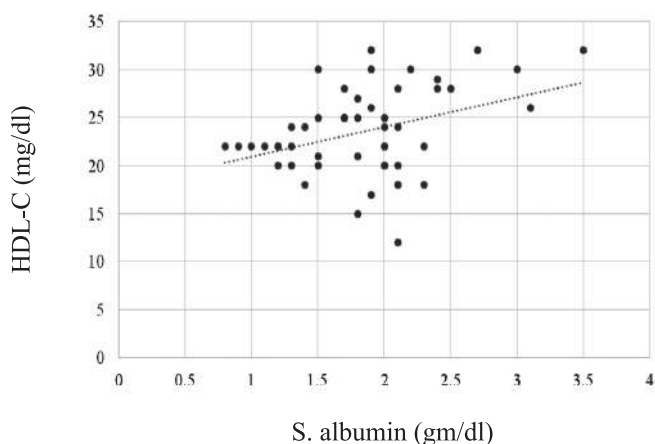Fig. II: Correlation between S. albumin & TAG in adult NS patients

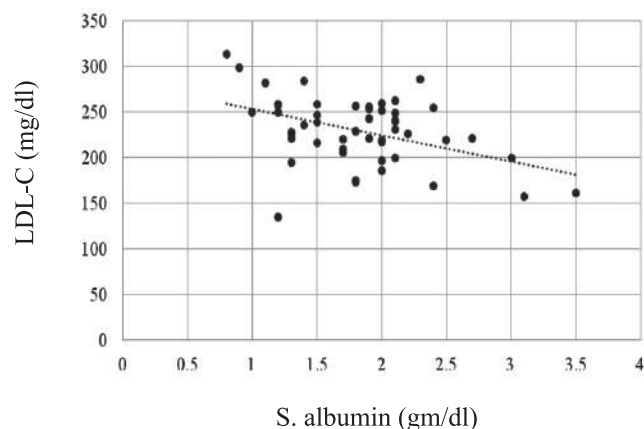Fig. III: Correlation between S. albumin & HDL-C in adult NS patients

Fig. IV: Correlation between S. albumin & LDL-C in adult NS patients

Discussion

The present study was designed to observe the correlation between hypoalbuminemia and lipid abnormalities in adult nephrotics. In nephrotic syndrome, hypoproteinemia stimulates protein synthesis in the liver, resulting in the overproduction of lioproteins. Where on the other hand lipid catabolism is decreased due to lower levels of lipoprotein lipase, the main enzyme involved in lipoprotein breakdown. Both these two pathophysiological phenomenon are involved for dyslipidemia in adult patients with nephrotic syndrome.[6] Present study also reveals increased serum levels of lipid profile in adult patients with nephrotic syndrome.

Hypoalbuminemia leads to a lack of carrier for the transport of fatty acids and this is compensated by an increase in fractions linked to lipoproteins. Lipid levels generally correlate inversely with the serum albumin concentration and plasma oncotic pressure.[14] Moreover, hypoalbuminemia reduced oncotic pressure, and loss of regulatory protein loss in the urine of nephrotic patients all have been suggested as driving stimulus for synthesis of proteins and of LDL and VLDL cholesterol by the liver. Moreover, hepatic tissue expression and activity of diacylglycerol acyltransferase, an enzyme that catalyzes the final step in TAG biosynthesis, is increased.[15]

Present study shows the significant positive correlation with serum albumin level with serum Tchol,TAG and LDL-C level and significant negative correlation with serum LDL-C level in adult nephrotic syndrome patients which is similar with the findings of the study conducted by Andrew et al.[16] and Prerna et al.[17] Where Krishnaswamy et al.[18] observed a direct relation between serum albumin and HDL-C, when serum albumin was too low, the HDL-C was also low. But the correlation was not statistically significant (P>0.05).

Conclusion

Due to the significant pattern of decrease in serum albumin level shows increase in LDL-C, Tchol, TAG and decrease in HDL-C values, patients with nephrotic syndrome are at higher risk of cardiovascular and cerebrovascular complications. So, regular screening of lipid profile should be performed for early diagnosis for dyslipidemia to prevent further complications in adult nephrotic syndrome patients.

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Antimicrobial susceptibility pattern of bacterial isolates from surgical infected wounds swab at Rafatullah community hospital Bogra, Bangladesh

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Abstract

Background: Wound infection is one of the major problems in surgical cases that are caused and aggravated by the invasion of pathogenic organisms. Information on local pathogens and sensitivity to antimicrobial agents is crucial for successful treatment of wounds. **Objective:** To identify local pathogens and determine antimicrobial susceptibility pattern of isolated bacterial from wound infection at Rafatullah Community Hospital, Bogra. **Methodology:** This cross sectional study was conducted among patients with wound infection visiting Rafatullah Community Hospital, Bogra, from May2014 to December 2015. Wound swab was collected using sterile cotton swabs and processed for bacterial isolation and susceptibility testing to antimicrobial agents following standard bacteriological techniques. Biochemical tests were done to identify the species of the organisms. Sensitivity testing was done using Kirby- Baur disk diffusion method against 15 classes of antimicrobials. The data was analyzed for descriptive statistics using Microsoft Excel. **Results:** In this study 122 bacterial isolates were recovered from 155 specimens showing an isolation rate of 78.6%. The predominant bacteria isolated from the infected wounds were Staphylococcus aureus 36 (29.5%) followed by Escherichia coli 34 (27.9%), Enterobacter species 24 (19.7%), Klebsiella species 14 (11.5%), Pseudomonas species 10 (8.2%) and Enterococcal species 04(3.3%). All isolates showed high frequency of resistance to amoxycillin, amoxicillin-clavulanic acid, co-trimoxazole, and cephradine. **Conclusion:** On in vitro sensitivity testing, amoxycillin, amoxicillin-clavulanic acid, co-trimoxazole, and cephradine were the least effective. Moxifloxacin, gentamicin, amikacin and ciprofloxacin were the most effective antibiotics for all isolates.

Keywords: Bacterial pathogens, Drug resistance, Wound infection.

Introduction

The primary function of intact skin is to control microbial populations that live on the skin surface and to prevent underlying tissue from becoming colonized and invaded by potential pathogens[1]. Exposure of subcutaneous tissue following a loss of skin integrity (i.e. wound) provides a moist, warm, and nutritious environment that is conducive to microbial colonization and proliferation. Since wound colonization is most frequently poly-microbial, involving numerous microorganisms that are potentially pathogenic, any wound is at some risk of becoming infected[2]. Infection in wound constitutes a major barrier to healing and can have an adverse impact on the patient's quality of life as well as on the healing rate of the wound. Infected wounds are likely to be more painful, hypersensitive and odorous, resulting in increased discomfort and inconvenience for the patient[3]. The prevalent organisms that have been associated with wound infection include Staphylococcus aureus which from various studies have been found to account for 20-40% and Pseudomonas aeruginosa 5-15% of the nosocomial infection, with infection mainly following surgery and burns. Other pathogens such as Enterobacter species, Klebsiella species, Enterococci species are members of the Enterobacteriaceae have been implicated, especially in immune compromised patients and following abdominal surgery[4].

Wound healing needs a good healthy environment so that the normal physiological process will result in a normal healing process with minimal scar formation. One of the most important strategies to keep the process of healing ongoing is to sterilize damaged tissue from any microbial infection[5]. Continued use of systemic and topical antimicrobial agents has provided the selective pressure that has led to the emergence of antibiotic resistant strains which in turn, has driven the continued search for new agents. Unfortunately, the increased costs of searching for effective antimicrobial agents and the decreased rate of new drug discovery has made the situation increasingly worrisome[6]. Hence the present study is designed to update profile of bacteria present in wounds and hospital environment, their sensitivity to antibiotics at Rafatullah community hospital, Bogra, Bangladesh.

Methodology
Study design and Setting
This cross sectional study was conducted at TMSS Medical College & Rafatullah Community Hospital, Bogra, Bangladesh with duration from May 2014 to December 2015.

Sampling procedure
A questionnaire was used to obtain data from the patient after obtaining an informed consent from the patient/guardians. Open and dressed wound swabs were aseptically obtained by sterile cotton swab by rotating with sufficient pressure.

Isolation and identification
Collected swabs were streaked on Hi-chrome, blood agar, and MaCconkey agar and Brain heart infusion broth for enrichment culture by sterile inoculation loop. The plates were incubated at 37°C for 24-48 hours. Preliminary identification of bacteria was based on colony characteristics of the organisms such as haemolysis on blood agar, changes in physical appearance in differential media and enzyme activities of the organisms.

Biochemical tests were performed on colonies from primary cultures for identification of the isolates. Gram-negative rods were identified by performing a series of biochemical tests, namely: Triple sugar Iron Agar (TSI), Simon's citrate agar, motility indole urea (MIU). Gram-positive cocci were identified based on their gram reaction, catalase, coagulase test results and subculture on Mannitol salt agar (MSA).

Antibacterial susceptibility testing (AST)
Susceptibility testing was performed by Kirby-Bauer disk diffusion technique according to criteria set by CLSI 2011. The inoculum was prepared by picking parts of similar test organisms with a sterile wire loop and suspended in sterile normal saline. The density of suspension to be inoculated was determined by comparison with opacity standard on McFarland 0.5 Barium sulphate solution. The test organism was uniformly seeded over the Mueller-Hinton agar surface and exposed to a concentration gradient of antibiotic diffusing from antibiotic-impregnated paper disk into the agar medium, and then incubated at 37°C for 24 hours. Diameters of the zone of inhibition around the discs were measured to the nearest millimeter using a ruler and classified as sensitive, intermediate, and resistant according to the standardized table supplied by CLSI 2011.

The drugs tested for both gram negative and gram positive bacteria were amoxycillin (10 μg), amoxicillin-clavulanic acid (30 μg), cephradine (25 μg), cefuroxime(30 μg), ceftriaxone (30 μg), ceftazidime (30 μg), ciprofloxacin (5 μg), moxifloxacin (10 μg), azithromycin(30 μg), amikacin (30 μg), gentamicin (10 μg), cotrimoxazole (25 μg), and meropenem (30 μg). Erythromycin (15 μg) and vancomycin (30 μg) were used for only gram positive bacterial isolates. These antimicrobial selected based on the availability and prescription frequency of these drugs in the study area.

Results

A total of 155 specimens were collected from patients with clinical evidence of wound infection (patients with complaints of discharge, pain, swelling, foul smelling and chronic wound) from May 2014 to December 2015. The subjects included 107 (69%) males and 48 (31%) females. The ages of the patients ranged from 6 years to 90 years with mean age of 42±17.12 (Table 1)

Table 1: Antibiotic susceptibility pattern of gram positive bacteria isolated from patients.

Sex	Infected No. (%)	Not infected No. (%)	Total No. (%)
Male	87 (71.3)	20 (10.3)	107 (71.3)
Female	35 (28.7)	13 (18.6)	48 (28.7)
Total	**122 (78.5)**	**33 (21.5)**	**155 (100)**

Bacterial profile

Of the 155 swabs 122 (78.5%) were culture positive for bacterial pathogens, while 33 (21.5%) were showed no growth. The presence of only one species isolated from each sample was the most frequent (91.6%) while, more than one species were isolated from (8.4%) of the total swabs. A total of 122 bacterial isolates were obtained, 82 (67.2%) were gram negative while 40 (33.8%) were gram positive. Staphylococcus aureus was the predominant organism isolated 36 (29.5%), followed by Escherichia coli 34 (27.9%), Enterobacter species 24 (19.7%), Klebsiella species 14 (11.5%), Pseudomonas species 10 (8.2%) and Enterococcal species 04(3.3%) (Table 2 and Figure 1).

Table 2: Bacterial distribution in isolates

Isolates	Number	Percentages
Staphylococcus aureus	36	29.5
Escherichia coli	34	27.1
Enterobacter species	24	19.7
Klebsiella species	14	11.5
Pseudomonas species	10	8.2
Enterococcal species	04	3.3
Total	122	100

	Staphy lococc	Escher ichia	Entero bacter	Klebsi ella	Pseud omona	Entero coccal
Series1	36	34	24	14	10	4
Series2	29.5	27.1	19.7	11.5	8.2	3.3
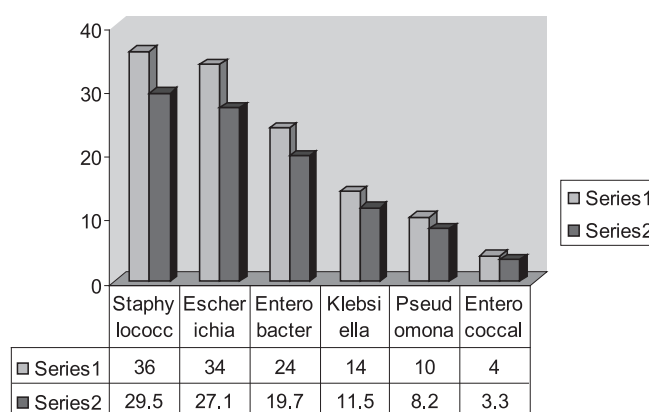
Figure-1: Bacterial distribution in isolates

Antimicrobial susceptibility pattern of bacterial isolates

Gram positive bacteria

Gram positive bacteria were tested against selected 14 antibiotics. The results obtained showed that the organisms varied in their susceptibility to all the antimicrobials used. Majority of them showed multi-resistances (resistance to two or more classes of antimicrobials). Rate of isolates resistant to amoxicillin was 94%, followed by amoxicillin-clavulanic acid (79%), co-trimoxazole (79%) and azithromycin (50%). All isolates were showed sensitive to Meropenem (95%), Moxifloxacin (95%), vancomycin (89%), amikacin (89%) and ciprofloxacin (89%) (Table 3).

Table 3: Antibiotic susceptibility pattern of gram positive bacteria isolated from patients.

Isolate	S/R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
S.aureus	S	5.6	22.2	66.7	83.3	83.3	72.2	88.9	94.4	50.0	88.9	94.4	22.2	94.4	72.2	88.9
	R	94.4	77.8	33.3	16.7	16.7	27.8	11.1	5.6	50.0	11.1	5.6	77.8	5.6	27.8	11.1
E.cocci	S	00	00	00	00	00	00	50	50	50	00	50	50	100	25	75
	R	100	100	100	100	100	100	50	50	50	100	50	50	00	75	25

KEY: S: Sensitive; R: Resistant; 1. Amoxycillin;
2. Amoxycillin-clavulanic acid; 3. Cephradine; 4. Cefuroxime;
5. Ceftriaxone; 6. Ceftazidime; 7. Ciprofloxacin; 8. Moxifloxacin;
9. Azithromycin; 10. Amikacin; 11. Gentamicin;
12. Trimethoprim-sulphamethoxazole; 13. Meropenem 14. Erythromycin
15. Vancomycin

Gram negative bacteria

The susceptibility patterns of gram negative bacteria (n = 82) isolated from wound infections and tested against selected 13 antimicrobial agents. Rate of isolates resistant to amoxycillin was 88%, followed by amoxicillin-clavulanic acid (77-100%), azithromycin (50-58%), co-trimoxazole (50-65%) and cephradine (47-924% (Table 4).

Table 4: Antibiotic susceptibility pattern of gram negative bacteria isolated from patients.

Isolate	S/R	1	2	3	4	5	6	7	8	9	10	11	12	13
E.coli	S	11.8	23.5	52.9	52.9	52.9	52.9	70.6	70.6	41.2	82.4	82.4	41.2	76.5
	R	88.2	76.5	47.1	47.1	47.1	47.1	29.4	29.4	58.8	17.6	17.6	58.8	23.5
E.bacter	S	8.3	8.3	50.0	75.0	66.6	41.7	83.3	91.7	83.3	91.7	91.7	50.0	100
	R	91.7	91.7	50.0	25.0	33.4	58.3	16.7	8.3	16.7	8.3	8.3	50.0	00
Kleb	S	14.3	14.3	42.8	42.8	14.3	14.3	57.1	71.4	71.4	71.4	42.8	57.1	14.3
	R	85.7	85.7	57.2	57.2	85.7	85.7	42.9	28.6	28.6	28.6	57.2	42.9	85.7
Pseud	S	00	00	00	00	00	00	50.0	50.0	50.0	00	50.0	50.0	100
	R	100	100	100	100	100	100	50.0	50.0	50.0	100	50.0	50.0	00

KEY: S: Sensitive; R: Resistant; 1. Amoxycillin;
2. Amoxycillin-clavulanic acid; 3. Cephradine; 4. Cefuroxime;
5. Ceftriaxone; 6. Ceftazidime; 7. Ciprofloxacin; 8. Moxifloxacin;
9. Azithromycin; 10.Amikacin;11. Gentamicin; 12.
Trimethoprim-sulphamethoxazole; 13. Meropenem

Discussion

The incidence of wound infection was more common in males (71.37%) than in females (28.7%). This is in agreement with studies done in different parts of Ethiopia[7-10] and other countries[11-13]. This might be explained by the fact that traditionally, in Bangladesh mainly males are involved in occupations such as farming, construction works, transportation and industry works where the likely exposure to trauma is common.

In this study, 70.5% of culture positive wounds showed mono-microbial growth, 8.0% showed poly-microbial growth and 21.5% had no bacterial growth. Similarly high percentage of mono-microbial growth was reported in India (86-100%) and Pakistan (98%)[14-17].

In our study, Staphylococcus aureus 36 (29.5%) followed by Escherichia coli 34 (27.9%) were the predominant organisms isolated from wound infections. A number of reports done previously on wound infection from Mymensingh, Bangladesh[31] and different parts of the world indicated that Staphylococcus aureus and Escherichia coli were the most frequent isolates[18-21]. The high prevalence of Staphylococcus aureus infection may be because it is an endogenous source of infection. Infection with this organism may also be due to contamination from the environment e.g. contamination of surgical instruments. With the disruption of natural skin barrier Staphylococcus aureus, which is a common bacterium on surfaces, easily find their way into wounds.

In the determination of the susceptibility of Staphylococcus aureus on fifteen selected antibiotics by disk diffusion technique showed that Staphylococcus aureus tend to be resistant to a wider spectrum of antibiotics. In this studies Staphylococcus aureus was highly resistance to amoxycillin (95%), amoxycillin-clavulanic acid (78%) and Co-trimoxazole (78%). This was consistent with study done in Mymensingh, Bangladesh[32], Ethiopia[19-20] and elsewhere[4,11,14,22]. The same isolate was highly sensitive to moxifloxacin (95%), gentamicin (95%) and amikacin (89%), vancomycin (89%). This finding is in agreement with the work of Bess LJ. *et al.*,

Bibi S. et al., Shamsuzzaman et al., Gelaw A. *et al.*, Gautam R *et al.*, and Shriyan A. et al.,*7,15,22-25*, who reported that clinical *Staphylococci* are 100% sensitive to vancomycin and to amikacin[23,26,27]. Remarkable susceptibility of gram positive bacteria to vancomycin, amikacin and aminoglycosides (gentamicin) may be due to lesser use of these antibiotics as a result of their less availability, cost and toxic effect respectively.

In this study, 88% of the Escherichia coli isolates were resistant to amoxycillin (96.6%), amoxycillin-clavulanic acid (77%), ceftriaxone (62%), Azithromycin (59%) and sulphamethoxazole trimethoprim (55%). Sensitivity pattern of Escherichia coli in our study as compared to others were ciprofloxacin (65.5%), moxifloxacin (71%) and amikacin(82%)[8,19,27,28]. So, reduced antibiotic sensitivity pattern noted for Escherichia coli suggests its importance for hospital acquired infection.

Klebsiella species was 86% resistance to amoxycillin, sulphamethoxazole trimethoprim and cephradin, (71%) in ceftriaxone however it indicates low resistance to ciprofloxacin (35.7%). This was in consistence with the study done in Ethiopia[7,8,20,29]. Most of the gram negative bacteria isolated were resistant to amoycillin, amoxycillin-clavulanic acid, cephradine and ceftriaxone. This may be due to the antibiotics having been in use for much longer time and their oral route of administration that affects their rate of absorption into blood stream. Some of them were used as prophylaxis therefore increasing their use in patients. Over use of antibiotics contributes to organisms developing resistance.

In our study Pseudomonas species showed reduced sensitivity to commonly used antibiotics like amoxycillin, amoxycillin-clavulanic acid, cephradine, ceftriaxone and ceftazidime. Meropenem, moxifloxacin, ciprofloxacin and gentamicin has been stated to be the most potent drug available for the treatment of Pseudomonas species infections. This report is in conformity with the result of other study in which ciprofloxacin recorded the least resistance (6.2-24%) to Pseudomonas species isolates from wound infection[20,28,30]. It is undoubtable that at the present time, the oral drug ciprofloxacin and injection gentamicin are the most effective antibiotics against Pseudomonas species involved in wound infection relative to most other commonly used drugs. Pseudomonas resistant to third generation cephalosporins (ceftriaxone 63.6%) is real treat. In fact, the irrational and inappropriate use of antibiotics is responsible for the development of resistance of Pseudomonas to antibiotic monotherapy. The incidence of Pseudomonas species in wound infection among admitted patient is becoming more serious in developing countries because of lack of general hygienic conditions, production of low quality antiseptics and medicinal solutions for treatment[11].

Conclusion

The most common isolate in wound infection was Staphylococcus aureus followed by Escherichia coli, Enterobacter species, Klebsiella species, Pseudomonas species, and Enterococcal species. These isolates showed high frequency of resistance to amoxycillin, cephradine, amoxicillin-clavulanic acid and Trimethoprim-sulphamethoxazole. Thirty three and sixty seven percent of Gram positive and Gram negative isolates respectively.

Competing interests

The authors declare that they have no competing interests.

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Comparative Study Of Peak Expiratory Flow Rate In Apparently Healthy Secondary School-Going Boys And Girls And It'S Relation With Body Weight.

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Abstract

Lung function tests have been increasingly used for diagnosis, assessment and clinical management of respiratory disorders and have become an integral part of assessment of pulmonary disease. Pulmonary function values are influenced by race, age, sex, height, weight, as well as environmental, genetic, socioeconomic and technical parameters. Overweight/obesity in children and adolescent is growing problem in developed as well as in developing countries. Whereas Peak expiratory flow rate (PEFR) is simple and valuable tool in assessing the lung function. The present study was carried out to measure the peak expiratory flow rate (PEFR) in healthy secondary school going children (boys and girls) and also to find the effect of body weight on PEFR. This study was conducted on 431 apparently healthy secondary school children (185 boys, 246 girls of class nine) of seven different schools in Rangpur city. A mini Wright peak flow meter was used to measure peak expiratory flow rates. The highest of the three readings was taken as the correct value. The study was descriptive observational and cross sectional in nature with some analytical components. The relation of PEFR with sex and weight in sitting posture of children were determined by using Correlation test, Unpaired t- test and paired t-test. The mean PEFR in boys were 501.67 ± 81.49 and in girls were 354.22 ± 44.52 in sitting position. The amount of PEFR was increased regarding sex and weight. There was a positive correlation of PEFR values with weight of children (n=431). The results showed that there was a very highly significant difference of PEFR values between boys and girls (p <0.001). and also a very highly significant positive correlation of PEFR values with weight for boys and girls (p<0.001). PEFR measurements could be useful for evaluation the functional status of the respiratory system and monitoring of children with asthma.

Key wards: Asthma; PEFR (Peak expiratory flow rate); School Children Pulmonary function tests; Forced vital capacity; Spirometry

Introduction

The peak flow meter is a useful instrument for routine monitoring of the peak expiratory fl ow rate (PEFR) in healthy and asthmatic children.[1-3] Pulmonary function tests are useful in evaluation of respiratory health of a person. These tests measure airflow rates, lung volumes and the ability of lung to transfer gases across the alveolar capillary membrane. Physiological values of pulmonary function tests vary with age, sex, height, weight, body mass index, chest circumference and smoking habit. PEFR is a good indicator of bronchial hyper responsiveness and good parameter for lung functions in obese as well as non-obese subjects.[4] Prevalence of asthma in Indian children is found to be as high as 4.75%. Pulmonary function tests of various types are utilized clinically as well as epidemiologically to measure functional status of respiratory system. Though they do not provide a specific diagnosis, they help us to understand the severity, course and progress of the respiratory diseases.[5] The peak expiratory flow rate

(PEFR) measurement is simple, reproducible and reliable way of judging the degree of airway obstruction in various obstructive pulmonary diseases, specially asthma. Peak expiratory flow rate is easily measured by using a mini-Wright's peak flow meter (mWPFM), which is easy to use, reliable and can be recorded even by the patients or by the parents at home.[6] Age, sex, weight, and height are the main factors that affect PEFR.[7] Various authors have shown that geographical, climatic, anthropometric, nutritional, and socioeconomic conditions of India are associated with regional differences in lung function.[8] Normal value of PEFR in relation to height, age, sex and weight are present in the different countries.[9] The present study is carried out to find out the relation of sex and weight with peak expiratory flow values in selected age groups of children.

Aims and objectives

1. To establish normal values of PEFR in normal children of Bangladesh and to compare between boys and girl

2. To find out the correlation of body weight of boys and girl with PEFR.

Materials and Methods

Study design: The study was cross sectional analytical in nature.

Place of study: Seven secondary schools in Rangpur city.

Study period : January 2011 to December 2012.

Study populations: Apparently healthy secondary (class nine) school going children of both sexes in different schools of Rangpur city.

Sample size: 431 subjects were included during study period.

Methods of data collection: Predesigned questionarie.

Statistical analysis: Collected data were collated and appropriate statistical analysis was done using computer based SPSS(Statistical Package for Social Sciences) in 16.0.

Inclusion criteria

1. Children of both sexes.
2. Apparently healthy secondary (Class nine) school going children of Rangpur city.
3. Age: 14 to 16 years.

Exclusion criteria

1. Children who have been suffering from asthma or having past history of asthma or wheeze.
2. Child having the thoracic deformity or history of ARI within two weeks.
3. Child having history of atopic condition like eczema, hay   fever or atopic rhinitis.
4. Children having any type of heart disease.
5. Children with major respiratory disease such as congenital anomalies or thoracic surgery.

Results

The study population included 431 children from seven different high schools of Rangpur city. Table-l shows the distribution of study children according to school.

Table- I : Study population according to schools

SL.No	Name of school	No. of students	Percentage
1	Police line school and College	118	27.38
2	Govt.Girls High school	124	28.77
3	Shishu Nikaton High school	84	19.49
4	Almodina institute	16	3.71
5	Bium laboratory School	32	7.42
6	Rangpur High School	31	7.19
7	Kaylash Ronjon High School	26	6.03
	Total	431	100%

Table- II : Sex distribution

Sex	Number	Percentage	M:F ratio
Boys	185	42.92	
Girls	246	57.08	0.75:1
Total	431	100	

Table II shows the sex distribution of study population (n=431), among which 185 and 246 were boys and girls respectively, male female ratio being 0.75:1 (girls relatively more than boys).

Table-III: Anthropometric measurements and PEFR (l/min) of study children(n=431)

Parameters	Sex & No. of samples(n)	Mean	Standard deviation	SEE
Age (month)	Boys (n=185)	173.58	6.00	0.44817
	Girls (n=246)	171.81	11.64	0.74268
Weight (kg)	Boys (n=185)	53.59	11.93	0.87770
	Girls (n=246)	47.39	9.05	0.57717
PEFR (l/min)	Boys (n=185)	501.67	81.49	5.99152
In sitting	Girls (n=246)	354.22	44.52	2.83851

Table- IV: Comparison of baseline characteristics and PEFR by sex

Parameters	Boys Mean± SD	Girls Mean± SD	P value
Age in month	173.58 ±6.00	171.81±11.64	> 0.05
Weight in kg	53.59±11.93	47.39±9.05	< 0..001
PEFR in L/min sitting position	501.67±81.49	354.22±44.52	< 0..001

Table- lll & table lV shows the anthropometric parameters and PEFR with its descriptive statistics of 431 normal students. The mean age for the boys was 173.58±6.00 and for the girls was 171.81±11.64 months (p > 0.05). The mean weight for the boys was 53.59 ±11.93 and for the girls was 47.39±9.05 kg (p <0.001). The mean PEFR in the boys was 501.67±81.49 and the girls was 354.22 ±44.52 L/min (p<0.001) in sitting position .There was no statistically significant difference of the mean age (p>0.05) between boys and girls as all the samples were of same class (class nine). There were very highly statistically significant difference of the mean weight (p<0.001) between boys and girls. There was also very highly statistically significant difference of the mean PEFR values (p <0.001) between boys and girls both in sitting position.

Table-V: PEFR (L/min) values for boys and girls by weight range in sitting position

Weight in kg	Boys		Girls	
	Number	PEFR in sitting Mean ± SD	Number	PEFR in sitting Mean ± SD
<50	89	476.63 ± 85.96	180	351.44 ± 44.27
50 - 60.99	60	522.67 ± 71.94	47	353.62 ± 42.50
61 - 70.99	24	528.75 ± 64.22	12	381.67 ± 49.70
71 - 80.99	5	488.00 ± 50.70	6	381.67 ± 40.70
81 - 90	4	555.00 ± 105.36	1	390.00
> 90	3	560.00 ± 52.92		

Table - V show PEFR values in relation to sex and weight. The PEFR values were elevated with increasing weight. The rate of increase in boys was higher than girls. But in case of boys PEFR value in weight range 61-70.99 kg was higher than that of 71-80.99 kg. But in case of girls PEFR value in weight range 61-70.99 kg and 71.00-80.99 kg were same and close to weight range 81.00-90.00kg, this was mostly due to obesity.
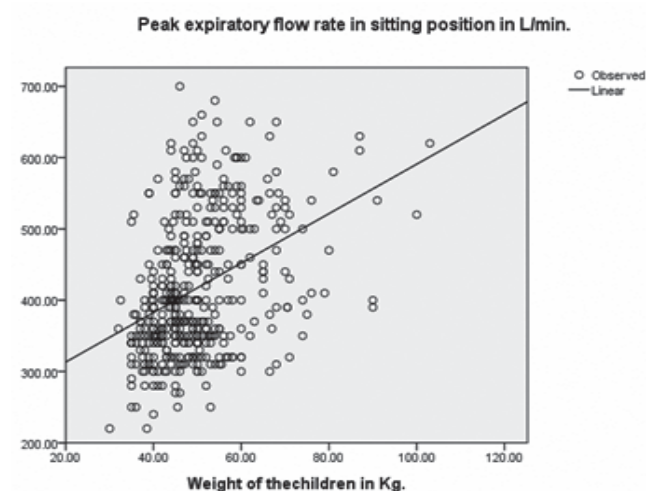
PEFR in L/min

Fig. 1: Scatter diagrams depicts relationship of PEFR with weight of children (n=431) in sitting position.

Fig. 1: Scatter diagrams depicts relationship of PEFR with weight of children (n=431) in sitting position. There was a positive correlation considered PEFR as dependent and weight as independent variable. The co efficient of correlation was very highly significant (r = 0.408, p <0.001)
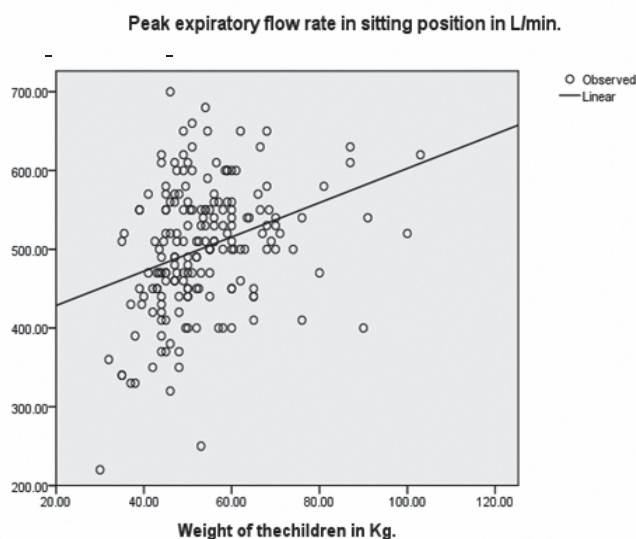
PEFR in L/min

Fig.-2: Scatter diagrams depicts relationship of PEFR with weight of boys (n=185) in sitting position.
Fig.-2: Scatter diagrams depicts relationship of PEFR with weight of boys (n=185) in sitting position. There was a positive correlation considered PEFR as dependent and weight as independent variable. The co efficient of correlation was very highly significant in sitting position (r =0.319, p <0.001).
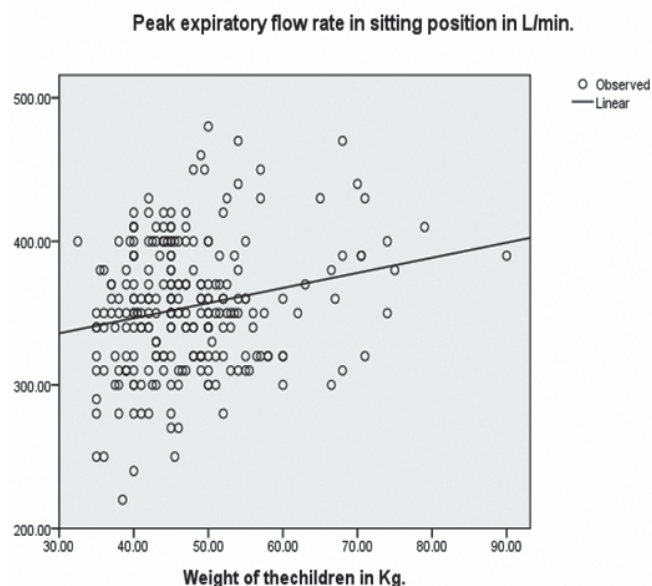
PEFR in L/min

Fig. -3: Scatter diagrams depicts relationship of PEFR with weight of girls(n=246) in sitting position.
Fig.-3: Scatter diagrams depicts relationship of PEFR with weight of girls (n=246) in sitting position. There was a positive correlation considered PEFR as dependent and weight as independent variable. The co efficient of correlation was highly significant in sitting position (r =0.214 , p <0.01).

Discussion

Assessment of lung functions both qualitatively and quantatively in both healthy and diseased subjects has become important in the field of Respiratory medicine. Measurement of PEFR has gained worldwide importance in clinical practice for evaluation of patients with obstructive and restrictive airway diseases. PEFR is a simple and reliable way of monitoring the severity of bronchial asthma and assessing the response to treatment. It is a measurement which is dependent upon several variables including airway resistance maximal voluntary muscular effort and the possible Compressive effect of the maneuver on

thoracic airways.[10-12]

This Cross sectional analytical study was carried out with an aim to find out the relation of PEFR with sex, and weight in posture and also to Measure the peak expiratory flow rate in selected group of healthy secondary school going children. A total number of 431 healthy children (class nine) from 7 different schools of Rangpur city were measured during the study period. This study showed that the mean PEFR (l / min) value of boys (501.67±81.49) was higher than that of girls (354.22±44.52) in sitting position. This study showed that PEFR values increased with weight and were significantly higher in boys than girls.

PEFR measurement by peak flow meter is an easy way to assess lung capacity and ventilatory functions of the subjects. The lung function tests including PEFR are influenced by various factors such as age, body size, physical activity, and environmental condition ethnicity etc. [8,13.14]

A study was carried out in normal urban and rural school children in Ludhiana district of North India to determine pulmonary functions in the age group 6-15 years. The aim of the study was to see the correlation of lung functions with age, height, weight and sex in both urban and rural subjects. Coefficient of correlation of different parameters with age, height and weight was calculated. All the lung function parameters significantly correlated with age, height and weight .But Among all anthropometric parameters height was the most independent variable and was shown to have maximum coefficient of correlation. With an increase in height, lung function values increase in both urban and rural children. But in the same height group there was no statistically significant difference in urban and rural area. [15,16]

In this study it was observed that a highly significant positive correlation of PEFR with weight was observed in both the boys and girls

which mean that the value of PEFR increased with increase in the anthropometric parameter-body weight. The PEFR (l/min) of boys and girls in relation to weight with positive correlation when PEFR was considered dependent and weight as an independent variable. Similar results were shown by various other authors which was done in the town Babol of Iran.[17–20]

Respiratory function is affected in obese children, may be due to changes in the mechanics of respiratory muscles that expand the thorax and in lung compliance and resistance, which may lead to rapid, shallow breathing, increased work of breathing and reduced maximal ventilatory capacity.[21-39]

In our study it was observed that PEFR values for both in boys and girls were elevated with increase of weight up to certain range and there after no significant change in PEFR values with increased body weight.

Conclusion

This study concluded that there was a very highly significant difference of PEFR values between boys and girls (p <0.001) in sitting position and was a very highly significant positive correlation of PEFR values with weight for boys and girls in sitting position. The co-efficient correlation PEFR values for weight was highly significant. The study could serve as an important basis for preparing centile curves for PEF values for healthy Bangladeshi children and may fill the deficiency in the reference values.

Limitation of the study

1. The study was conducted only in urban area.

2. The study population was of same age group.

3. The study population was not differentiated according to economic status.

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Clinico-Biochemical Profile of Polycystic Ovary Syndrome in Northern area of Bangladesh

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Abstract

Polycystic ovary syndrome (PCOS) is a common condition characterized by menstrual abnormalities and clinical or biochemical features of hyperandrogenism and may manifest at any age. The present study was carried out at different hospitals and privet chambers (northan region of Bangladesh), from January 2012 to December 2014, on 50 women with PCOS which was diagnosed by three criteria: (1) oligovulation and/or anovulation, (2) hyperandrogenism and (3) polycystic ovaries. Most common age was 21-25 years (44%), mean BMI 27.10 kg/m^2, menstrual cycle irregularity 80%, oligomenorrhoea 28%, dysmenorrhoea 18%, nulliparity 90%, history of abortion 10%, acne in 52%, hirsutism in 50%, and per vaginal findings were anteverted uterus 100%, free fornices 98% and healthy cervix 94%. Laboratory findings were low serum FSH 2% (2.8 mIU/ml), raised serum LH 56% (>14.7 mIU/ml). LH: FSH retio increased more than 3:1, raised blood sugar (2hr after 75 g glucose load) 30% (7.8 mmol/L), raised serum prolactin 14% (>25 ng/ml), raised serum TSH 2% (>4 IU/ml), low T$_4$ (<3.5 ng/dl), ultrasound of lower abdomen showed evidence of PCOS in 100% cases. Infertility in women with PCOS can be treated successfully in most women by diet and exercise, clomiphene citrate with or without metformin, laparoscopic ovarian diarthermy, or ovulation induction with gonadotrophins.

Key words: PCOS, Infertility.

Introduction

The polycystic ovary syndrome (PCOS), one of the most common causes of infertility due to anovulation, affects 47% of women[1]. The PCOS syndrome is a heterogenous condition which is defined by the presence of two out of the following three criteria (Rottardum criteria): (1) oligo and/or anovulation, (2) hyperandrogenism (clinical and/or biochemical) and (3) polycistic ovaries, with the exclusion of other aetiologies[2]. According to study, basic diagnostic criteria should be the presence of hyperandrogenism and chronic oligoanovulation, with the exclusion of other causes of hyperandrogenism such as adult onset congenital adrenal hyperplasia, hyperprolactinaemia and androgensecreting neoplasms[3]. A consensus conference held in Rotterdam agreed on the appropriateness of including ultrasound morphology of the ovaries as a further potential criteria to define the PCOS but also established that at least two of the following criteria are sufficient for the diagnosis: oligo and/or anovulation, clinical and/or biochemical signs of hyperandrogenism and polycystic ovaries at ultrasound[4]. The pathophysiology of PCOS may have a genetic component although it can be suggested that the main factors responsible for the increasing prevalence of PCOS are related to the influence of the environment, including dietary habits, behaviour and other still undefined factors[1]. The clinical features of PCOS are heterogeneous and may change throughout the lifespan, starting from adolescence to postmenopausal age[5]. This is largely dependent on the influence of obesity and metabolic syndrome, which consistently affect most women with PCOS[6]. This represents an important factor in the evaluation of the PCOS throughout life and relevant to young and fertile women but may also have some health implications later in life.

Whereas hyper androgenism and menstrual irregularities represent the major complaints in young women with the PCOS, symptoms related

to androgen excess, oligomenorrhoea or amenorrhoea and, particularly, infertility are the main complaints of adult women with PCOS during the reproductive age. Obesity has an important impact on the severity of these manifestations in proportion to its degree and particularly in the presence of the abdominal phenotype[6]. In addition, there is consistent evidence that it renders affected women more susceptible to develop type II diabetes, with some differences in the prevalence rates between countries and, potentially, in favouring the development of cardiovascular diseases[1].
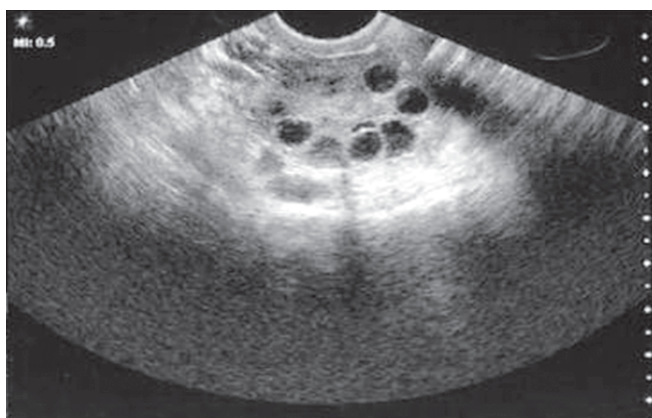

Figure 1: Typical Utrasonographic appearance of an ovary in PCOS.

The present study was carried out to evaluate the characteristics and laboratory findings of PCOS patients attending different practicing area in Northern part of Bangladesh including Rafatullah Community Hospital, Bogra.

Rationale of the study

There is an increasing awareness of PCOS among the female population along with an increase in diagnosis and an increased incidence of established co-morbidities such as obesity and type 2 diabetes.[2,9,10] PCOS may mimic other disorders such as congenital adrenal hyperplasia and androgen secreting neoplasms. Given the variability of signs, symptoms, biochemical and radiologic features in a given individual, diagnosis of PCOS can be easily missed.[19] Moreover, even when PCOS is correctly diagnosed screening for other metabolic constellations may not be consistently carried out. In Bangladesh very few studies has been done regarding PCOS. Therefore, we evaluated the diagnostic and laboratory findings in our local urban setting.

Materials & Methods

During January 2012 to December 2014, 50 women with PCOS were selected purposively which was diagnosed by three criteria: (1) oligo and/or anovulation, (2) hyperandrogenism and (3) polycystic ovaries.

The data collection questionnaire for this study included age, menstrual history including regularity/irregularity of cycle, history of cycle length, obstetric and medical history, family history, history of diabetes mellitus, hypertension, body mass index, acne, hirsutism, thyroid status, per vaginal examination findings. In the data sheet findings of laboratory investigations included hormonal status like serum follicle stimulating hormone, luteinizing hormone, blood sugar 2hr after 75 g glucose load, serum prolactin, thyroid hormone level. Ultrasonography findings of lower abdomen including both ovaries and fallopian tubes were also noted. Collected data was compiled and analyzed using MS Excel and SPSS software.

Results

Fifty subfertile women suffering from PCOS were recruited for evaluation (Table-I). Age range was 16-30 years (mean±SD 24.30±3.98). Menstrual cycle was regular in 10 (20%) and irregular in 40 (80%). Oligomenorrhoea was present in 14 (28%) and absent in 36 (72%). Dysmenorrhoea was observed in 9 (18%) and absent in 41 (82%). Out of 50 women, 45 (90%) were nulliparous and 5 (10%) primiparous. History of abortion was present in 5 (10%) and absent in 45 (90%) patients. Findings of per vaginal examination revealed that uterus was anteverted in all 50 cases (100%), fornices was free in 49 (98%) and adhesion in 1 (2%), and cervix was healthy in 47 (94%) and unhealthy in 3 (6%) cases.

Table-I. Characteristics of women with PCOS (n=50)

Parameters		Frequency	Percentage
Age (years)			
< 20		10	20.0
21-25		22	44.0
26-30		18	36.0
Mean±SD	24.30±3.78		
Range	16.0-30.0		
BMI (kg/m2)			
Mean±SD	27.10±2.05		
Range	21.80-34.00		
Menstrual cycle Regular		10	20.0
Irregular		40	80.0
Oligomenorrhoea			
Present		14	28.0
Absent		36	72.0
Dysmenorrhoea			
Present		9	18.0
Absent		41	82.0
Parity Nulliparous	90.0	45	
Primiparous		5	10.0
History of abortion Present 5		10.0	
Absent		45	90.0
Acne Present 26		52.0	
Absent		24	48.0
Hirsuitism Present		25	50.0
Absent		25	50.0
Per vaginal findings			
Position of uterus			
Anteverted		50	100.0
Fornices Free		49	98.0
Adhesion		1	2.0
Cervix Healthy		47	94.0
Unhealthy		3	6.0

Table-II. Distribution of the respondents by their laboratory findings (n=50)

Serum LH (mIU/ml)			
Normal (1.1-14.7)		22	44.0
Raised (>14.7)		28	56.0
Mean±SD	15.02±3.66		
Range	6.70-25.50		
Serum FSH (mIU/ml)			
Low (<2.8)		1	2.0
Normal (2.8-21.0)		49	98.0
Mean±SD	6.10±1.94		
Range	2.30-13.10		
Blood sugar (2 hrs after			
75 g glucose load) (mmol/L)			
Normal (<7.8)		35	70.0
Raised (7.8)		15	30.0
Mean±SD	7.24±1.90		
Range	4.20-13.20		
Serum prolactin (ng/ml)			
Normal (1.9-25.0)		43	86.0
Raised (>25.0)		7	14.0
Mean±SD	23.52±46.96		
Range	5.60-315.18		
S Oestrogen raised		50	10.0
Serum TSH (μIU/ml)			
Normal 0.4-4.0		49	98.0
Raised (>4.0)		1	2.0
Mean±S D 2.35±0.82			
Range	0.94-4.20		
USG of lower abdomen findings			
Evidence of PCO		50	100.0
BMI			
<25		6	12
25–29.9		27	54
>30		17	34

Discussion

In this study we observed that there is heterogenicity in the presentation of patients with PCOS.

44% were from 21-25 years age group. Irregular menstrual cycle (80%), Absent Oligomenorea (72%), absent Dysmenorea(82%), Nulliparous parity (90%), Acne (52%), healthy cervix (94%) were found among the respondents. Our

evaluation of 50 women with PCOS showed low serum FSH in 2% (<2.8 mIU/ml), raised serum LH in 56% (>14.7 mIU/ml), raised blood sugar (2hr after 75 g glucose load) in 30% (>7.8 mmol/L), raised serum prolactin in 14% (>25 ng/ml), raised serum TSH in 2% (>4 µIU/ml), and ultrasonogram of lower abdomen showed 100% evidence of polycystic ovaries. Ovarian volume 10 10 cm^3 , number of follicles are more than 12 which are peripherally arranged and diameter of cyst are 2-9 mm.

Circulating concentrations of insulin and luteinizing hormone (LH) are generally raised. The theca cells, which envelop the follicle and produce androgens for conversion in the ovary to oestrogen, are overresponsive to this stimulation. The combination of raised levels of androgens, oestrogen, insulin and LH explains the classic PCOS presentation of hirsutism (50%), anovulation or dysfunctional bleeding, and dysfunction of glucose metabolism were also common in some cases.[7]

Lifestyle changes are the firstline intervention in women with PCOS who are overweight[16]. Glucose intolerance can be managed by diet and exercise, weight control and oral anti-diabetic drugs (e.g. metformin).

The cause of infertility in patients with PCOS is generally lack of ovulation because of a failure of the follicles to develop beyond 10 mm. Most cycles are anovulatory and induction of ovulation is essential. Several studies have shown that weight loss can lead to resumption of ovulation within weeks[17-18]. Clark and colleagues demonstrated that even a 5% reduction in body mass restores ovulation and fertility[19-20].

Menstrual dysfunction, including irregular periods, can be managed by administration of progestins (e.g. medroxyprogesterone acetate or norethisterone) or the oral contraceptive pill.[25] Endometrial hyperplasia should be assessed by ultrasound examination, endometrial biopsy or hysteroscopy, and can be treated by hormonal therapy, such as the oral contraceptive pill or progestins[7].

In this study, 88% of the participants were overweight or obese (BMI>25); higher frequency of obesity and overweight may be attributed to the food habits, lack of exercise in Bangladeshi women. Obesity frequently complicates polycystic ovarian syndrome but is not a defining characteristic.

Clomiphene citrate is an oral oestrogen antagonist that raises circulating concentrations of FSH and induces follicular growth in most women with PCOS and anovulation[7]. Use of the insulin sensitizing drug (metformin) at doses of 500-2500 mg daily is controversial but appears valuable in increasing menstrual cyclicity and pregnancy rate[21-24].

Laparoscopic ovarian diathermy has been used in the management of anovulatory women with clomiphenecitrate (CC) resistant PCOS for the past two decades. With ovulation rates of 70-80% and pregnancy rates of 30-60% within 612 postoperative months[8-15].

Conclusion

PCOS is a very heterogeneous disorder of different phenotypes. No single clinical or laboratory finding can be a characteristic attribute to diagnose PCOS. The diagnostic approach should be based largely on history and physical examination, thus avoiding numerous laboratory tests that do not contribute to clinical management. Women with PCOS require ongoing surveillance to detect impaired glucose tolerance, hyperlipidaemia, endometrial hyperplasia and consequent complications. Obese women, in particular require regular (possibly annual) glucose tolerance testing because of the potential for rapid progression from normal to impaired glucose tolerance and diabetes. Although treatment should be individualized, it should also focus on all metabolic consequences and decreasing future complications. More extensive research and understanding of the PCOS will improve treatment success and overall management of patients.

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Collodion baby : An uncommon clinical case report

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Abstract

Collodion baby describes a highly characteristic clinical entity in newborns encased in a yellowish translucent membrane resembling collodion. The collodion membrane is composed of thick skin sheets which resemble translucent, tight parchment paper. The purpose is to report the rare occurrence of collodion baby among our population. In this report we present a rare case of collodion baby in whom the skin was parchment like, Shiny and thickened with distorted facial feature like ectropion and eclabium with pseudo contracture of digits. In almost all of the collodion membrane cases an autosomal recessive ichthyosiform disease is implicated. Usually these babies are premature. Congenital Lamellar Icthyosis also known as Icthyosis lamellaris or non bullous congenital ichthyosis is a rare inherited, phenotype Autosomal Icthyosis (ARCI). Gradually these children will develop signs of one of several types of icthyosis which gives the skin appearance of "Fish Scales". Conclusively, these newborns should be monitored carefully in intense care units and is difficult to diagnose in antenatal period.

Key Words: Collodion Baby, Neonates, Genetic Disorder.

Introduction

The first clinical description of collodion membrane (Pérez, 1880) continues to be valid: "The baby's skin is replaced by a cornified substance of uniform texture which gives the body a varnished appearance".[1] The term collodion baby refers to a clinic entity used for newborns who are encompassed by a translucent, tight and parchment paper like skin sheets so called collodion membrane, on the entire body surface.[2,3,4] Collodion baby as a term was first used by Hallopeau in 1884.[4,5,6] Although, the pathogenesis of molecular mechanisms apparently lead to an epidermal cornification disorder, keratinocyte protein and lipid metabolism defects resulting from autosomal recessive genetic mutations have also been notified as important cofactors.[3] The cause of both autosomal recessive lamellar ichthyosis and congenital ichthyosiform erythroderma (nonbullous) have been reported to be transglutaminase 1 gene mutation localized on the 14q11.[5,7.]

About 270 cases of collodion baby have been reported since 1884.[8] It is a congenital disorder, occurring with an incidence of 1:300,000 live birth[9] and both gender are equally affected.[10] Collodion baby is also known as collodion fetus.[11] Collodion baby is characterized by shiny, tight, cellphone-like membrane stretched over the skin.[12]

The collodion membrane is a temporary condition, which desquamates later on, and ultimately these children manifest sign of ichthyosis. About 45% of collodion babies develop some complication due to compromised skin barrier function. It is associated with mortality rate of approximately 11%.[13]

Picture-1   Picture-2

Case Report

A 38 weeks preterm girl was born to 22 years old primiparous mother by spontaneous vaginal delivery at RCH Bogra. She was the first live born of the non-consanguineous parents (picture-1,2). There was no family history of the similar condition and Antenatal history also uneventful. The Karyotypes done were normal. On examination notable findings include baby was encased in a tight, transparent, shiny membrane with restricted movements, eyelids were turned outwards, ectropion, Lips were turned outwards, eclabium, Fissuring were over trunk, limbs. Exfoliation of skin over the hands and feet. The baby's birth weight was 2.6 kg, and head circumference of 34 cm. A clinical diagnosis of collodion baby was made based on clinical findings as noted above. Treated with local application of liquid paraffin, lacrimal eye ointment, with artificial teardrops and prescribed one intravenous antibacterial agent to combat infection. Infant was managed conservatively and started accepting breast feeds by 4th day of postnatal life. She was discharged on 15th day when her clinical condition was stable. They were also counseled regarding prolonged period of observation.

Discussion

The collodion baby is a clinical entity, referring to newborns who have extra sheets of skin, termed as collodion membrane.[18] Collodion baby is a rare condition needs more care and attention in the neonatal period.[17] The newborns are encased in glistening, taut, parchment-like membrane.[19] Furthermore, described as dipped in hot wax.[18] The neonates are usually born prematurely.[17] The tight collodion membrane over the face leads to eclabium (eversion of lips), ectropion, and deformed pinna. Collodion membrane can restrict breathing, swallowing, and movement at joints.[16,20] Nasal obstruction can cause diffculty in breathing, which may require probing.[16] Sometimes hairs are absent.[19] The collodion membrane begins to dry early, and cracks in 48 hours usually shed off completely in 2 or more weeks. Finally, collodion membrane is replaced by normal appearing skin. The desquamation causes impairment of skin barrier function and fissure formation.[14, 15]. In this study the newborn presented with clinical features include baby was encased in a tight, transparent, shiny membrane with restricted movements, eyelids were turned outwards, ectropion, Lips were turned outwards, eclabium, Fissuring were over trunk, limbs. Exfoliation of skin noted over the hands and feet.

It is the early presentation of various congenital ichthyosis.[17] Nearly, 75% of collodion babies progress to autosomal recessive congenital ichthyosis such as lamellar ichthyosis and congenital ichthyosiform erythroderma. About 10% of collodion fetus will have normal skin after the membrane is shed off. They are termed as self-healing collodion babies. Remaining 15% of collodion babies develop other keratinization defects such as Netherton syndrome, Gaucher disease type[15], ichthyosis vulgaris, trichothiodystrophy, and Sjogren-Larsson syndrome.[21]

Diagnosis based on the evolution of the cutaneous findings, associated abnormalities and family history.[22] In the immediate neonatal period skin biopsy may be non-specific. Histologic evolution may be postponed until after the age of 3-6 months[23].

Complications include temperature instability, defective barrier function, increased insensible water loss predisposing to hypernatremic dehydration.[24] (Buyse et al 1993). Pneumonia secondary to aspiration of squamous material in the amniotic fluid and cutaneous infection from gram-positive organisms and candida albicans.

Treatment consists of aggressive supportive care. Infants must be placed in a highly humidified isolette. Fluid and electrolyte balance must be closely monitored. A high index of suspicion must be maintained for signs of cutaneous or systemic infection. Overzealous administration of antibiotics how ever may lead to gram-negative infections and subsequent septicemia. Topical skin care should include application of a bland occlusive ointment. Emollient every 6-8 hours until the hyperkeratosis has resolved. Potentially toxic topical agents should be avoided because of the increased risk of percutaneous absorption. Manual debriment is not indicated. The eyes should be protected with a bland lubricating ointment. Aggressive surgical management of ectropion is almost never necessary. Systemic retenoids have not been useful[25] (Waisman et al, 1989). With optimal supportive care, the thickened stratum cornium usually resolve in 2-4 weeks, but can persist, especially in infants with Lamellar Ichthyosis. Several out comes have been reported including complete healing without sequelae [26, 27]

The newborn in this case repot was treated conservatively with local application of liquid paraffin, lacrimal eye ointment, with artificial teardrops and one intravenous antibacterial agent.

She was discharged after two weeks of postnatal period on well condition with proper counseling.

Conclusion

Collodion baby is a rare condition, which requires proper supportive care. A prolonged period of observation is necessary to determine the precise diagnosis and prognosis. As soon as a definite diagnosis has been made genetic counseling should be provided.

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Primary Hepatic Neuroendocrine Carcinoma: A Case Presentation

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Abstract

Primary hepatic neuroendocrine carcinomas (PHNECs) are exceedingly rare and unlike metastatic neuroendocrine tumor rarely cause carcinoid syndrome. We present a case of a 54 -year-old male with a primary hepatic neuroendocrine carcinoma which presented as abdominal discomfort and fatigue. The case presented required meticulous radiological, histopathological, and serological work-up to rule out an occult extrahepatic malignancy with hepatic metastasis to confirm the primary nature of hepatic tumors.

Keywords : Neuroendocrine tumor, immunohistochemistry, liver.

Introduction

Neuroendocrine tumors develop in organs or tissues that contain peptide- and amine-producing cells with different hormonal profiles depending on their site of origin.[1] Of all neuroendocrine tumors, approximately 57.0% and 27.0% arise within the gastroenteropancreatic system and bronchopulmonary system, respectively.[2] Within the gastrointestinal tract, most neuroendocrine tumors occur in the rectum (17.2%), jejunum/ileum (13.4%), and pancreas (6.4%).[2] Primary hepatic neuroendocrine carcinomas (PHNECs) are extremely rare. We present the case of a man with Primary hepatic neuroendocrine carcinoma.

Case Report

A 54 year old non-diabetic, normotensive man presented with abdominal discomfort andfatigue for last 6 months. He is smoker for last 1 years and past medical history revealed known case of gall stone disease since last year. He is the fourth child in his family with no history of diabetes or other auto immune diseases among family members. He gives no history of flushing, diarrhea, palpitation or wheeze. Physical examination reveals an afebrile, non- anemic, non-icteric, no pitting pedal oedema and blood pressure was 120/70 mm Hg; a pulse of 78 beats/ min; and a respiratory rate of 18 breaths/ min. Abdomen is soft, non-tender, no organamegaly and normal audible bowel sounds. Hiscardiovascular, pulmonary and neurological exams are all benign. Serum creatinine is within the normal range. Liver function tests reveals bilirubin 11umol/L (normal <20umol/L), alanine aminotransferase (ALT) 31 IU/L (normal <50IU/L), alkaline phosphatase 187 IU/L, (normal <350IU/L), LDH 253 (normal range: < 400 U/L) and albumin 39 g/L (normal range: 35 to 45g/L). Complete blood counts with PBF also normal.Serum biochemistry shows fasting blood glucose level of 88 mg/dL (normal range: 82 to 110mg/dL), potassium: 4.4 mmol/L (normal range 3.5 to 5), sodium 137 mmol/L (normal range: 130 to 145) and calcium 9.2 mg/dL (normal range: 8 to 10.5). Chronic Viral hepatitis screens (HBsAg, Anti HBc& Anti-HCV), TPHA and Anti HIV (1 &2) are negative. Thyroid function tests are normal. Tumor markers including AFP 1.7 ng/mL (normal: <15), CEA4.5 ng/mL (normal <5), PSA 1.4ng/ml (normal range: < 4) and CA19.9 20.2

U/ml (normal range: < 18.3) are normal ranges. Ultrasound of the abdomen reveals multiple hyper echoic lesions occupying both lobes and multiple echogenic structures in the gall bladder which has posterior acoustic shadow (Figure1). An abdominal computerized tomography (CT) scan with contrast is obtained, which reveals multiple hyper dense space-occupying lesions in the both lobes of liver (Figure-2) with no other intra-abdominal masses or lymphadenopathy. FNAC and Core liver biopsy consisted of tumor cells arranged in glandular, trabecular, and organoid nests of uniform, intermediate-sized, polyhedral cells in a vascular stroma suggestive of Neuroendocrine carcinoma. Endoscopy of upper GIT shows pre-pyloric erosions. Full colonoscopy (Figure-1) shows multiple erythematous ulcerative lesions involving sigmoid colon, descending colon, small part of transverse colon and rectum. Intervening mucosa and vascular patterns appears normal. Bleeds a little after biopsy taken. Biopsy revealed the lamina propria contains increased number of chronic inflammatory cells. No granuloma or malignancy is seen which suggest non-specific colitis. Ten days after parenteral antibiotics repeat colonoscopy reveals normal study. Both X-ray and computerized tomography (CT) scan of the chest reveals negative for mass or mitotic lesions. PlasmaChromogranin A is performed &level 762 ng/ml (normal range: < 100) and 24 hours urinary 5- HIAA is 4.50 mg (normal range: 0.7- 8.2)

Based on combinations of histopathology, PlasmaChromogranin A and exclusions of others primary like chest radiography, upper and lower gastrointestinal endoscopy a diagnosis of Primary hepatic neuroendocrine carcinoma is made.

Discussion

Primary neuroendocrine tumor of liver is rare and was first described by Edmonson in 1958. It represents 0.3% of all carcinoids.[3] Females are affected slightly more often than males (1.4:1) and the age group of affected patients ranges from 18 to 84 with an average age of 54 years.[4] Our

patient is middle age.

Primary hepatic neuroendocrine tumors may be an incidental finding or can present with severe symptoms including abdominal pain or discomfort, jaundice, palpable right upper quadrant mass, carcinoid syndrome, carcinoid heart disease, and Cushings syndrome. Interestingly, the carcinoid syndrome is rarely present in primary hepatic neuroendocrine tumors because hepatic enzymatic degradation of neoplastic-derived products spill directly into the portal circulation.[5-6] Our patient presented only with abdominal discomfort and no carcinoid syndrome.

The diagnosis of PHNECs is a debatable point. Because the liver is the most frequent metastatic site of neuroendocrine carcinomas, differential diagnosis between PHNECs and metastatic hepatic neuroendocrine carcinomas is very important for the diagnosis of PHNECs.[7] Therefore, only with careful analysis and after excluding extrahepatic origin of neuroendocrine carcinomas with liver metastasis, can PHNECs be diagnosed.[8,9] Octreotide scanning is a helpful technique for the diagnosis of neuroendocrine tumors, and its sensitivity is up to 90%.[10] However, some neuroendocrine tumors have a limited number of somatostatin-receptor sites that cannot be identified via an octreotide scan.[10] Whole-body PET-CT is also a useful imaging modality for the diagnosis of neuroendocrine tumors, but its sensitivity for detecting liver metastasis of neuroendocrine tumors is only 50.9%,[11] leading to the possibility of a misdiagnosed "primary" hepatic neuroendocrine carcinoma. Many patients are diagnosed with a single hepatic mass by a routine health examination that includes ultrasonography or CT. In previous studies, tumor markers such as AFP, CEA, or CA 19–9 did not have diagnostic value in PHNEC; almost all of them were within the normal limits.[12] In our study, all above tumor markers are negative. Earlier research reported that primary hepatic neuroendocrine tumors were immunoreactive for chromogranin A (89.1%),

neuron specific enolase (74.1%), and synaptophysin (48.9%), similar to other neuroendocrine tumors.[13] Plasma chromogranin A, which is used to diagnose and monitor neuroendocrine tumors during treatment and the diagnostic sensitivity and specificity of chromogranin A in neuroendocrine tumors at 71% and 87%, respectively.[14] Our study also showes plasmachromogranin A is increases.

There are several limitations due to lack of facilities and financial constraints immunohistochemical profile (synaptophysin, chromogranin and neuron-specific enolase on the biopsy specimen), PET, CT scan and octreotidescan not done.

Conclusion

Although PHNECs are very rare tumors, they should be considered as a possible differential diagnosis in the management of hepatic tumors. When a liver biopsy reveals that the hepatic tumor is a neuroendocrine tumor, careful search for other primary neuroendocrine tumor. Because it is usually common site for metastatic.However, the liver can be a primary site of origin for neuroendocrine tumors.
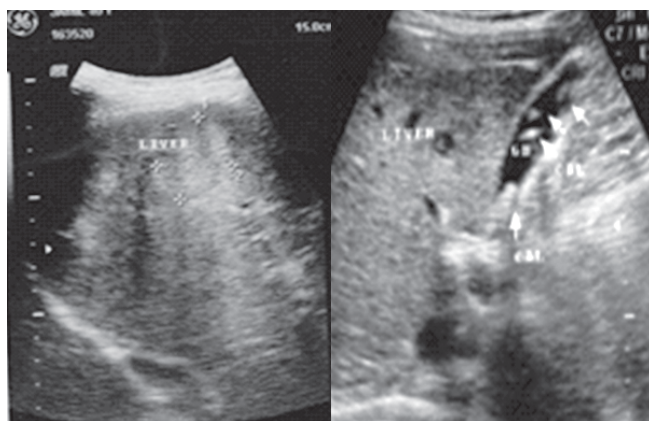

Figure 1: Shows multiple hyper echoic lesions occupying both lobes and multiple echogenic structures in the gall bladder which has posterior acoustic shadow.

Figure 2: Multiple hyper dense space-occupying lesions in the both lobes of liver.
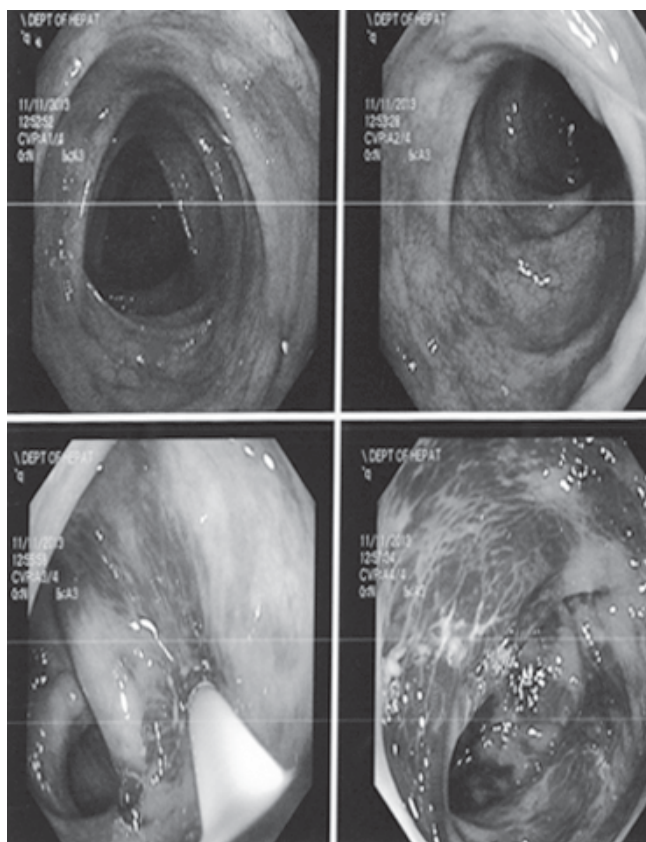

Figure 3: Shows multiple erythematous ulcerative lesions involving sigmoid colon, descending colon, small part of transverse colon and rectum. Intervening mucosa and vascular patterns appears normal. Bleeds a little after biopsy taken

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