ISSN - BIB ID 85528

BMDC Recognized Journal

July 2018
Volume 05 Number 02

Journal of Satkhira Medical College

Official Journal of
Satkhira Medical College Teachers Association
Satkhira, Bangladesh

JOURNAL OF
SATKHIRA MEDICAL COLLEGE

JSMC : Volume 05 No. 02 July 2018

Official Journal of Satkhira Medical College Teachers Association

JSMC is published twice in a year in the month of January and July.

This Journal is published by Teachers Association of Shatkhira Medical College, Shatkhira, Bangladesh. All correspondence for publication of manuscripts: Dr. Khan Golam Mostafa, Editor-in-Chief, JSMC, Department of Paediatrics, Satkhira Medical College, Satkhira, Bangladesh. Contact: Ph. 0471-64006; Mob. 01713 464777. Email: satkhiramc@ac.dghs.gov.bd.

Teacher's Association

Satkhira Medical College, Satkhira

President	:	**Prof. Dr. Kazi Habibur Rahman**
Vice President	:	**Dr. Maksudul Anam Siddique**
	:	**Dr. Harashit Chakrabarty**
General Secretary	:	**Dr. Md Ruhul Quddus**
Joint Secretary	:	**Dr. Md.Nasir Uddin Gazi**
Treassurer	:	**Dr. Quazi Arif Ahmed**
Organiging Secretary	:	**Dr. Sheikh Abu Sayeed**
Cultural and Entertainment Secretary	:	**Dr. Nasir Uddin Gazi**
Scientific Secretary	:	**Dr Md Zahidul Islam**
Publication Secretary	:	Prof. **Dr Khan Golam Mostafa**
Office Secretary	:	**Dr.Sudipto Shekhar Debnath**

Members :

1. Dr Abu Saleh Md. Moosa
2. Dr Mohammad Mamunur Rashid
3. Dr Md Asaduzzaman
4. Dr Sanjoy Kumar Sarker
5. Prof. Dr. A H S M Kamruzzaman
6. Dr. Md. Touhidul Islam
7. Dr Farhana Hosssain
8. Dr Fahmida Zaman

SATKHIRA MEDICAL COLLEGE
Satkhira, Bangladesh. Phone : 0471-64006, Fax : 0471-63559
satkhiramc@ac.dghs.gov.bd www.satkhiramedicalcollege.com

JOURNAL OF SATKHIRA MEDICAL COLLEGE (JSMC)

JSMC : Volume 05 No. 02 July 2018

CONTENTS

EDITORIAL

Obesity becoming new normal what should we think?

KG Mostafa

In just a blink of Earth's eye (approximately three decades), obesity has become a global epidemic and an urgent health crisis due to its impact on health services and the loss of human capital. It is not just a crisis for health professionals, health economists, and government officials managing finite resources and considering the economics of premature loss of life and economic productivity: it is a major societal concern that challenges the way we think about and manage resources. These resources can be considered in terms of health, human, budgetary, financial, and primary products. In this timely Frontiers Research Topic, researchers from a breadth of disciplines internationally contributed reviews, meta-analyses, and novel data on the challenges obesity presents in attempts to stimulate debate on ways forward.

The impact of modernity on body composition homeostasis is reviewed by Tremblay who challenges us to reconsider the paradigm that imbalances between food intake and physical activity are the only determinants of the obesity epidemic, given that complexities within the energy balance equation prevent a reductionist approach. Factors influencing or regulating the endocrine responses to energy-in and energy-out are discussed, including the impacts of contemporary lifestyle: alterations in the sleep-wake cycle, shortened sleep duration, environmental pollutants, high mental cognitive work, and stress. The challenge of weight loss maintenance in the face of an endocrine system that has evolved to defend body fat stores and promote weight regain is examined. The solution? In the face of the obesity pandemic, promotion of the healthiest lifestyle possible. We should not be limited by focusing solely on energy balance, but holistically intervene on sleep hygiene, reducing stress responses, and limiting environmental exposure to pollutants and endocrine disruptor chemicals, all with the aim of down-regulating the central-, adrenal-, and adipokine-regulating hormonal responses that mitigate an individual's hard won weight loss. Whilst government intervention is required to address some of these factors (such as creating safe environments), clinicians can play an important role in guiding patients to battle against the regulatory pathways and modernity factors that promote weight regain. With this in mind, clinicians must realize that the

work is not done when weight loss is achieved: we keep our obese patients for our working life, as they will require ongoing guidance, supervision, and intervention.

Where governments have shown leadership in developing and implementing policies to address obesity, the presence of bias or influence is a significant concern. In an environment where everyone is an "expert" on diet and obesity [informed from diverse sources including media, talk-show hosts, reality and lifestyle programs, advertorials, internet blogs and (occasionally) real science], do obesity policy makers and service deliverers bring their own prejudices to the execution of professional duty? Pengilley and Kelly demonstrate that uninformed opinion does influence policy implementation. They recommend that development and design of obesity policy requires a strict, robust, and transparent governance framework to prevent these prejudices from derailing the efficacy, reach, and delivery of obesity policy. Their findings and comments are prophetic, published just months before The Lancet published evidence of undue influence by a multinational sweetened beverage corporation on obesity science and policy in China [1]and, separately, Milbank Quarterly published evidence of efforts by a multinational beverage corporation to influence the US Centers for Disease Control and Prevention [2]. A strongly worded editorial in Lancet Oncology very recently stated that "Governments must not allow their public health strategies to be unduly influenced by powerful multinationals who might be more concerned with protecting their own interests than helping to solve this ongoing health crisis " [3].

Where government has implemented population-based obesity prevention interventions, proof of cost-effectiveness is vital, given precious health resources. The paper from Döring et al. evaluated the cost-effectiveness of PRIMROSE, a program aimed at Swedish pre-school children that addressed healthy eating and physical activity, with the primary outcome of BMI at age 4. Cost-effectiveness was not established, due to the cost of educating nurses to implement the program and parental income lost to attend. These results raise a number of questions for intervention implementation (e.g., utilizing trained but less expensive staff). As obesity impacts on sick leave and reduced productivity at work, employers are understandably focused on their employees' health. Feldman et al. examined the effectiveness of a workplace wellness program in obese attendees and found that whilst the program was associated with only very modest weight loss, the weight loss was clinically meaningful in attendees who were ready for change. These findings assist in determining weight loss resource allocation for greatest impact. Thus, publicly and privately funded initiatives for obesity reduction are likely to make very little or only a modest dint in the obesity epidemic.

The serious fundamental question in the modern epidemic of obesity is: does the solution lie in influencing the choices individuals make in an obesogenic environment (marketing works commercially, especially for foods), or is it altering or limiting the choices available to individuals, using legislation if the food industry insufficiently responds to the obesity crisis? Can we learn anything from the efficacy of government legislations that, for example, restricted the sale of alcohol (Sweden), highly taxed cigarettes (Ireland), or introduced plain packaging and graphic warnings on tobacco products (Australia)? [4]. Each represented a government legislative response to harmful products and have reduced consumption and the adverse health outcomes associated with each product. Sugar taxes are hotly debated internationally. A recently published review showed that excise taxation of tobacco, alcohol, and sweetened beverage works in reducing consumption[5].

We must encourage food industry "disruptors": enterprising food producers and manufacturers ready to exploit the opportunities presented in a market of consumers demanding better foods, when "old school" food industry doesn't respond with real change (only cosmetic or cynical change). Finally, we suggest that our policy makers and politicians should respond with taxation, levies, and laws that protect one of the most valued resources our society has: human health. Many governments have done so with other toxic substances, such as cigarettes and alcohol, occupational and environmental hazards. Such legislations are present already in some countries and cities, with sugar taxation and portion size limits: these could be extended elsewhere. Imagine a world however, where these measures were not required. Imagine a world where food is nourishing and beneficial, not harmful.

References

1. Greenhalgh S. Making China safe for Coke: how Coca-Cola shaped obesity science and policy in China. BMJ. (2019) 364:k5050. doi: 10.1136/bmj.k5050
CrossRef Full Text | Google Scholar

2. Maani Hessari N, Ruskin G, McKee M, Stuckler D. Public meets private: conversations between Coca-Cola and the CDC. Millbank Q. (2019) 97:74–90. doi: 10.1111/1468-0009.12368
PubMed Abstract | CrossRef Full Text | Google Scholar

3. Editor. Big influences on anti-obesity strategies. Lancet Oncol. (2019) 20:165. doi: 10.1016/S1470-2045(19)30041-5
CrossRef Full Text

4. Wakefield M, Coomber K, Zacher M, Durkin S, Brennan E, Scollo M. Australian adult smokers' responses to plain packaging with larger graphic health warnings 1 year after implementation: results from a national cross-sectional tracking survey. Tob Control. (2015) 24(Suppl. 2):ii17–25. doi: 10.1136/ tobaccocontrol- 2014-052050

5. Chaloupka FJ, Powell LM, Warner KE. The use of excise taxes to reduce tobacco, alcohol, and sugary beverage consumption. Annu Rev Public Health. (2019) 40:187–201. doi: 10.1146/annurev-publhealth-040218-043816

Original Article

ROLE OF ULTRASOUND IN THE EVALUATION OF BILIARY OBSTRUCTION & ITS COMPARISON WITH ENDOSCOPIC RETROGRADE CHOLANGIO PANCREATOGRAPHY (ERCP)

S Chatterjee[1], F Sultana[2], MK Mondal[3], K Sardar[4], MH Rahman[5], MS Ali[6]

ABSTRACT:

Background: Obstructive jaundice is a common surgical problem. Aspatients with obstructive jaundice have high morbidity and high mortality,early diagnosis of the cause of obstruction is very important especially inmalignant cases, as resection is possible only in early stage. **Objectives:** To compare the accuracy of USG with ERCP in the evaluation of obstructive jaundice. To calculate the sensitivity, specificity, positive predictive value and negative predictive value and accuracy of USG considering ERCP as gold standard. **Materials & Methods:** This was a prospective study carried out in the Department of Radiology & Imaging & in collaboration with Department of Surgery & Gastroenterology of Dhaka Medical College Hospital from July 2011 to June 2012 . Consecutive 50 patient of biliary obstruction were enrolled in this study USG & ERCP done in all patients. **Results:**The mean age of the patient was 39.72 years.out of 50 patient 26 were male & 24 were female. on USG examination 26 were male & 24 were female . Sensitivity of Ultrasound in detecting biliary obstruction was found to be 84 percent in this study . Positive predictive value of ultrasound in detecting biliary obstruction was 100 percent and the accuracy was 92. **Conclusion:** The results of both ultrasound and ERCP examination in the present series are nearly similar and the validity test are almost identical as observed by other investigators. Therefore, the inference can be drawn that ultrasound is good modality in the evaluation of biliary obstruction in the diseases of biliary system as it is cheap simple widely available rapid disgnostic test.

1. *Dr. Sutapa Chatterjee, Assistant Professor, Radiology & Imaging, Satkhira Medical College, Satkhira.*
2. *Dr. Farhana Sultana, Assistant Professor, Radiology & Imaging, Shahid Shuhurawardy Medical College, Dhaka.*
3. *Dr. Manosh Kumar Mondal, Junior Consultant, Medicine, Satkhira Medical College Hospital.*
4. *Dr. Kallyanashish Sardar, Junior Consultant, Medicine, Satkhira Medical College Hospital.*
5. *Dr. Md. Hafizur Rahman, Senior Consultant, Paediatrics, Satkhira Medical College Hospital.*
6. *Dr. Md. Showkat Ali, Assistant Professor, Surgery, Khulna Medical College.*

Introduction

Obstructive jaundice is a common surgical problem that occurs when there is an obstruction to the passage of conjugated bilirubin from liver cells to intestine. It is among the most challenging conditions managed by surgeons and contributes significantly to high mortality and high morbidity. As patients with obstructive jaundice have high morbidity and high mortality,early diagnosis of the cause of obstruction is very important in malignant cases, as resection is possible only in early stage (Chalya & Kanumba,

2011).The biliary or exceretory apparatus of liver includes the passages through which hepatic bile and gall bladder bile are conveyed into the 2nd part of duodenum (William and Warwick, 1994). When the bile ducts become blocked, bile accumulates in the liver and jaundice (yellow color of the skin, sclera, mucous membrane) develops due to accumulation of bilirubin in the blood. It can be clinically detected when the serum bilirubin level is greater than 2.0 mg/dl (serum bilirubin normally ranges from 0.5 to I mg/dl) or 34 pmol/ L (Ganong , 2001). Regarding surgical obstructive jaundice (jaundice due to intra or extra hepatic organic obstruction to biliary outflow),can present problems with the diagnosis and management. The surgical jaundice can be caused by the obstruction of the bile duct as with gall stones, stricrures, malignancy, such as cholangiocarcinoma in which the jaundice is persistent and progressive), periampulary carcinoma, carcinoma gall bladder and carcinoma head of pancreas. Various rare cause like castle man disease, Caroli's disease, metastatic liver tumor have also been reported (Whitehead & Hains, 2001).The symptoms of obstructive jaundice include with or without abdominal pain, dark urine, pruritis, pale stools weight loss and anorexia (Armstrong & Wastie , 2005). The gall bladder and bile duct system can be demonstrated by a varity of imaging techniques. (Armstrong & Wastie , 2005). Many imaging modalities are available today for the evaluation of patients with suspected biliary obstruction including Ultrasonography, Computed Tomography and Invasive cholangiography (PTC, ERCP), MRCP (Upadhyaya et al., 2006).Investigation of patients with obstructive jaundice must be started with a noninvasive method like USG. Performance of USG and ERCP provides an early identification of the character and location of the obstruction in patients with obstructive jaundice (Rahman et al, 1994). Advances in ultrasonography, computed tomography and magnetic resonance imaging have improved our diagnostic ability (Baron et al., 2002). Among the modem imaging modalities ERCP is most sensitive, though it is the invasive procedure. Complications like acut pancreatitis and sepsis are not uncommon with this procedure. (Mohiuddin et al., 1995). Magnetic resonance cholangiograpy (MRC) is becoming established as a non-invasive alternative for evaluating the biliary tree. Magnetic resonance cholangio pancreatography is a relatively new technique, which has gained popularity bacause of its excellent diagnostic capabilities in the evaluation of biliary obstruction (Upadhyaya et al., 2006). MRCP is a rapidly developing non-invasive modlity for evaluation of pancreatico biliary diseases. Its development has been one of the greatest successes of modem radiology.

Ultrasound is widely advocated as the initial noninvasive imaging study in evaluating suspected biliary obstruction. (Blackboume et al., 1994). Ultrasonography is non invasive, cost effective and widely available in all corners of our county (Begum ,2005).

Materials and Methods

This cross sectional study was carried out in the department of Radiology and Imaging of DMCH in colaborration with department of surgery and Gastroenterology, DMCH, Bangladesh .

during the period of July 01, 2011 to June 30, 2012. 50 patients were enrolled in this study. All Transabdominal ultrasonography was performed in commercially available real time scanner(GAIAMT 8800 medison) with a curvilinear Transducer at transducer frequency of 3.5 MHZ using the neutral matching gel over the examination parts. Subjects were examined initially in supine position with transverse, oblique and sagital scan were made over the upper abdoment to identify the gall bladder, biliary system and pancreas . Scanning was done during patients were in deep inspiration. Subjects were also scanned in right lateral and in sitting position in some cases for proper visualization of common bile duct.

Results:

A total of fifty (50) cases in the age range of 11 - 67 years with biliary obstruction referred to the department of Radiology and Imaging, DMCH during the period of 1st July 2011 to 30th June 2012 were studied. This study included fifty (50) patients having biliary obstruction diagnosed clinically and biochemically. They were divided into 7 age groups. The mean ± SD age of the patients was 39.72 ± 13.92 years. The maximum patients were in 41 - 50 years age group and the least was in 61-70 years age group.

Findings in ultrasonography

Out of fifty (50) cases thirteen (13) showed choledocholithiasis, eleven (11) showed cholangiocarcinoma, four (4) showed periampullary carcinoma and carcinoma head of the pancreas, five (5) showed biliary ascariasis, six (6)showed gall bladder carcinoma, three (3) showed benign stricture and eight (8) cases were undetermined.

Findings in ERCP

Out of fifty (50) patients ten (10) showed choledocholithiasis, fourteen (14) showed cholangiocarcinoma, six (6) showed periampullary carcinoma and ca head of the pancreas, five (5) showed benign structure, four (4) showed biliary ascariasis, four (4) showed gallbladder carcinoma and seven (7) showed papillary stenosis

Table1: Comparison between USG & ERCP findings of Biliary obstruction

Findings	USG(%)	ERCP(%)
Choledocholithiasis	13(26)	10(20)
Cholangiocarcinoma	11(22)	14(28)
Periampulary carcinoma and Ca head of the pancreas	04(08)	06(12)
Benign stricture	03(06)	05(10)
Ascariasis	05(10)	04(08)
Gall bladder carcinoma	06(12)	04(08)
Idiopathic	08(16)	00
Papillary stenosis	00	07(14)

Among 50 patients the most common diagnosis was choledocholithiasis 13(26%)in USG. Cholangiocarcinoma prevailed as 11 (22%) gall bladder carcinoma was seen in 06 (12%) study subjects. Ascariasis , periampulary carcinoma and ca head of the pancreas and benign stricture were 05(10%), 04(08%) and 03(06%) respectively. ERCP diagnosis among the50 cases the most common diagnosis was cholangiocarcinoma 14 (28%). Choledocholithiasis was diagnosed in 11(22%) subjects. Periampulary carcinoma was diagnosed in 06 (12%) cases. Benign stricture, ascariasis and gall bladder carcinoma were

05 (10%), 04 (08%) and 04 (08%) cases respectively. In ERCP total 48% cases were malignant and non malignant cases includes rest of the 52%.

In almost all cases (100%) of choledocholithiasis IHBC, CHD and CBD was found dilated and in ten (76.92%) cases a bright echogenic structure casting strong posterior acoustic shadow were noted within the CBD and in rest of the three(23.08%)cases the posterior shadow were not so strong. In seven (7) cases the bright echogenic structure was found within the mid portion of the CBD and IHBC, CHD and upto the level of the echogenic structure CBD were found dilated and the rest of the CBD was unremarkable.

In four (4) cases the bright echogenic structure was found in the distal portion of the CBD and IHBC, CHD and CBD in its whole length was found dilated.

In rest of the two(2) cases the echogenic structure was found within the proximal CBD and the IHBC , CHD and just proximal portion of the CBD were found dilated and the rest of the CBD was unremarkable. In two (15.38%) cases GB were not found due to H/O cholecystectomy and in rest eleven (84.62%) cases GB were found normal. In twelve (92.30%) cases liver were found normal in size shape and parenchymal echotexture and in one case (7.70%)was found normal with hepatolithiasis. Pancreas was also found normal in size shape and parenchymal echotaxture in all cases(100%) and MPD was also not dilated.

Validity of ultrasound and ERCP examination as diagnostic modality by calculating sensitivity, specificity, accuracy, positive and negative predictive values of choledocholithiasis.

Out of total fifty (50) patients 10 patients were diagnosed as choledocholithiasis by both ultrasound and ERCP. Three patients who were diagnosed by ultrasonography as choledocholithiasis was diagnosed papillary stenosis on ERCP. Rest of the 37 patients were diagnosed other than choledocholithiasis both by ERCP and ultrasonography. The results of ERCP were compared with ultrasonography as given in table II.

Table II: Comparison of ERCP diagnosis with ultrasound diagnosis of choledocholithiasis

Ultrasound Diagnosis	ERCP Diagnosis		Total
	+Ve for choledocholithiasis	-VVfofor choledocholithiasis olithiasis	
+ve for choledocholithiasis	10 (true positive)	03 (false positive)	13
-ve for choledocholithiasis	00 (false negative)	37 (true negative)	37
Total	10	40	50

DISCUSSION

Sampling was non-randomized, cases were diagnosed clinically as well as patients information was obtained from questionnaires, information extracted including age at the time of clinical examination. Ultrasound examination was performed. If signs of biliary obstruction were found then ERCP was performed. In this study a total of fifty (50) patients were included depending on their clinical findings. Out of fifty (50) twenty six (26) were male and twenty four (24) were female. The age of the patients in this study was between 11 to 67 years, although biliary obstruction was more common between 41 -50 years. Jaundice was the invariable feature in most of the cases which was found in 50

(100%) cases.

Ultrasound delineated the level of obstruction in 84 per cent and defined the etiology of obstruction in 74 per cent and diagnosed choledocholithiasis in 33 percent of patients (Blackbourne et al., 1994).

Upadhyaya et al, (2006) reported that indentification of CBD calculi was possible by ultrasound in 61.3 percent cases. O'conor et al, (2005) also showed that specificity was 97 percent. In this study the validity of ultrasound in case of choledocholithiasis was studied by calculating sensitivity, specificity, accuracy, positive predictive value and negative predictive value which were 71.3 percent, 100 percent, 93.3 percent, 100 percent & 91.8 percent respectively. Similarly the validity of ultrasound was studies in case of cholangiocarcinoma by calculating sensitivity, specificity, accuracy, positive predictive value and negative predictive value which were 85.7 percent, 100 percent, 87.8 percent, 100 percent & 95.8 percent respectively.

Upadhyaya et al, (2006) reported that indentification of cholangiocarcinoma was possible by ultrasound in 88.89 percent. Upadhyaya et al, (2006) reported that indentification of periampulary carcinoma was possible by ultrasound in 80 percent cases. In present study in case of periampulary carcinoma the validity of ultrasound was studied by calculating sensitivity, specificity, accuracy, positive predictive value and negative predictive value which were 60 percent, 96.7 percent, 96.7 percent, 100 percent & 96.7 percent respectively. Begum (2005) found that the sensitivity and specificity of ultrasound in detecting biliary ascariasis were 100 percent and 93.75 percent respectively.

The positive predictive value, negative predictive value and accuracy were 93.3 percent, 100 percent and 96.6 percept repectively. In this study the validity of ultrasound was studied in case of biliary ascariasis by calculating sensitivity, specificity, accuracy, positive predictive value and negative predictive value which were 100 percent, 94.4 percent, 95 percent, 66.7 percent & 100 percent respectively.

In case of gall bladder carcinoma the validity of ultrasound was studied by calculating sensitivity, specificity, accuracy, positive predictive value and negative predictive value which were 57.1 percent, 100 percent, 66.7 percent, 50 percent & 94.6 percent respectively. The validity of ultrasound was studied in case of choledochal cyst by calculating sensitivity, specificity, accuracy, positive predictive value and negative predictive value which were 100 percent, 98.2 percent, 98.3 percent, 80 percent & 100 percent respectively.

Gibson et al., (1988) showed in a prospective study of 65 patients, the level of obstruction was correctly dectected by ultrasound is 95 percent cases and the cause in 88 percent cases. In this study out of fifty (50) cases of biliary obstruction in eight(08) cases the causes of biliary obstruction could not be determined by ultrasound. So the overall accuracy of ultrasound in the diagnosis of biliary obstruction was 92 percent. The sensitivity and positive predictive values w'ere 84 percent and 100 percent respectively.

CONCLUSION

The results of both ultrasound and ERCP examinations in the present series are nearly similar and the validity test are

almost identical as observed by other investigators. Therefore, the inference can be drawn that ultrasound is good modality in the evaluation of biliary obstruction in the diseases of biliary system. Ultrasound is a simple, widely available, cheap, rapid diagnostic and non invasive method which has no radiation hazards and should be advocated for the diagnosis of biliary obstruction.

REFERENCE:

Armstrong P, Wastie ML.2005, 'Diagnostic imaging', Blackwell Science Ltd, 5th edition, Edinburgh, pp 204-220.

Baron R, Tublin M, Peterson M. 2002: 'Imaging the spectrum of biliary tract disease'. Radiol din Nam.vol 40 no.l pp 325-54.

Begum H, 2005, 'Ultrasonograpy diagnosis of biliary ascariasis and its correlation with upper gastrointestinal Endoscopy'.

'Retrograde Cholangiopancreatographic findings.' M.Phil Thesis (Radiology and Imaging) Dhaka University,

Blackboume LH, Earnhardt RC, Sistrom CL, Abbitt P, Jones RS,1994, 'The sensitivity and role of ultrasound in the evaluation of biliary obstruction.' Vol 60 no.9,pp 683-90.

Breyer B, Bruguera CA, Gharbio H. A, Goldberg B. B, Tan F. E. H.1995,'Manual of Didagnostic ultrasoound.' 1st Edition. Geneva world heath organization,pp 72-73, 98.

Brugge WR, and Pande H,2006, : 'Bile duct strictures'. Vol 65 no.6 pp 675- 690.

Chapman S, Nakienly R.2001, 'A guide to radiological procedures,' Bailliere Tindall London, Philadelphia, 3rd edition, pp 11-14.

Chalya PL, Kanumba ES ,Mchembe M, 2011, 'Eitiological spectrum and mtreatment outcome of Obstructive jaundice' at a university teaching Hospital in Northwestern Tanzania: A diagnostic and therapeutic challenges. BMC Research notes vol. 3, no.l,pp. 17-21.

Ferrari FS, Fantazzi F, Tascio H,Vigni F, 2005, 'US, MRCP, CCT & ERCP:
a comparative study in patients with suspected biliary obstruction'. Vol. 11 no.3, pp.8-18

Gibson S, Mac Mohan M, Walsh TN, Brennan P, Osborne H,1993.
'Endoscopic retrograde cholangiopancreatography in the elderly.'vol. 39 no.4,pp 28-32.

Ghimire R, Lohani B, Prodhan S,2005, 'Accuracy of ultrasonography in
evaluation of level and cause of biliary obstruction ,'Kathmundu Univesity Medical Journal, vol. 3 no.l,pp. 17-21.

Ganong William F,2001. 'Review of medical physiology,' 20th edition. San Francisco, pp 483-487.

Khalili K, Wilson SR,2006, 'The biliary trees and gall bladder'. In: Rumack CM, Wilson SR. Charboneau IW. Diagnostic ultrasound, 3 edition, vol. 1 no.6, pp. 171-179.

Khan S, Taylor-Robinson S, Toledano M, Back A, Elliott P, Thosmas H 2002, 'Changing International trends in mortality rates for liver, Bilary and pancreatic tumous'. J Hepatol 36 no.6, pp 806-1 3.

Khurram M, Durrani AA, Hasan Z, Asfaq S.2003, 'Endoscopic Retrograde Cholangiopancreatographic evaluation of patients with obstructive jaundice.'J coll Physicians Surg Pak , vol. 3, pp. 325-28.

Mohiuddin MG, Islam QT, Sadeque ASQM, Hasan M, Islam MT, Sharif E A, Azad MSA, Raihan ASMA, Ahmed M M.1995, 'ERCP findings in patients with upper abdominal pain'. Bangladesh J Radiol imag,vol.3 no.l,pp. 1-4.

O'Conor Hi, Hamilton I, Ellis WR,

Watters J, Lintott Di, Axon ATR, 2005 'Ultrasound detection of choledocholithiasis: Prospective comparison with ERCP in post-choleystectomy patients', vol. 1 l,pp. 161-164.

Omar S, 2007, 'Hepatobiliary ascariasis', Indian Radio Imaging, vol. 17, pp. 78-80.

Pasquero P, Marchisio V,2005, 'Role of ultrasound in Choledocholithiasis management in emergency department", vol. 1 1, pp. 18-23.

Pandey M, alok K P,Amibatabho G,2001, 'Carcinoma of the gall bladder : A retrospective review of 99 cases.' Digestive disease& Science ,vol.46 no.6, pp. 1145-1151.

Pressaco J, Reinrold C ,Baekun SN,2003, 'Accuracy of MRCP vs ERCP in the evaluation of patients with bile duct obstruction in the setting of a randomized clinical trial' .Proc.Intl.Soc.Mag. vol.ll, pp .56-67.

Rahman S M, Rahman M A, Islam A F M S,1994, 'Ultrsonography –a method of diagonosis of obstructive Jaundice and its practical aspects'. Bangladesh J Radiol Imag ,vol. 2 no.l,pp. 1 -3.

Rosch T, AlexanderM, Silke F, 2002, 'A prospective comparison of the diagnostic accuracy of ERCP,MRCP, CT& EUS in biliary strictures,' vol.55 no.7,pp.870-876.

R. C. G Russell, 1995, 'Bailey and Love's short practice of surgery', Churchill Livingstone, London, 22 edition, pp.731-750.

Sadeque ASQM, Islam QT, Islam GMN, Hossain 1,1995,' Physics and principle of ultrasound Imaging': Banglasdesh J Radiol and image vol. 3no.2,pp.48-52.

Sameer RV, Gupta PK, Munshi A,2011, 'Obstructive jaundice –Actiological spectrum, Clinical , Biochemical and Radiological Evaluation at a Tertiary Care Teaching Hospital' .The Internet Journal of Tropical Medicine , vol. 7 no.2, pp354-376.

Sandra L Hagen Ansert,1989, 'Textbook of Diagnostic Ultrasonogram'. 3 edition, Philadelphia: The C. V. Mosby Company, pp.228-232.

Sutton D, Reton P, Green ,2003, 'Text book of Radiolog and Medical Imaging'. Churchill Livingstone, Edinburgh, Melbourne, London, 7th edition, vol.l pp. 235-37.

Turner MA, Fuicher AS, 2000, 'Gallbladder and biliary tract: Normal anatomy and examination techniques In: Gore RM, Levine MC, eds. Texbook of gastrointestinal radiology'. 2nd ed. Philadelphia, W.B. Saunders, pp.1250-1276.

Upadhyaya V, Upadhyaya DN, Ansari MA, Shukia V,K2006,' Comparative assessment of imaging modalities in biliary obstruction'. Indian J Radiol Imag vol.16 no.4, pp. 577-82.

William R, Warwick M, 1994, 'Gray's Anatomy', Curchill Livingstone,London, 38th edition, ELBS Publishers, pp. 435-436.

Yusuff AR, Sitti ZM, Muzammil ARM,2010, 'Cholangiocarcinoma: A10-year Experience of A Single Tertiary Centre in the Multiethnicity hospital'. Malayasia, Med J Malayasis, vol .67 no.l,pp.45-56.

Original Article

EVALUATION OF THE RESULTS OF REPLACEMENT HEMIARTHROPLASTY OF FEMORAL COMPONENT BY CEMENTED BIPOLAR PROSTHESIS IN ELDERLY PATIENT IN FRACTURE NECK OF FEMUR

ME Hafiz[1], PK Das[2] , M Moniruzzaman[3], MD Uddin[4], A Kader[5], A Galib[6]

ABSTRACT:

Introduction: The management of displaced intracapsular fracture neck of femur is still controversial.The primary goal of the treatment was to return the patient to his or her prefracture functional status. ***Materials & methods:*** It was a case series descriptive study and was conducted at the department of Orthopaedic Surgery of Chittagong Medical College Hospital during July 2012 to December 2013. A total of 36 patients aged 60 years and above with displaced intracapsular fracture neck of femur were included in this study and underwent surgery with replacement hemiarthroplasty of the femoral component by cemented bipolar prosthesis. Patients with pathological fracture of neck of femur,active infection of hip joint or elsewhere in the body and advanced arthritis of the hip joint, previous fixation failure, high co-morbid conditions, psychologically unstable and late attendance (more than two weeks from the injury) were excluded from the study. The patients were evaluated clinically with the use of the Harris Hip Score and radiologically at 3rd, 6th,12th weeks intervals and finally at 24th weeks (additional follow-ups were arranged if required). ***Results:*** At the end of 6 months of operation patients were evaluated finally by Harris Hip Scores and observed that 11 patients were excellent, 13 patients were good, 4 were fair and 2 were poor. In the final outcome 24 patients had satisfactory and 6 patients had unsatisfactory results. ***Conclusion:*** Conclusion was drawn that replacement hemiarthroplasty of femoral component by cemented bipolar prosthesis in elderly patient in fracture neck of femur has satisfactory results.

1. *Dr. Md. Enamul Hafiz, Asstt. Professor, Dept. of Orthopedics, Satkhira Medical College, Satkhira.*
2. *Dr. Probir Kumar Das, Assistant Professor Orthopedics, Satkhira Medical College, Satkhira.*
3. *Dr. Md. Moniruzzaman, Assistant Professor, Anaesthesiology, Satkhira Medical College, Satkhira.*
4. *Dr. Md. Belal Uddin, Assistant Professor, Anaesthesiology, SSANSH, Khulna.*
5. *Dr. Abdul Kader, Associate Professor, Orthopedics, SSANSH, Khulna.*
6. *Dr. Asadullahil Galib, Asst. Professor, Surgery, Khulna Medical College.*

Introduction

The management of fracture neck of femur is unsolved. It is one of the common fracture in elderly. It accounts for approximately half of all hip fractures.[1] Due to improvement of different branches of science the lifestyle of human-being is changing day by day and life expectancy is also increasing. As the size of the elderly population is increasing rapidly it is predicted that the number of hip fractures will continue to rise globally. It has been estimated that about 1.7 million hip fractures occurred worldwide in 1990.[2] A

figure that is expected to double by 2025 and will increase to 6.26 million by 2050.[3] The elderly population is also increasing rapidly in our country, leading to increase medical cost and social problem. Hip fracture is an osteoporosis related events which is recognized to be a major cause of morbidity and mortality in the elderly.

Femoral neck is entirely intracapsular. The synovial fluid bathing the fracture may interfere with the healing process,the femoral neck has no periosteal layer,angiogenesis inhibiting factors in synovial fluid also inhibit fracture repair. These factors, along with the precarious blood supply to the femoral head make the healing unpredictable and nonunion fairly frequent.[4]

Non displaced or minimally displaced femoral neck fractures are treated with reduction and internal fixation. Displaced femoral fractures are treated according to the age of the patient,duration of the fracture and demands of the patient. The option could be various forms of arthroplasties. Internal fixation can be done with cannulated hip screws, dynamic hip screws or blade plates with or without augmentation by different methods. The results depends upon the time elapsed from the onset of fracture, type of fracture, quality of bone, proper reduction and stability of fixation. Many literatures show unacceptably high rates of nonunion and osteonecrosis of the femoral head after internal fixation of femoral neck fracture in elderly. [5,6,7].

Various prosthetic designs that are available include fixed head Austin-Moore prosthesis, Thomson prosthesis, Bipolar system and Total hip prosthesis. Austin-Moore prosthesis is widely used in our country for the treatment of fracture neck of femur. Its insertion is relatively straight-forward allowing early mobilization and restoration of activity, therefore decreasing the overall morbidity and mortality to the patient. However, long term results of the prosthesis also show association with acetabular cartilage degeneration and femoral component loosening. These complications will continue to rise.

The cemented bipolar prosthesis establish firm fixation of the stem in the femoral shaft. In addition to early ambulation, weight bearing and restoration of stability and walking activity, patients appeared to have less post-operative hip and thigh pain and greater range of movement.

Total hip arthroplasty, though its outcome is very good is a difficult procedure, per-operative time and blood loss is more and there is high risk of early post-operative dislocation. [8]

Due to the unsatisfactorily high level of uncertainty this study was undertaken to find out the results of replacement hemiarthroplasty by using cemented bipolar prosthesis as a treatment option of femoral neck fracture in elderly patients.

Materials and methods

It was a case series descriptive study and was conducted at the department of Orthopaedic Surgery of Chittagong Medical College Hospital during July 2012 to December 2013. All patients admitted in the orthopaedic surgery department of Chittagong Medical College Hospital during the study period with clinical features suggestive of fracture neck femur with radiological evidence.

A total of 36 patients aged 60 years and above with displaced intracapsular fracture neck of femur were included in this study and underwent surgery with replacement hemiarthroplasty of the femoral component by cemented bipolar prosthesis. Patients with pathological

fracture of neck of femur,active infection of hip joint or elsewhere in the body and advanced arthritis of the hip joint, previous fixation failure, high co-morbid conditions, psychologically unstable and late attendance (more than two weeks from the injury) were excluded from the study. The patients were evaluated clinically with the use of the Harris Hip Score and radiologically at 3rd, 6th,12th weeks intervals and finally at 24th weeks (additional follow-ups were arranged if required).

A questionnaire was prepared by the researcher considering the key variables like age, sex, occupation, cause of injury, side involvement, type of fracture, time interval between injury and operation, pre-operative finding and outcome of surgery which was verified by the guide. The purpose, procedure, risks and benefits of the study were explained to the patients. The questionnaire was supplied to the patients who were admitted in the orthopaedic surgery dept. of CMCH during the period of July 2012 to December 2013 with clinical features suggestive of fracture neck of femur with radiological evidence of displacement. The data were collected by open ended questionnaire by researcher himself. The patients were assured about the privacy of infomations and records. Then written informed consent was taken from each patient or his / her attendant. Data were collected individually at regular interval (3rd, 6th, 12th, 24th,wks) to observe his or her day to day progression but results were taken only on the basis of final functional outcome at the end of 24thwks (6 months). After completion of data collection it was compiled and tabulated according to key variables. Analysis of different variables were done according to statistical method and calculations were done using scientific calculators & using MS-excel program in computer.

Results

The study was intended to evaluate the outcome of replacement hemiarthroplasty of femoral component by cemented bipolar prosthesis in elderly patient in displaced intracapsular fracture neck of femur. The findings derived from data analysis are documented below:

Age distribution of the patients are shown in table 1.

Table 1: Age distribution of the patients (n = 30)

Age(years)	No. of patient	Mean age(years)
60-64	14	67.66
65-69	4	
70-74	8	
75-79	2	
80-84	2	
Total	30	

Distribution of the patients by side involvement and types of fracture is shown in table 2.P > .05 in x2 test, the result is not significant.

Table 2: Distribution of the patients by side involvement and types of fracture

Side	Fracture type		Total
	Garden type - III	Garden type -IV	
Left	6	14	20
Right	5	5	10
Total	11	19	30

Table 3 shows the distribution of the patients by the modes of injury. Modes of injury reportedly reveal that majorities (53.33%) of the injuries were caused by fall on a slippery ground followed by trivial fall / stumbling (33.33%), fall from height (6.67%) and road traffic accident (6.67%).Regarding type of injuries all

(100%) of the patients had close type of injury.

Table 3: Distribution of the patients by the modes of injury (n=30).

Modes of injury	Frequency	Percentage
Fall on a slippery ground	16	53.33
Trivial fall / Stumbling	10	33.33
Fall from height	2	6.67
Road traffic accident	2	6.67
Total	30	100

Table 4 shows the distribution of the patients on hospital stay. Mean day of stay was 5.7 days.

Table 4: The distribution of the patients on hospital stay.

Post-operativeHospital stay(days)	Frequency	Mean(days)
1-4	8	5.7
5-8	20	
9-12	2	
Total	30	

Table 4 shows the distribution of the patients by outcome (satisfactory or unsatisfactory).

Table 4: Distribution of the patients by satisfactory and unsatisfactory outcome.

Outcome	Frequency	Percentage
Satisfactory	24	80
Unsatisfactory	6	20
Total	30	100

Discussion

The treatment of intracapsular fractures of the neck of femur in the elderly continues to be a challenge since these patients are often physiologically compromised and must be immediately mobilized. To date no clear consensus about which patients are best treated by internal fixation and which by some form of arthroplasty has emerged. Osteoporotic bone provides a unique challenge to reconstructive orthopaedic procedures in elective surgery and particularly in fracture repair. When treating displaced femoral neck fractures in elderly patients, replacement of the femoral head is the preferred treatment in the majority of cases.

Management of intracapsular fracture neck of femur in elderly patients is controversial and is considered as 'unsolvable fracture'. Presently, there are multiple surgical treatment options available. Although treatment methods have been refined over the years, a consensus on the ideal treatment remains elusive. In a meta-analysis byBhandari et al.[9] internal fixation was compared with the arthroplasty and was found that mortality rates over the first four post-operative months is more (range 4.3% to 20%) in the arthroplasty group than in internal fixation group (range 0% to 12.1%) but one year mortality rates which range from 4.3% to 48% after the arthroplasties and from 0% to 65% after the internal fixation procedure. Revision rates ranged from 0% to 24% in the arthroplasty groups and from 10% to 48.8% in the internal fixation groups. Revisions following internal fixation were often due to non-union (mean 18.5%) and avascular necrosis (mean 9.7%). Arthroplasty and internal fixation were similar with regard to provision of pain relief and good function. Infection developed in 0% to 18% of patients treated with arthroplasty and in 0% to 10% of those treated with internal fixation. Blood loss and surgical time for the arthroplasties were also greater in the arthroplasty groups.

Different studies indicate that in the treatment of relatively active, and independent elderly patients with a displaced intracapsular fracture of the femoral neck, a replacement hemiarthroplasty of the femoral component by the cemented bipolar prosthesis provides good hip function and less complication rate.[9 -12].

During the study period, thirty patients with displaced intracapsular fracture neck of femur were treated in the Dept. of Orthopaedic Surgery, Chittagong Medical College Hospital, Chittagong of which 22 (73.3%) were female and 8 (26.7%) were male. Sex incidence was observed by Thorngren in 2002, the Swedish data from the year 2000 showed that three quarters (71%) of the femoral neck fracture patients were women. Hip fracture rates are available from many countries across Asia, including from Singapore, Taiwan, Japan, Malaysia,China and the Middle East. Unfortunately, only projected figures are available from India. In a study by Dhanwalet al.[3] it was found that in Japan from 2004 to 2006 the percentage of hip fracture was 78.7% for women (368/100000/year) and 21.3% for men (99.6/100000/year) and in Singapore from 1991 to 1998 it was 72.56% for women (402/100000/year) and 27.44% for men (152/100000/year).

In this study of 30 patients having mean age of 67.66 years (range 60-82 years), most common age group were between 60-64 years which constituted 46.7% of the series. This result corresponds to the series reported by Abdel khalek [13](range 55-72 years, average 63.5 years). Krishnan et al.[12] (range 60-91 years, average 76.5 years), Wazir [15] (range 62-89 years, average 75 years), Marya [17](range 72-90 years, average 78 years), Bhosale [14] (range 57-91 years, average 68 years).

The most common mode of fracture neck of femur in the present series was minor trauma such as fall on a slippery ground which constituted 53.3% of cases and stumbling (33.3%). It corresponds with the common etiology of the traumatic fracture neck of femur. Risk factors for falls in older people are unsteady gait, vision problem, balance problem (vertigo), attention disorder, weak muscles and slow reflexes.[15]

In this study 16.67% patients had suffered from post-operative mild to moderate thigh pain, 30% were pain free and remaining 53.33% had slight pain. In a study by Sharif and Parker it was found that failure to achieve calcar seating of zero, inadequate length of neck remnant, inappropriate prosthetic head size and inadequate post-operative rehabilitation were the common causes of residual thigh pain.[16] Limb-length discrepancy is also a cause of patient's dissatisfaction. Ideally the leg lengths should be equal after the arthroplasty. A lengthened limb is more poorly tolerated. Lengthening may result from insufficient resection of bone from the femoral neck or from use of a prosthesis with a neck that is too long. Leg lengthening greater than approximately 1 cm frequently is a source of significant patient's dissatisfaction.

In this study at the last follow-up, the mean Harris hip score was 85.53 points (range 47 to 100 points). Among the patients 36.67% recovered with excellent outcome, 43.33% with good, 13.33% with fair and 6.67% patients recovered with poor outcome. This result correspond to the series reported by Blomfeldt et al.[10] where mean Harris hip score was 77.5 points after four months follow-up (range 47.7 to 100) and 79.4 points after one year follow-up (range 51.3 to 99.8).

In their study Abdelkhalek et al.[13] compared bipolar versus fixed head arthroplasty and found better results in bipolar group in which average HHS was 92.3 points (range 72-97 points), while in the fixed head group (unipolar) the average HHS was 84.3 points (range 65-95 points).Marya et al.[17] found mean Harris Hip Score 85 (range 69-96 points) in their study on cementless bipolar hemiarthroplasty in femoral neck fracture in elderly.D'Arcy and Devas [10] found excellent results for 44% patients, good for 38%, fair for 10% and poor for 8% patients treated with cemented Thompson prosthesis. The immediate stability afforded by cementing the prosthesis results in freedom from pain and a sense of security in the early days after operation, thus allowing the patient to achieve early mobility with consequent improvement in morale.

Conclusion

Conclusion was drawn that replacement hemiarthroplasty of femoral component by cemented bipolar prosthesis in elderly patient in fracture neck of femur has satisfactory results.

References

1. Hinton RY, Lennox DW, Ebert FR, Jacobsen SJ, Smith GS. Relative rates of fracture of the hip in the US : geographic, sex and age variation. J Bone Joint Surg (Am).1995;77:695-702.

2. Thorngren KG, Hommel A, Norrman PO, Thorngren J, Wingstrand H. Epidemiology of femoral neck fractures. Injury.2002;33:SC1-SC7.

3. Dhanwal DK, Dennison EM, Harvey NC, Cooper C. Epidemiology of hip fracture : Worldwide geographic variation. IJO.2011Jan-Mar;45(1):15-22.

4. Canale ST, Beaty JH. Campbell's Operative Orthopaedics;(vol-3)11th ed. Philadelphia: Mosby;2008.p.3272.

5. Livesley PJ, Srivastiva VM, Needaff M, Prince HG, Moulton AM. Use of a hydroxyapatite-coated hemiarthroplasty in the management of subcapital fractures of the femur. Injury.1993;24:236-40.

6. Asnis SE, Wanek-Sgaglione L. Intracapsular fractures of the femoral neck : Results of cannulated screw fixation. J Bone Joint Surg (Am).1994;76:1793-803.

7. Rae PJ, Hodgkinson JP, Meadows TH, Davies DRA, Hargadon EJ. Treatment of displaced subcapital fractures with the charnley Hastings hemiarthroplasty. J Bone Joint Surg(Br). 1989;71:478-92.

8. Blomfeldt R, Tornkvist H, Eriksson K, Soderqvist, Ponzer S, Tidermark J. A randomized controlled trial comparing bipolar hemiarthroplasty with total hip replacement for displaced intracapsular fractures of the femoral neck in elderly patients. J Bone Joint Surg (Br).2007;89-B:160-165.

9. Bhandari M, Devereaux PJ, Swiontkowski MF, Tornetta P III, Obremskey W, Koval KJ, et al. Internal fixation compared with arthroplasty for displaced fractures of the femoral neck. A meta-analysis. J Bone Joint Surg (Am) 2003;85-A:1673-81.

10. D'Arcy J, Devas M. Treatment of fractures of the femoral neck by replacement with the Thompson prosthesis. J Bone Joint Surg (Br).1976;58-B:276-86.

11. Squires B, Bannister G. Displaced intracapsular neck of femur fractures in mobile independent patients : Total hip replacement or hemiarthroplasty ? Injury.1999;30:345-8.

12. Bhandari M, Devereaux PJ, Tornetta P III, Swiontkowski MF, Berry DJ, Haidukewych G. et al. Operative management of displaced femoral neck fractures in elderly patients. An

International survey. J Bone Joint Surg. (Am) 2005;87:2122-30.

13. Abdelkhalek M, Abdelwahab M, Ali AM. Bipolar versus fixed head hip arthroplasty for femoral neck fractures in elderly patients. StratTraum Limb Recon 2011;6:1-6.

14. Bhosale P, Suryawanshi A, Mittal A. Total hip arthroplasty for failed aseptic Austin Moore prosthesis. Indian J Orthop.2012 May-June;46(3):297-303.

15. Wazir NN, Mukundala VV, Choon DSK. Early results of prosthetic hip replacement for femoral neck fracture in active elderly patients. Journal of Orthopaedic Surgery2006;14(1):43-6.

16. Sharif KM, Parker MJ. Austin-Moore hemiarthroplasty: Technical aspects and their effects on outcome, in patients with fractures of the neck of femur. Injury.2002;33:419-422.

17. Marya SKS, Thukral R, Hasan R, Tripathi M. Cementless bipolar hemiarthroplasty in femoral neck fractures in elderly. Indian J orthop.2011 May-June;45(3):236-242.

Original Article

High level of individual lipid profile and lipid ratio as a predictive marker of poor glycemic control in type-2 diabetes mellitus

Hasin Jahan[1], SK Baul[2], SN Saqueeb[3], QA Ahmed[4], K Sarkar[5], SR Sheikh[6], MK Mondal[7], H Rahman[8]

ABSTRACT:

Introduction: Diabetes is often accompanied by undiagnosed dyslipidemia. The aim of the study is to investigate the clinical relevance of lipid profiles and lipid ratios as predictive biochemical models for glycemic control in patients with type 2 diabetes mellitus (T2DM). ***Methods:*** This is a retrospective study recruiting 140 patients with T2DM during a 2-year period, 2018–20, at the Sir Salimulla Medical College & Satkhira Medical College & Hospital. Demographic characteristics, glycosylated hemoglobin (HBA1c), and lipid profile were recorded and analyzed using SPSS version 25.0 for Windows. The sample is then classified into good (HBA1c $\leq$ 7) and poor (HBA1c>7) glycemic control. ***Result:*** Lipid profile findings such as total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), triglycerides (TG), and lipid ratio parameter (LDL-C to high-density lipoprotein cholesterol (HDL-C) ratio) were higher in patients in the poor glycemic control group ($p<0.05$) and HDL-C was significantly lower in patients with poor glycemic control ($p=0.001$). There is a significant positive correlation between LDL, total cholesterol, LDL-C, TG, and TC to HDL-C ratio, triglycerides, and TC/HDL-C ratio with HBA1c level. Meanwhile, a negative correlation was observed on HDL-C with the HBA1c level. Only TC/HDL-C ratio and LDL-C/HDL-C ratio parameters may be used as predictive models (AUC>0.7), with cutoff point, sensitivity, and specificity of 4.68 (77%; 52%) and 3.06 (98%; 56%) respectively. A risk analysis model shows that the LDL-C/HDL-C ratio parameter is the most influential risk factor in the occurrence of poor glycemic control (adjusted OR =38.76; 95% CI: 27.32–56.64; $p<0.001$). ***Conclusion:*** Lipid profiles (LDL-C) and lipid ratios (LDL-C/HDL-C and TC/HDL-C ratio) show potential markers that can be used in predicting glycemic control in patients with T2DM.

1. *Dr. Hasin Jahan Assistant Professor , Biochemistry, Sir Sallimullah Medical College.*
2. *Prof. Dr, Sunil Krisna Baul, Professor , Biochemistry, Satkhira Medical College.*
3. *Dr. Sheik Nazmus Saqueeb, Asst. Professor, Biochemistry, Satkhira Medical Medical College.*
4. *Dr. Quazi Arif Ahmed, Asso.Prof. Medicine, Satkhira Medical College.*
5. *Dr. Kallayanashish Sardar, Junior Consultant Satkhira Medical College.*
6. *Dr. Md. Saydur Rahman Sheikh, Asst. Professor, Neuro Medicine, SSANSH, Khulna.*
7. *Dr. Manosh Kumar Mondal, Junior Consultant Satkhira Medical College.*
8. *Dr. Md. Hafizur Rahman, Senior Consultant, Paediatrics, SMCH, Satkhira.*

Introduction

Diabetes is a metabolic disease characterized by a state of hyperglycemia caused by a defect of insulin action, insulin secretion or both (insulin resistance).[1,2] The incidence of diabetes itself is still something that should be aware of developing and developed countries. In the USA in 2012 the incidence of diabetes was 1.9 million people, while globally the incidence of diabetes mellitus was estimated around 8.3%.).[3] It was estimated that in 2017 there are 451 million (age 18–99 years) people with diabetes worldwide. These figures were expected to increase to 693 million by 2045. It was estimated that almost half of all people (49.7%) living with diabetes are undiagnosed.

The increase in the incidence of diabetes shows that in the future there will be more diabetes-related complications that will be faced such as coronary heart disease (CAD), peripheral arterial disease (PAD), stroke, and other conditions caused by endothelial dysfunction in diabetic conditions.[4,5] Apart from that, the future challenge for health practitioners is to provide adequate therapy for individuals who have diabetes to achieve the best glycemic control.).[6]. Cardiovascular -related morbidity and mortality are common complications in diabetes and could be associated with dyslipidemia. So, control of lipid profiles and glycemic index is a critical factor in the prevention of cardio vascular complication. [5,6]

Glycosylated hemoglobin (HBA1c) is an absolute indicator of long-term blood glucose control (a reflection of blood sugar control in the last three months) and is a gold standard of glycemic control in patients with type 2 diabetes mellitus (T2DM).).[6,7] Increased HBA1c has been known as a risk factor for cardiovascular disorders in patients with diabetes. Many individuals with diabetes who have poor glycemic control experience a dyslipidemic state such as an increase in triglycerides (TG), low-density lipoprotein cholesterol (LDL-C), and a decrease in high-density lipoprotein cholesterol (HDL-C).[4] Individuals with diabetes accompanied by the coexistence of metabolic syndrome (hypertension, dyslipidemia, abdominal obesity, and hyperglycemia) have a very high risk for the occurrence of a cardiovascular complication.[3,4]

A close linkage between glycemic control with lipid profiles makes it necessary to pay special attention to both aspects in order to prevent microvascular and macrovascular complications associated with diabetes. [8-10] Based on recommendations for treatment of dyslipidemia by the European Society of Cardiology (ESC), LDL cholesterol has become the main focus in the management of lipid profiles in patients with CAD or a CAD risk factor equivalent such as diabetes, which must have strict LDL-C control below 70 mg/dL.[8] This illustrates that lipid profiles play a critical role in cardiovascular risk and the prognosis of diabetes.

Method

This is a retrospective study recruiting 140 patients with T2DM during a 2-year period, 2018–20, at the Sir Salimulla Medical College & Satkhira Medical College & Hospital .Demographic characteristics, glycosylated hemoglobin (HBA1c) , and lipid profile were recorded and analyzed using SPSS version 25.0 for Windows. The sample is then classified into good (HBA1c$\leq$7) and poor (HBA1c>7) glycemic control. Patients

who have conditions that affect glycemic control such as chronic liver disease and thyroid disorders were excluded from this study. The age range of diabetic persons in this study is 30–65 years. Patients were then recorded for sociodemographic characteristics (age, sex, duration of disease, and hypertension status), HBA1c level (latest three months data) as an indicator of glycemic control, lipid profile (LDL, HDL, TG, and TC) and lipid ratio (TG/HDL-C, LDL-C/HDL-C, TC/HDL, and non-HDL-C). The grouping of research subjects was based on HBA1c levels, the first group is HBA1c ≤7 (good glycemic control), and the second group is HBA1c >7 (poor glycemic control).

All lipid profile and HBA1c examinations were carried out following standard laboratory procedures, and the data obtained were the results of the latest blood biochemical examination in the last three months. Non-HDL cholesterol is a result of a subtraction of HDL-C from TC. LDL-C/HDL-C ratio is the result of the absolute value of LDL-C divided by HDL-C. TG/HDL ratio is the result of the absolute value of TG divided by HDL-C. TC/HDL is the ratio of the absolute value of TC divided by HDL-C. The cutoff points used for lipid profile parameters for TC are 200 mg/dL, TG are 150 mg/dL, LDL-C is 130 mg/dL, and HDL-C is 40 mg/dL.

Statistical analysis in this study uses SPSS version 25.0 for Windows (IBM Corporation, Armonk, NY, USA).

Result

This study involved 140 people with T2DM. From the demographic characteristics of the subjects there were no significant differences in the age, gender, duration of disease, body mass index (BMI), and hypertensive status between groups with poor and good glycemic control (p>0.05). Lipid profile findings such as TC and LDL-C were significantly higher in the group with poor glycemic control (p<0.05) and HDL-C was significantly lower in patients with poor glycemic control (p=0.001). However, there was no significant difference in triglyceride between patients with good and poor glycemic control (p>0.05). Lipid ratio parameter findings such as TC-TG-LDL/HDL-C ratio were significantly higher in the group with poor glycemic control (p<0.05). However, there was no significant difference in the Non-HDL-C parameter (p=0.059) (Table1)

Table1

Baseline demographic characteristics, hypertensive status, lipid profile, and lipid ratios between good and poor glycemic control.

Variable	Good glycemic control (HBA1c ≤7) (n=84)	Poor glycemic control (HBA1c >7) (n=56)	p
Age (years) (mean ± SD)	54.58±2.91	55.12±1.91	0.223
Gender (n,%)			
Male	42 (66.7%)	21 (33.3%)	0.145
Female	42 (54.5%)	35 (45.5%)	
Disease duration (month), median(IQR)	77.50 (74–86)	76 (74–79)	0.534
BMI (kg/m^2) (mean ± SD)	23.15±0.47	24.41±41.25	0.124
Hypertension (n,%)			
Yes	63 (64.3%)	35 (35.7%)	0.114
No	21 (50%)	21 (50%)	
Total cholesterol (mg/dL) (mean ± SD)	193±31.47	200.50±25.56	0.026*
Triglyceride (mg/dL), median(IQR)	141 (78–170)	154 (98–172)	0.692
HDL-C (mg/dL) (mean ± SD)	41.67±3.94	39.33±4.03	0.001*
LDL-C (mg/dL) (mean ± SD)	124.51±14.80	135.69±14.43	<0.001
Age (years) (mean ± SD)	54.58±2.91	55.12±1.91	0.223
Gender (n,%)			
Male	42 (66.7%)	21 (33.3%)	0.145
Female	42 (54.5%)	35 (45.5%)	
Disease duration (month), median(IQR)	77.50 (74–86)	76 (74–79)	0.534
BMI (kg/m2) (mean ± SD)	23.15±0.47	24.41±41.25	0.124
Hypertension (n,%)			
Yes	63 (64.3%)	35 (35.7%)	0.114
No	21 (50%)	21 (50%)	
Total cholesterol (mg/dL) (mean ± SD)	193±31.47	200.50±25.56	0.026*
Triglyceride (mg/dL), median(IQR)	141 (78–170)	154 (98–172)	0.692
HDL-C (mg/dL) (mean ± SD)	41.67±3.94	39.33±4.03	0.001*
LDL-C (mg/dL) (mean ± SD)	124.51±14.80	135.69±14.43	<0.001
Lipid ratio parameters			
TC/HDL-C (mean ± SD)	4.48±0.83	5.15±0.90	0.001*
TG/HDL-C (mean ± SD)	3.34±0.61	3.47±0.79	0.024*
LDL-C/HDL-C (mean ± SD)	3.01±0.44	3.46±0.38	<0.001*
Non HDL-C (mean ± SD)	151.57±31.15	161.16±25.83	0.059

Partial correlation was used to determine the correlation of lipid profile and lipid ratio to HBA1c levels in patients with T2DM by controlling age, gender, disease duration, BMI, and hypertension status. There is a significant positive correlation between LDL (r=0.679), TC (r=0.472), LDL-C/HDL-C ratio (r=0.543), and TG/HDL-C ratio (r=0.5), TG (r=0.276), TC/HDL-C ratio (r=0.266) with HBA1c level. These findings illustrate that the increase in the value of the lipid profile will tend to experience an increase in HBA1c level. On the other hand, there is a negative correlation between HDL-C (r=–0.568; p<0.001) on the HBA1c level, which means that there is an inverse correlation between HDL-C and HBA1c. However, there is no significant correlation observed in non-HDL-C parameters (Table 2).

Table2

Partial correlation between lipid profile and lipid ratio with HBA1c level after adjustment for age, BMI, gender, disease duration, and hypertensive status

Variable	HBA1c Level		
n	r (correlation coefficient)	p	
Total cholesterol		0.472	0.044*
Triglyceride		0.276	0.001*
HDL-C		–0.568	<0.001*
LDL-C	140	0.679	0.037*
Lipid ratio			
TC/HDL		0.266	<0.001*
TG/HDL		0.5	<0.001*
LDL/HDL-C		0.543	<0.001*
Non-HDL-C	0.079	0.363	

Risk analysis model of lipid profile and lipid ratio as predictive biochemical markers for glycemic control in T2DM

The risk analysis model is based on the cutoff point on the ROC curve; the lipid ratio value that exceeds the cutoff point will be classified as a high-level ratio, and the value below or equal to the cutoff point will be concluded as a normal level ratio. As for the lipid profile parameters, the value used came from the normal values of laboratory parameters. In the univariable analysis model, only the LDL-C and lipid ratio parameters (TC/HDL-C, LDL-C/HDL-C, non-HDL-C) have a significant association as risk factors for the occurrence of poor glycemic control (OR>1; p<0.05). However, through multivariable analysis found TC/HDL-C parameters (adjusted OR: 3.24; 95% CI: 1.58–18.14; p=0.018), LDL-C (adjusted

Discussion

Diabetes tends to be accompanied by unknown dyslipidemia. The condition of dyslipidemia is characterized by abnormalities of two or more parameters of the lipid profile.[10] Based on recommendations from the American Diabetes Association, periodic serum lipids should be carried out in patients with diabetes as a screening method to determine the condition of dyslipidemia.[13]

In this study, a significantly higher lipid and lipid ratio profile and lower HDL-C in the group with poor glycemic control were found. Another study conducted by Khan et al [14] investigating differences in lipid profile in 2,220 T2DM patients showed lipid profile parameters for TC (5.49±0.04 vs 5.16±0.03 mmol/L), TG (2.13±0.04 vs 1.88±0.02 mmol/L), HDL-C (1.1±0.01 vs 1.21±0.08 mmol/L), and LDL-C (3.34±0.02 vs 3.09±0.03 mmol/L), which is higher in patients with poor glycemic control compared to good glycemic control.

The existence of the dyslipidemia phenomenon in diabetes can be explained by changes in plasma lipoprotein that

occur in patients with diabetes in fasting and post-prandial conditions modulated by defects from insulin action and hyperglycemia.[15,16] In postprandial conditions fatty acids and cholesterol obtained from food products that are absorbed in intestines become one in the form of TG and cholesteryl esters which are then converted to chylomicrons. [17,18] In adipocyte cells and muscle cells chylomicrons it is a substrate of lipoprotein which triggers lipolysis of TG and fatty acids. Insulin regulates lipoprotein activity at certain levels such as protein synthesis and gene expression. Lipoprotein is reduced when insulin resistance occurs in a diabetic condition which results in consequence of an increase in TG and a decrease in HDL-C.[17–20]

On the other hand, insulin resistance can independently cause abnormal lipid profiles because of the condition of hyperglycemia. A person with insulin resistance tends to have excessive production of very low-density lipoproteins (VLDL) and ApoC-III by the liver, and an increase in absorption of chylomicrons in the gastrointestinal tract.[17,21,22] This will lead to prolonged postprandial lipemia which is a very common finding in persons with insulin resistance. Because VLDL and chylomicrons compete in the same place on the pathway mediated by lipoprotein to excrete TG from the circulation, the condition of postprandial hyperlipidemia causes a disruption of the VLDL and TG clearance.[17,22] The presence of small and dense LDLs in insulin-resistant conditions is widely modulated by the action of cholesteryl-ester-transfer-protein (CETP), which mediates the exchange of VLDL or chylomicrons for LDL cholesteryl esters which will later produce small dense LDL.[22–24]

Another form of insulin resistance is a decrease in HDL and apA-I cholesterol, an increase in hydrolysis from TG, an increase in liver lipase, and an increase in the production of smaller HDL. The presence of smaller and denser HDL particles will tend to be cleaned more quickly in the liver compared to medium and large HDL, this will further contribute to the decrease of HDL cholesterol and apoA-1 as a component that reuptake of lipids in the endothelium.[17,22]

The research conducted by Mahato et al[5] involving 294 T2DM patients in Kathmandu, Nepal, showed a significant positive correlation between TC ($p=0.017$), LDL-C ($p=0.011$), and LDL-C/HDL-C ratio ($p=0.005$) to the HBA1c level. Another study by Khan et al25 involving 1,011 T2DM patients showed a significant positive correlation between TC ($r=0.127$; $p<0.001$), TG ($r=0.153$; $p<0.001$), HDL ($r=-0.128$; $p=0.002$), and LDL ($r=0.142$; $p=0.001$). There were similar findings in this study, where lipid profiles and lipid ratios have a positive correlation and HDL-C has a negative correlation with the HBA1c level. The study conducted by Suresh et al[1] showed a higher prevalence of CAD in patients with poor glycemic control (HBA1c>9). These findings illustrate the association between diabetes and atherosclerotic plaque formation which illustrates good glycemic control, which can reduce the risk of diabetes-related cardiovascular complication.[22] In conditions of hyperglycemia, there can be an increase in glycosylation and oxidation of LDL, endothelial dysfunction, increased coagulation pathways, and increased expression of adhesion molecules that trigger the formation of atherosclerotic plaques as cardiovascular complications of

diabetes.[6] This shows the importance of controlling the lipid and glycemic index as a method of preventing cardiovascular complications related to diabetes. Future health challenges will always be faced by health practitioners to always provide optimal services in glycemic control in patients with T2DM to prevent complications and reduce diabetes-related morbidity and mortality.[10]

The present study provides a different view of the role of lipid profiles and lipid ratios as a predictive marker for glycemic control, not only defining the correlation of lipid parameters, but also providing a cutoff value of lipid ratio that might be a new valuable ratio in lipid management in person with T2DM.

The limitations of this study are the absence of data regarding dietary consumption, physical activity, and complications associated with diabetes that cannot be fully studied, so there is likely to be a bias that could affect glycemic control in T2DM. Moreover, the current study is only a retrospective study that has a less causal relationship than a cohort study.

Conclusion

Lipid profiles (LDL-C) and lipid ratios (LDL-C/HDL-C & TC/HDL-C ratio) show potential markers that can be used in predicting glycemic control in patients with T2DM. Higher lipid profile parameters (TC, LDL-C) and higher lipid ratios (TC/HDL-C, TG/HDL-C, LDL-C/HDL-C ratio), and lower HDL-C Ratio were found mostly in the group with poor glycemic control. Further research on a large scale is needed before using these parameters for predicting glycemic control in clinical settings.

References

1. Suresh K, Sandhya AM. A study on glycemic, lipid and blood pressure control among type 2 diabetes patients of north Kerala, India. Indian Heart J. 2018;70:482–485. doi:10.1016/j.ihj.2017.10.007 [PMC free article] [PubMed] [CrossRef] [Google Scholar]

2. Maratni NPT, Sindhughosa DA, Mardewi IGA, Manuaba IBAP, Saraswati MR. Individual lipids and lipid ratio in type-2 diabetic patients: association with glycemic control status. Recent Adv Biol Med. 2017;3:42–47. doi:10.18639/RABM.2017.03.455029 [CrossRef] [Google Scholar]

3. Ginsberg HN, Elam MB, Lovato LC, et al. ACCORD study group. Effects of combination lipid therapy in type 2 diabetes mellitus. N Engl J Med. 2010;362(17):1563–1574. doi:10.1056/NEJMoa1001282 [PMC free article] [PubMed] [CrossRef] [Google Scholar]

4. Rosediani M, Azidah AK, Mafauzy M. Correlation between fasting plasma glucose, post prandial glucoseand glycated haemoglobin and fructosamine. Med J Malaysia. 2006;61:67–71. [PubMed] [Google Scholar]

5. Mahato RV, Gyawali P, Raut PP, Regmi P, Singh KP, Gyawali P. Association between glycemic control and serum lipid profile in type 2 diabetes patients: glycated haemoglobin as a dual biomarkers. Biomed Res. 2011;22(3):375–380. [Google Scholar]

6. Jaiswal M, Schinske A, Busui RP. Lipids and lipid management in diabetes. Best Pract Res Clin Endocrinol Metab. 2014;28(3):325–328. doi:10.1016/j.beem.2013.12.001 [PubMed] [CrossRef] [Google Scholar]

7. Awadalla H, Noor SK, Elmadhoun WM, et al. Comparison of serum lipid profile in type 2 diabetes with and without

adequate diabetes control in Sudanese population in north Sudah. Diabetes Metab Syndr. 2018;12(6):961–964. doi:10.1016/j.dsx.2018.06.004 [PubMed] [CrossRef] [Google Scholar]

8. Catapano AL, Graham L, Backer GD, et al. ESC/EAS guidelines for the management of dyslipidaemias. Eur Heart J. 2016;2016(37):2999–3058. doi:10.1093/eurheartj/ehw272 [PubMed] [CrossRef] [Google Scholar]

9. Katz LEL, Bacha F, Gidding SS, et al. Lipid profiles, inflammatory markers, and insulin therapy in youth with type 2 diabetes. J Pediatr. 2018;196:208–216. doi:10.1016/j.jpeds.2017.12.052 [PMC free article] [PubMed] [CrossRef] [Google Scholar]

10. Noor SK, Elmadhoun WM, Bushara SO, Almobarak AO, Salim RS, Forawi SA. Glycemic control in Sudanese individuals with type 2 diabetes: population based study. Diabetes Metab Syndr. 2017;11:S147–S151. doi:10.1016/j.dsx.2016.12.024 [PubMed] [CrossRef] [Google Scholar]

Original Article

Title: Impact of Vitamin-D deficiency on hypertensive disorders of pregnancy.

SP Biswas[1], A Akhter[2], K Fatema[3], TK Roy[4], R Khatun[5], F Hossen[6], KN Sheuli[7]

ABSTRACT:

Background: Maternal vitamin –D deficiency is a wide spread public health problem. Hypertensive disorder of pregnancy is a major cause of maternal and foetal severe acute morbidity, long term disability and mortality. Vitamin–D deficiency is uncertain whether there is a critical window for exposure during pregnancy that increase the risk of pre-eclampsia. ***Objectives:*** The aim of this study was to serially assess maternal vitamin D status during pregnancy and to determine the association between maternal 25(OH) D level at early and late mid-trimester gestation age windows and the risk of pre-eclampsia. ***Method:*** This prospective observational study was done in obstetrics & gynecology department, Satkhira medical College & hospital, satkhira & two private hospital, satkhira over a period of one year from January 2018 to December 2018. During this period 120 pregnant patients were randomly selected in this study. Women were enrolled at less than 16 wks gestation from out patent department of above mentioned hospitals & clinics. Women aged 14-44 years, carrying singleton infants and planning to deliver at our institutes were eligible. We selected nulliparous women because the etiology of PET may differ by parity. Women had a history of pre-existing medical diseases like DM, chronic hyper tension were excluded from this study. ***Result:*** During one-year study period, among 120 study population 24(24%) developed pre-eclampsia including 17 patients were severe pre-eclampsia. There was no significant difference between pre-eclampmtic & non pre-eclampmtic women in their age, parity, smoking habit multivitamin use in pregnancy but significant in their pre pregnancy BMI and higher blood pressure at base line study. The risk of pre-eclampsia was not significantly different among those with and without 25(OH) D level <50 nmol/L at 12-14 weeks' gestation (6.4% versus 4.76%, P=.34) whereas there was a significant increase in the risk of pre-eclampsia among those with 25(OH) D level <50 nmol/L compared with those without at 24-26 weeks of gestation (8.82% versus 2.04%, P=.001). ***Conclusion:*** Maternal vitamin D level < 50nmol/L at late mid-trimester of pregnancy is associated with an increased risk of pre-eclampsia. Vitamin D supplementation in early pregnancy should be explored as a safe and effective means of preventing pre-eclampsia and promoting good neonatal outcome

1. Dr. Sankar Prosad Biswas, Associate Professor, Obs&Gynae, SMC.
2. Dr Afroza Akter, Assistant Professor, Obs &Gynae, SMC.
3. Dr Kaniz Fatema, Senior Consultant, Obs&Gynae, SMCH.
4. Dr Tapon Kumar Roy,Assistant Professor,SK. Shahera Khatun Medical College, Gopalgong
5. Dr Mst, Rahima Khatun, Assistant Professor, Obs&Gynae, SMC.
6. Dr. Farhana hossen, Assistant Professor, Obs&Gynae, SMC.
7. Dr. Kanrunhar Sheuli, Assistant Professor, Obs&Gynae, SMC.

Introduction

Maternal vitamin D deficiency is a wide spread public health problem. Approximately 29% of Black Pregnant women and 5% of white pregnant women residing in the north eastern United States had vitamin D deficiency[1]. A high prevalence of vitamin D deficiency has been observed among pregnant women with prevalence rates varying ethnicity and sunlight exposure [2, 3, 4].

Hypertensive disorders of pregnancy are a major cause of maternal and fetal severe acute morbidity, long term disability and mortality. On a global basis, an estimated 10% of pregnant women suffer from hypertensive disorder, representing a serious threat to public health[5]. The etiology of pre-eclampsia remains largely unknown. It has been hypothesized that abnormal trophoblast invasion, inflammatory rebounds, oxidative stress and endothelial dysfunction are all potential confidential factors in this disorders [6, 7].

Maternal vitamin D metabolism is altered during pregnancy, leading to increased circulating level of both the vitamin D bending protein and active metabolite 1,25 dihydroxy vitamin D 1,25 (OH)2D8,9. At term, expectant mothers have almost twice the concentration of 1,25(OH)2D compared to non-pregnant women of which at least 50% is thought to be contributed by the placenta and/or decidual tissue [9,10,11]. The precise function of this increase in 1,25 (OH)2D, is a physiological response induced to permit immune tolerance through vitamin D pathways at the maternal- fetal interface, thereby supporting proper placentatio[12]. Vitamin D induce inflammatory response. Pro-inflammatory cytokines such as tumor necrosis factor - & interleukin-6 and interferon- have been reported to be increased in pregnancy with vitamin D deficienc[13]. It is uncertain whether there is an optical window for exposure during pregnancy that increase the risk of pre-eclampsia. The present study aimed to serially assess maternal vitamin D status during pregnancy and to determine the association between maternal 25(OH) D level at early and late mid-trimester gestation age windows and the risk of pre-eclampsia.

Material & Methods: This prospective observational study was done in obstetrics & gynecology department, Satkhira medical College & hospital, satkhira & two private hospitals, satkhira over a period of one year from January 2018 to December 2018. During this period 120 pregnant patients were randomly selected in this study. Women were enrolled at less than 16 wks gestation from out patent department of above mentioned hospitals & clinics. Women aged 14-44 years, carrying singleton infants and planning to deliver at our institutes were eligible. We selected nulliparous women because the etiology of PET may differ by parity. Women had a history of pre-existing medical diseases like DM, chronic hyper tension were excluded from this study. After providing informed written consent, all subjects completed an interviewer - administered questionnaire at enrollment to collect data, on sociodemographic, medical history and health behaviors. Non fasting blood samples were collected at times of usual phlebotomy for clinical indication and stored at -8°c. Quantitation of serum 25 (OH) D3 was performed using a commercial ELISA from Digital Diagnostic limited. Medical records were abstracted to ascertain blood pressures and urinary protein measurements throughout

gestation, use of antihypertensive medications, antepartum and delivery events and neonatal outcomes.

Statistical analysis - Maternal characteristics of pre-eclamptic and non-pre-eclamptic women were compared using chi-square, Fisher's exact. Student's t test where appropriate spearman correlation was applied to examine the association in maternal 25 (OH) D concentrations between the two gestational ages. Windows (12-18 weeks and 24-26 weeks of gestations) plasma 25(OH) D concentration were first investigated as a continuous variable. We used the cutoff point of 50 nmol/L which has been suggested by some experts to define vitamin D deficiency. Sub group analyses were performed to explore the associations in high risk and low risk strata. The available Co-variables included vitamin C and vitamin E-treatment, maternal age, education, parity, smoking, pre-pregnancy body mass index (BMI), prenatal vitamin supplementation and the risk group. Pre-specified potential confounders (risk stratum, maternal age, smoking, Pre-pregnancy BMI) and additional Co-variables, at P<0.10 were included in the final logistic regression models, Two-sided P-values <0.05 were considered statistically significant. All analyses were performed using SAS software version 9.2.

Result:

Table-I: Maternal characteristics

Socio demographic variables

Maternal Age (%)		
< 20 Yrs	36(30%)	5(4.17%)
20 -29yrs	45(37.5%)	13(10.83%)
30 or more yrs	15(12.5%)	6(5%)
Parity (%)		
Primipara	72(60%)	18(15%)
Multipara	24(20%)	6(5%)
Life styles variables (%)		
Smoker	2(1.67%)	4(3.3%)
Non-smoker	94(78.33%)	20(16.7%)
Pre-pregnancy BMI (%)		
<18 kg/m^2	7(5.83%)	1(0.84%)
18-24.9kg/m^2	48(40%)	9(7.5%)
25-29.9kg/m^2	22(18.33%)	8(6.6%)
>30kg/m^2	19(15.83%)	6(5%)
Blood sample collection information		
Median(range) gestational age of blood sample at 12-14 weeks	12.6	12.8
Median(range) gestational age of blood sample at 24-26 weeks	24.4	24.8
Mulivitamin use in last 3 month of pregnancy (%)		
Yes	97.5%	97.5%
No	2.5%	2.5%

Table II: Maternal Plasma Vitamin-D level at 12-18 weeks & 24-26 weeks of gestation

Vitamin D concentration (nmol/L)	Pre-eclampsia	Non-pre-eclampsia	P-value
Visit-1(12-18 weeks)=120(n)	11(9.17%)	109(90.83%)	0.44
Visit-2(24-26 weeks)=117(n)	17(14.53%)	100	0.05

Tables- III: Risk of pre-eclampsia according to presence or absence of maternal 25(OH)D level <50nmol/L

25((OH)D concentration(nmol/L)	Pre-eclampsia	Nonpre-eclampsia	P-value
At12-18 weeks of gestation <50 nmol/L=78(n) >50 nmol/L=42(n)	5(6.4%) 2(4.76%)	73(3.6%) 40(95.24%)	0.34
At 24-26 weeks of gestation <50 nmol/L=68(n) >50nmol/l=49(n)	6(8.82%) 1(2.04%)	62(91.18%) 48(97.96%)	0.001

Result

Between January 2018 to December 2018, 120 pregnant patients were enrolled in this study. Of the 120 study participants, 24 (20%) developed pre-eclampsia including 17 were severe pre-eclampsia. There was no significant difference between pre-eclamptic and non-pre-eclamptic women in maternal age, parity, smoking multivitamin use in pregnancy when blood was drawn. Pregnant women who subsequently developed pre-eclampsia had a higher mean pre- pregnancy BMI and higher systolic & diastolic blood pressure at the base line study. Pre-eclamptic women were more likely to deliver early (table-1).

At 12-18 weeks of gestation, among women who later developed pre-eclampsia the mean maternal plasma 25(OH)D concentration was lower than in non-pre-eclamptic women but the difference was not statistically significant (P=.44).But at 24-26 weeks of gestation, maternal 25(OH)D level were statistically significant lower who later developed pre-eclampsia(P=0.05)table-II.Interestingl y the mean 25(OH)D concentration in women with pre-eclampsia decreased slightly over the two gestational age, whereas for non-pre-eclamptic women the mean 25(OH)D concentration increased over the above two gestational age where the difference was statistically significant (0.001);table -III.

The prevalence rate of maternal 25(OH) D level <50 nmol/L at 12-18 weeks and 24-26 weeks of gestation were 6.4% and 8.82% respectively. The risk of pre-eclampsia was not significantly different among those with and without 25(OH) D level <50 nmol/L at 12-18 weeks' gestation (6.4% versus 4.76%, P=.34) whereas there was a significant increase in the risk of preeclampsia among those with 25(OH) D level <50 nmol/L compared with those without at 24-26 weeks of gestation (8.82% versus 2.04%, P=.001) table-III.

Discussion

Vitamin D deficiency during pregnancy has been linked with a number of serious short and long term health problems in off spring including impaired growth, skeletal problems, type -1 diabetes mellitus, asthma and schizopherenia [14]. Yet few investigators have explored the role of maternal vitamin D status in adverse pregnancy outcome. Pre- eclampsia is a pregnancy specific syndrome that affects approximately 3-7% of first pregnanc[15]. In this study showed the association between vitamin D deficiency and the risk of pre- eclampsia. The main finding of our study is that maternal 25(OH)D <50nmol/L at 24-26 weeks of gestation is associated with a significantly increase risk of pre-eclampsia. This association seen stronger for nulliparous women without other risk factor. We did not detect a statistically significant association between maternal plasma 25(OH)D level at 12-18 weeks' gestation pre- eclampsia. These findings are compatible with the study with SQ Wei et.al [16].

Two studies have measured longitudinal vitamin –D level in pregnant women who developed pre-eclampsia compared with those who did not; both failed to detect any association between vitamin D level and pre-eclampsia possibly because of their small sample size (total n <50)[17,18]. Some studies have measured maternal 25(OH)D level at one single time point and the results have been conflicting. Bodnar et al.[19] showed the maternal vitamin D deficiency at < 22 weeks (mean gestation10 weeks) was associated with increased risk of pre-eclampsia which is not compatible with our study. Two studies found that maternal vitamin D deficiency was associated with severe pre-eclampsia[18,20]. In contrast two other studies failed to find any association between maternal vitamin D level and pre-eclampsia[21,22]. Power et al.[21] studied vitamin D deficiency in first trimester (mean gestational age 11 weeks) and found no association between maternal vitamin D level and risk of pre-eclampsia. This is consistent with our findings that vitamin D status in early pregnancy (12-18 weeks of gestation) was not significantly associated with pre- eclampsia. Our findings that maternal 25(OH)D level <50 nmol/L at the late second trimester is associated with the risk of pre-eclampsia would suggest that vitamin D level may play a role in modulating the peripheral vascular phase of the disease.

Conclusions: Maternal vitamin D level < 50nmol/L at late mid-trimester of pregnancy is associated with an increased risk of pre-eclampsia. Further confirmation of this finding in other large cohorts and additional research on underlying biological mechanism should be needed. But Vitamin D supplementation in early pregnancy should be explored as a safe and effective means of preventing pre-eclampsia and promoting good neonatal outcome.

References:

1. Bodnar LH, Simhan HN, Powers RW, Frank MP, Cooperstein E, Roberts JM. High prevalence of vitamin D insufficiency in Black and White pregnant women residing in North united states and their neonates. J Nutr 2007; 137:447-452.

2.Kazemi A, Sharifi F, Jafari N, Mousavinasab N. High prevalence of vitamin D deficiency among pregnant women and their new-borns in an Iranian population. J womens Health (Larchmt) 2009; 18:835-9.

3.Bodman LM, Simhan HN. Vitamin D may be a link to Black-White disparities in adverse birth outcomes. Obstet Gynaecol Surv2010; 65:273-84.

4.Ustuner I, Keskin HL, Tas EE, Neselioglu S, Singul O, Avsar AF. Maternal serum 25(OH) D levels in third trimester of pregnancy during winter season. J Maternal Fetal Neonatal Med 2011; 24: 1421-6.

5.World Health Organigation, WHO guideline approved by guideline review committee. In WHO recommendation for prevention and treatment of pre- eclampsia and eclampsia; WHO Geneva, Swizerland2011.

6.Sibae B,Dekker G,Kuffermine M.Pre-eclampsia.Lancet 2005;365:785-99.

7. James JL, Whelley GS, Carlwright JE.Pre-eclampsia: fitting together the placental, immune and cardiovascular pieces. J pathol2010; 221:363-78.

8. Zhang JY. Lucey AJ, Horgan R, Kenny LC, Kiely M. Impact of pregnancy on vitamin D status: A longitudinal study. BnJ Nutr2014; 102:1081-1087.

9. Papapetron PD. The interrelationship of serum 1, 25 dihydroxy vitamin D, 25 hydroxy vitamin D and 24, 25 dihydroxy

vitamin D in pregnancy at term: A metaanalysis. Hormones2010; 9:136-144.
10. Saffery R, Ellis J, Mortey R. A convergent model for placental dysfunction encompassing combined sub-optimal one carbon donor and vitamin D bioavailability. Med, Hypothesis2009; 73:1023-1028.
11. Tanblyn JA, Susarta R, Jenkinson C, Jeffery LE, Ohizua O, Chun RF, Chan SY, Kilbay MD, Hewison h. Dysregulation of maternal & placental vitamin D metabolism in pre-eclampsia. Placenta2017; 50:70-77.
12. Tanblyn JA, Hewison M, Wagna CL, Bulmer JN, Kilby MD. Immunological role of vitamin D at maternal foetal interface. J Endocrinol2015; 224:107-121.
13. Diaz L, Noyola-Martinez N, Barrera D, Hernamdez G, Avita E, Halhali A et al. Calcitriol inhibits TNF-alpha induced inflammatory cytokines in human trophoblasts. J Reprod immunol2009; 81:17-24.
14. Holick MF. Resurrection of vitamin D deficiency and rickets. J Clin invest2006; 116:2062-2072.
15. Lisa M. Bondar,Janet M. catov, Hyagriv N.Simhan, Michael F. Hollick, Robert W. Powers, James M. Roberts.Maternal vitamin D deficiency increased the risk of pre-eclampsia. The Journal of clinical endocrinology & metabolism2007; 92:3517-3522.
16. SQ Wei, F Audibert, N Hidirogton, K Sarafin, P Julien, Y Wu, Ze Luo, W Fraser. Longitudinal vitamin D status in pregnancy and the risk of pre-eclampsia.BJOG2012; 119:832-839.
17. Azar M, Basu A, Jenkins AJ, Nankervis AJ, Hanssen KF, Schoiz H. Serum carotenoids and fat soluble vitamins in women with type 1 diabetes mellitus and pre- eclampsia; a longitudinal study. Diabetes care2011; 34:1258-64.
18. Robinson CJ, Alanis MC, Wagner CL, Hollis BW, Johnson DD. Plasma 25 Hydroxy vitamin D level in early onset severe pre-eclampsia. Am J Obstet Gynaecol2010; 203:366.
19. Bodnar LM, Simhan HN, Powers RW, Frank MP,Cooperstein E,Roberts JM. Maternal vitamin D deficiency increases the risk of pre-eclamsia. J Clin Endocrinol Metab 2007; 92:3517-22.
20. Baker AM, Haeri S, Camargo CA Jr,Espinola JA, Stuebe AM. A nested case-control study of midgestation vitamin D deficiency and risk of severe pre-eclampsia. J Clin Endocrinol Metab 2010; 95:5105-9.
21. Powe CE, Seely EW, RanaS, Bhan, Ecker J, Karumanchi SA. First trimester vitamin D,vitamin D binding protein and subsequent pre-eclampsia. Hypertension2010; 56:758-63.
22. Roberts J. Pre-eclampsia a two stage disorder: what is the linkage? Are there directed fetal/placental signal? Etiology and clinical practice. New York: Camb

Original Article

Childhood morbidity and health seeking behaviour regarding childhood illness among rural mothers

SMM Iqbal[1], MS Rahman [2], SR Pervin [3], M M Zaman[4], S Zahan[5], S Begum[6], MH Rahman[7]

ABSTRACT:

Introduction: All Children, no matter where they are born, deserve a healthy start in life. But the harsh reality is that every year, over 10 million children aged less than 5 years, die globally before their first birth day. And about 40% of these deaths take place within the first 28 days of life that is the neonatal period. ***Methodology:***This cross sectional study was conducted among 109 mothers of children in a purposively selected rural area Rupsha upziala of Khulna city in order to find out children morbidity and mother's health seeking behaviour during illness of their children. ***Results:*** The respondents were females of reproductive age group with a mean age of 23.99 years (SD±4.41). Majority (91.7) of them were Muslims and the rest (8.3%) was Hindus. About 80.7% of the respondents were house wife while the others were working women. Among them 10.1% were illiterate. Average monthly family income was Tk. 6188.99 (SD±3556.46). Most of them were single family (68.8%) based and 51.4% having 1 child. Children were mostly (35.8%) between 6-8 months of age. Among them 24.8% were suffering from common fever, 22.1% suffered form pneumonia, 16.5% from diarrhea, 12.8% cough & cold, 10.1% dysentery and 7.3% from skin disease.72.5% mothers have taken measures for their children. During sickness of their child 41.77% of respondents consulted graduate doctor(modern treatment), 18.98% Homeopath, 11.4% Polli chikitsok, 10.13% unqualified pharmacy man, 8.86% Paramedic, 5.06% traditional healer and 3.8% spiritualist. Comparatively effective & safe (93.7%), easy availability (27.8%), familiarity (21.5%) and low cost (16.4%) influence them towards choice of healer (72.5%) for treatment of their children. No measures had taken by 27.5% mothers for their children. Children of 6-8 months age suffered more (35.8%) than others. Sex of the children, education and occupation of mothers have no association with health seeking behaviour ($P>0.05$), but monthly family income have a significant association ($P<0.05$). Housing condition of the respondents were semi-pacca 34.9%, Katcha 33.9%, & pacca 20.2%; using deep tube-well as a source of water (77.1%). Among children BCG was completed 97.25%, Pentavalent 86.24%, OPV 86.24%, Vitamin-A 79.8% and measles vaccine was completed 64.22%. ***Conclusion:***The study attempted to provide a comprehensive picture of the common health problems of the children up to 1 years, the pattern of health seeking behaviour of the mothers and the underlying factors. The treatment seeking pattern of the mother varies according to the factors influencing them.

1. *Dr. SM Masum Iqbal, Assistant Professor Community Medicine, Khulna Medical College.*
2. *Dr. Md. Shamsur Rahman, Assistant Professor Paediatrics Medicine, Satkhira Medical College.*
3. *Dr. Syeda Rukhsana pervin, Assistant Professor Paediatrics Medicine, Satkhira Medical College.*
4. *Dr. Md. Marufazzaman, Assistant Professor Paediatrics Medicine, Satkhira Medical College.*
5. *Dr. Sharifa Zahan, Assistant Professor Community Medicine, Satkhira Medical College.*
6. *Dr. Shamsuda Begum, Assistant Professor CommunityMedicine, Satkhira Medical College.*
7. *Dr. Md. Hafizur Rahman, Senior Consultant, Paediatrics Medicine, SMCH, Satkhira.*

Introduction

All Children, no matter where they are born, deserve a healthy start in life. But the harsh reality is that every year, over 10 million children aged less than 5 years, die globally before their first birth day. And about 40% of these deaths take place within the first 28 days of life that is the neonatal period.[1]

The WHO an UNICEF jointly address five leading cause of childhood deaths in the world. These five diseases are : Pneumonia, diarrhoea, measles, malaria and malnutrition. These are associated with about 70% of all childhood deaths in developing countries.[2]

The majority of the worlds child population live in developing countries like Bangladesh and spend their childhood with hundreds of problems specially health problems. In Bangladesh 41% of the total population is below 15 years of age of whom 12 percent is between 0-5 years of age.[3]

A child of today will become the parent and the leader of the country in future. The future of the nation depends on the healthy growth of the children. So if the children of today are defective, unhealthy, both in physical and mental make up the future generation will suffer from low standard of health and poor achievement in life. Disease pattern of children depends on genetic endowment and other factors as poor socio-economic condition, low educational qualification of parent, culture taboos, scarcity of medical care facilities, insufficient development of locally appropriate health services and traditional method of child rearing.

Perhaps the most significant factor is the widespread ignorance about the simple principle of child care from conception to birth and from childhood to adult life. Bangladesh is far behind many countries in basic sanitation problem such as safe water supply and sanitary disposal of human excreta. As a result diseases like diarrhoea, dysentery, helminthiasis, typhoid fever, poliomyelitis and many other diseases occur in children. The perception of health, health problems, illness and health need in developing countries are culture and environment based. The formation of these perception is greatly influenced by the environment and culture in which the person is brought up and lives.[4]

There are several different medical cultures in Bangladesh each with their distinctive ideologies about disease causation and the nature of medical intervention. Practitioners of modern system of medicine are only one of the major types among several types of healer or practitioners. [5]

In Bangladesh the major non-allopathic practitioners are homeopathic doctors, herbalist or kabirajes and faith healers. Allopathic non-qualified practitioners are usually village doctors or pallichikitshoks. The choice of practitioners by the parents for the treatment of their morbid children is a complex process depending on a great variety of condition, such as health status of the children, relative proximity of the practitioners, cost of health care, transportation facilities, sex of the children, attitude of the parents towards different system of medicine, the past experience of the parent, cultural taboos, educational and economic Status of the parents.[6]

Neonatal morbidity rate in developing countries like, Nepal, Bangladesh, India and Ethiopia is about 8-10 time more than that of developed countries. No doubt climatic, geographic and ethnic factor play

some role for this reasonable difference, but much greatly significant factors are socio-economic condition, hygiene, sanitation, culture, education, local medical and health facilities.[7]

In developing countries a large number of children become a cause for sorrow because of illness or ultimately to death. One fourth or more of them die before they are one year old. Many die before they reach the age of five years. These children do not die of any grave illness but due to common diseases like diarrhoea, respiratory infections or diseases, which are easily preventable.[8]

Results:

The respondents were females of reproductive age group with a mean age of 23.99 years (SD±4.41). Majority (91.7) of them were Muslims and the rest (8.3%) was Hindus. About 80.7% of the respondents were house wife while the others were working women. Among them 10.1% were illiterate. Average monthly family income was Tk. 6188.99 (SD±3556.46). Most of them were single family (68.8%) based and 51.4% having 1 child. Children were mostly (35.8%) between 6-8 months of age. Among them 24.8% were suffering from common fever, 22.1% suffered form pneumonia, 16.5% from diarrhea, 12.8% cough & cold, 10.1% dysentery and 7.3% from skin disease.72.5% mothers have taken measures for their children. During sickness of their child 41.77% of respondents consulted graduate doctor(modern treatment), 18.98% Homeopath, 11.4% Polli chikitsok, 10.13% unqualified pharmacy man, 8.86% Paramedic, 5.06% traditional healer and 3.8% spiritualist. Comparatively effective & safe (93.7%), easy availability (27.8%), familiarity (21.5%) and low cost (16.4%) influence them towards choice of healer (72.5%) for treatment of their children. No measures had taken by 27.5% mothers for their children. Children of 6-8 months age suffered more (35.8%) than others. Sex of the children, education and occupation of mothers have no association with health seeking behaviour (P>0.05), but monthly family income have a significant association (P<0.05). Housing condition of the respondents were semi-pacca 34.9%, Katcha 33.9%, & pacca 20.2%; using deep tube-well as a source of water (77.1%). Among children BCG was completed 97.25%, Pentavalent 86.24%, OPV 86.24%, Vitamin-A 79.8% and measles vaccine was completed 64.22%.

Distribution of the children by their frequency of suffering from disease (n=109)

Suffer from disease	Frequency	Percent
Occasionally	89	81.7
Often	15	13.8
Always	5	4.6
Total	109	100.0

Discussion

A total of 109 children with history of illness within 1 month aged from 1-12 months were studied and 109 of mothers were interviewed who were between (15-49) years of age, majority of them (41.3%) were between (21-25) years age

In total among 109 children aged up to 1 year, male were 60 (55%) than female 49 (45%). The sex ratio was 1.22:1.0 (Fig-2). Out of 109 children under study Muslims were 100 (91.7%) in number and Hindu 9 (8.3%)

In this study majority 57.1% of younger mother (≤25 years of age) had chosen

modern treatment and 52.2% older mothers (>25 years) had chosen traditional and substandard treatment.

Education of most of the mothers were secondary level 46.8%, primary 24.8%, SSC & above 18.3% and illiterate 10.1%.

According to Nigerian Demographic & Health Survey (NDHS), children of educated mothers had a lower association with diarrhea. The World Bank and the 2003 NDHS reports both found that mother's education can significantly reduce childhood morbidity by improving the mother's health seeking ability. In this study the illiterate mother's mostly (66.7%) sought modern treatment. Among respondents of primary level education 55.6%, high school attending 45.9% and SSC & above level of education 66.7% sought for modern treatment. On the other hand 33.3% illiterate, 44.4% primary level, 54.1% secondary level and 33.3% SSC & above level of education sought for traditional and substandard treatment. This data reflects the same scenario of health seeking behaviour among educated and illiterate mothers. In this study major causes of morbidities of the children were common fever (24.8%), among which male 25% and female 24.5%. In order from higher to lower percentages of morbidities following common fever were pneumonia 22.1% (male 18.3%, female 26.5%), diarrhoea 16.5% (male 16.7%, female 16.3%), cough & cold 12.8% (male 16.7%, female 8.2%) skin disease 7.3% (male 5%, female 10.2%), dysentery 10.1% (male 8.3%, female 12.2%), and loss of appetite 6.4% (male 10.0%, female 1%).

Chowdhury did a study 39 among rural children of Bangladesh, pneumonia was found 21.27%, the present study found pneumonia was 22.1% which is very likely to previous study. Shows most of their duration of suffering was 4-6 days (34.9%).

This study shows that for 58.5 % male children and 50.0 % female children had sought for modern treatment (Graduate doctor) and 41.5 % male and 50.0 % female children had sought traditional and sub standard treatment . Regarding causes for choice of healer multiple response was found , 74 of the respondents said about safety and effectiveness as the reason for choice of healer, 22 about easy availability of health care facility, 17 said about familiarity, 13 said about low cost treatment and 8 said about suggested by others for treatment of their children,

The study shows that, 27.5 % of the respondents did not take any measure for illness of their children .

Multiple response were found regarding no measure for illness of their children by the respondents of which 25 said no health complex at locality , 13 said no nearby health complex, 5 said about treatment expense, 3 said not know about health care facility and 2 said their ignorance about severity of illness of their children .

CONCLUSION

Infant health is an important issue. In order to improve the health status of the nation we have to improve the health of the infants first. Proper implementation of government strategy regarding infant health is needed for this purpose. The study findings may suggest that efforts should be made to raise the awareness of the parents about illness of their children and also to ensure the modern health care for them.

Reference

1. Ahamd OB, Lopez AD, Inoue M. The decline in child mortality: a reappraisal. Bull world health Organ 2000;

78:1175-91.
2. World Health Organization – The world Health report 1997: Conquering suffering enriching humanity; report of the Director General, Geneva: World Health Organization, 1997.162P
3. Rahman M A study on morbidity type of U5 children and their health seeking behavior at Hajir Mazar Slun in Tongi Pourashava at Gazipur District (Dissertation) NIPSOM, Dhaka, Bangladesh, 2002-2003
4. MutambirwaJ. Health problem in rural communities, Zimbabwe. Mde. Soc Sc. 1989; Vol.29 (8) 927-932.
5. Surinder M. Bhardwa. J and Paul BK. Medical Pluralism and infant mortality in rural area of Bangladesh. Soc. Sci. 1986; Vol 23 (10): 1003-1010.
6. Park. J.E and Park.K. Text book of Preventive and social Medicine, 19 edition, M/S Banarsidas Bhanat Publisher, Jabalpur (India) 2008.
7. Morbidity type u5 and health R.Miznur (Dissertation) NIPSOM, Mohakahali, Dhaka, Bangladesh. 2002-2003. Chapter-1.
8. Rahman M A study on morbidity type of U5 children and their health seeking behavior at Hajir Mazar Slun in Tongi Pourashava at Gazipur District (Dissertation) NIPSOM, Dhaka, Bangladesh, 2002-2003

Original Article

PCNL A NOVEL TREATMENT MODALITY FOR RENAL CALCULI — AN INITIAL EXPERIENCE

M M Haque[1], M R Kuddus[2], MS Islam[3], M A Islam[4], S M G Azam[5], M Rasiduzzaman[6], M Moniruzzaman[7], MD Uddin[8], MS Ali[9]

ABSTRACT:
Introduction: Since the first percutaneous nephrostomy performed by Goodwin in 1955 for the decompression of a hydronephrotic kidney, this procedure has evolved into an important modality for the management of renal stones. ***Methodology:*** Fourty cases of renal stone underwent treatment by way of percutaneous nephrolithotomy during 1½ year period in Satkhira Medical College Bangladesh.Results: 40 patients operated 25 were males female were 15 in number. The ages of the patients ranged between 21-50 years, the mean age being 33 years. 10 patients had undergone open surgery on the same renal unit earlier while 3 had undergone PCNL earlier. ***Conclusion:*** 10 patients had recurrent or residual stones. Majority of these stones were between 1-2 cm in size. A field operating table was modified for this purpose. In 20 cases the calyceal system was accessed through either of the inferior calyces. Thirty of these patients underwent stone clearance in a single stage, 8 underwent two-stage surgery while there were 2 failures.

1. *Dr. Md. Mozzammel Haque, Assistant Professor, Urology, Satkhira medical College, Satkhira.*
2. *Dr. Md. Shariful Islam, Assistant professor, Surgery, Satkhira Medical College, Satkhira.*
3. *Dr .Md. Atiqul Islam, Assistant professor, Surgery, Satkhira Medical College, Satkhira.*
4. *Dr. Md. Ruhul Kuddus, Associate professor, Surgery, Satkhira Medical College, Satkhira*
5. *Dr. S M Golam Azam, Assistant professor, Surgery, Satkhira Medical College, Satkhira.*
6. *Dr. Md. Rasiduzzaman, Resident Surgeon,Satkhira Medical College Hospital, Satkhira.*
7. *Dr. Md. Moniruzzaman, Assistant professor Anaesthsiology, SMC, Satkhira.*
8. *Dr. Md. Belal Uddin, Assistant professor Anaesthsiology, SSANSH, Khulna.*
9. *Dr. Md. Showkat Ali, Assistant professor, Surgery, KMC, Khulna.*

Introduction

Since the first percutaneous nephrostomy performed by Goodwin in 1955 for the decompression of a hydronephrotic kidney [1], this procedure has evolved into an important modality for the management of renal stones. In 1976 Fernstrom and Johanson first described removal of kidney stones after percutaneous nephrostomy. [2] Later in the decade endourological procedures were further refined for the treatment of renal calculi. Hence open procedures are less commonly performed today [3] Indeed, in many centres, the percutaneous approach is the method of choice for removal of almost all renal stones requiring surgical intervention [4]

Material and Methods

Between July 2018 to December 2019, 40 patients underwent percutaneous

nephrolithotomy (PCNL). Patients with stone less the 3 cm diameter and with no underlying systemic disease were chosen. In the first 10 cases, only pelvic stones in dilated calyceal systems were chosen. Later calyceal stones and recurrent stones with non-dilated calyceal systems were included as well. Stones in solitary functioning kidneys were excluded.

Patient preparation

All patients considered for PCNL underwent renal ultrasound and intravenous urogram (IVU) to localize the site of the stone and to assess contralateral renal function. Preoperative assessment included a hemogram, blood urea and serum creatinine estimations, urinalysis and urine cultures. Chest radiographs and blood sugar estimation were done where necessary. Those with positive urine cultures were treated with appropriate antibiotics 72 hours prior to surgery.

Operative technique: All patients were operated on a field operating table, to permit the use of an image intensifier. All patients were operated under general anaesthesia. The decision to proceed with PCNL was reaffirmed after a retrograde pyelogram. A Fr 5 ureteric catheter was placed into the relevant renal unit and secured to a 16 Fr urethral Foley catheter. The retrograde pyelogram helped to elucidate the intrarenal anatomy, the exact relationship of the stone to the calyces and the configuration of the outflow tract.

The patient was then placed prone and, under image intensification and retrograde contrast opacification, the appropriate calyx was punctured to gain access to the stone-bearing region of the kidney. Biplanar imaging was not found necessary, a posterio-anterior image being an adequate guide for directing the puncture. Successful puncture having been confirmed by observing a urine efflux through the puncture needle, a guide wire was introduced and the tract coaxially dilated under image intensification. Tract dilation was performed upto 30 Fr and an Amplatz sheath placed upto the stone. A safety guide wire was not used. The nephroscope was then introduced and the stone removed in toto or piecemeal. A suitable thoracostomy tube was placed in the kidney as a nephrostomy.

Post-operative care: Patients were permitted oral fluids the same evening and normal diet on the next day. The nephrostomy was removed on 1st POD. All patients were given pre-operative gentamicin injections as a routine. They were discharged on 4th POD.

Results

Of the 40 patients operated 25 were males. The ages of the patients ranged between 21-50 years, the mean age being 33 years. 10 patients had undergone open surgery on the same renal unit earlier while 3 had undergone PCNL earlier.

27 of these patients had solitary stones, while 13 patients had multiple stones in separate calyces. There was a preponderance of patients with inferior calyceal stones (Table 1). However, 8 of the 10 patients with pelvic stones had mild to moderate hydronephrosis.

TABLE 1

Size and location of stones in 40 patients undergoing PCNL

Site	Size in cms				Total
	< 1	1-2	2-3	> 3	
Pelvis	—	1	7	2	10
Inferior calyx	4	15	1	—	20
Middle calyx	1	4	—	—	5
Superior calyx	1	4	—	—	5
Total	6	24	8	2	40

24 patients had stones between 1-2 cm in size as measured in the largest diameter on standard radiographs (Table1)

The calculi lying in the middle and superior calyces were accessed through direct calyceal punctures. For the superior calyceal stone an supracostal approach was successful in 4 patient and infracostal approach was attempted in 1 patient.

Duration of surgery ranged between 45 minutes to 2 hours 30 minutes. The average operating time was 1 hour. 30 of the patients underwent stone clearance in a single stage while 5 underwent two-stage surgery. The indications for staged surgery were brisk bleeding leading to curtailment of the procedure in 2 patients, and presence of residual fragments which were subsequently removed later by PCNL in the other case. In 2 patients the procedure was unsuccessful due to inaccurate punctures and consequent nonvisualization of the stone. These patients underwent stone removal by a open renal stone surgery after reposition of the patient.

20 out of the 40 stones were successfully removed in toto as 'pick up' stones, the other 18 being removed piecemeal. Stones were fragmented by Pneumatic lithotripter.

The complications encountered are enumerated in (Table 2).

Fever was considered significant if it lasted more than 18 hours. The 2 cases of haemorrhage subsided spontaneously within 8 hours, though nephrostomy tube tamponade was employed in both cases. 3 patients had residual fragments, while 4 patients had urinary infection which responded to conventional treatment.

TABLE 2

Complications encountered in 40 patients undergoing PCNL

Event	No. of patients
Fever	5
Hemorrhage	8
Secondary haematuria	2
Residual fragments	3
Urinary infection	4

20 of these patients were followed-up for periods ranging from 2 months to 1 year. The follow-up protocol included urinalysis, urine culture, urea and creatinine estimation and ultrasonogram of the renal system.

Discussion

While originally used for pelvic stones in dilated systems, the scope of PCNL has progressively enlarged to include management of a variety of stones. These include renal pelvic calculi, calyceal calculi, staghorn calculi and large cystine stones. Stones that coexist with underlying ureteropelvic junction obstruction, calyceal diverticulum or infundibular stenosis are also considered suitable[6]. On the basis of analysis of Mayo Clinic data, PCNL has been recommended in those patients with outflow tract obstruction, or with large stone volumes, or where the patients body habitus was unsuitable for ESWL, or when other modalities failed and for those with cystine stones, pacemakers or calcified vessels[7].

In our country, where limited funds prevent access to ESWL for most patients, the indications for PCNL can be enlarged, perhaps justly so, to include other cases as well. Thus PCNL becomes the preferred method for removing simple pelvic and lower calyceal stones, has also become the procedure of choice for calyceal and staghorn stones [8]. In the present series, a large majority of stones were solitary calyceal stones in mildly dilated systems. The 2 failures represent cases where an inaccurate puncture in a non-dilated system. Recurrent stones have been easier to operate upon, primarily because post-operative adhesions fix the kidney and make it less mobile. PCNL for recurrent stones is certainly less tedious, and less fraught with risks like

intraoperative bleeding and infection, than redo open surgeries.

This being an initial experience, as large solitary uncomplicated stones were selected with a resultant bias on the outcome. Nevertheless, a failure rate of 5 percent was encountered, which is higher than the accepted figure of 1.5 per cent in similar series [9]. However if the outcome is viewed in light of the fact that every new procedure carries a learning curve of experience, and the result expected to be better in the future.

No major complications were encountered and follow-up has revealed no long term deleterious effect upon the renal units operated testimony to the inherent safety of the procedure if properly performed.

REFERENCES

1. Goodwin WB, Casey WC, Woolf W. Percutaneous trocar (needle) nephrostomy in hydronephrosis. JAMA. 1955;157:891–904.

2. Fernstrom I, Johansson B. Percutaneous pyelolithotomy. A new extraction technique. Scand J Urol Nephrol. 1976;10:257–261.

3. Motola AJ, Smith AD. Percutaneous Techniques. In: Smith JA, editor. High Tech Urology. Technologic innovations and their clinical applications. WB Saunders; Philadelphia: 1992. pp. 208–233. 4. Segura JW, Patterson DE, LeRoy AJ. Percutaneous removal of kidney stones: Review of 1000 cases. J Urol. 1985;134:1077–1081]

5. Stream SB. Long term incidence and risk factors for recurrent stones following percutaneous nephrolithotomy or percutaneous nephrolithotomy/extracorporeal shock wave lithotripsy for infection-related calculi. J Urol. 1995;153:584–587.

6. Motola JA, Smith AD. Therapeutic options for the management of upper tract calculi. Urol Clin North Am. 1990;17:191–206.

7. Segura JW. Percutaneous Management. Campbells Urology. 6th ed. Philadelphia: WB Saunders. 1992:2193–2194

8. Reddy P, Lange PH, Kulbat JC. Precutaneous removal of calyceal and other inaccessible stones. J Urol. 1984;134:443–447

9. Branner GE, Bush WH, Correa RJ, Gibbons RP, Elder JS. Kidney stone removal: Percutaneous versus surgical lithotomy. J Urol. 1985;133:6–12.

Original Article

URIC ACID AND ATHEROGENIC INDEX OF PLASMA IN CAROTID ATHEROSCLEROSIS

SN Saqueeb[1], SK Baul[2], K Fatema[3], S Chatterjee[4]
K Sardar[5], MK Mondal[6], MH Rahman[7]

ABSTRACT:
Introduction: Atherosclerosis and its consequences is a major cause of morbidity and mortality worldwide. According to the health bulletin 2014, death caused by diseases of circulatory system (33.2%) was highest among all causes of death in Bangladesh. Risk factors have been identified for the development of atherosclerosis. As traditional risk factors sometimes fall short in identifying individuals at high risk for atherosclerosis, this study was carried out to find out any association of uric acid and atherogenic index of plasma (AIP) with carotid atherosclerosis (atherosclerosis in carotid vessels). ***Materials and methods:*** This cross sectional study was done in the department of Biochemistry, BSMMU. The blood sample of the study subjects were collected from the department of Radiology & Imaging, BSMMU and NINMAS, BSMMU campus who came there for carotid doppler scanning. 111 patients were enrolled and grouped into 3 groups according to the result of carotid doppler. ***Results:*** Mean uric acid level among the 3 groups was 4.29 mg/dl, 6.5 mg/dl and 6.7 mg/dl which was statistically significant (p=0.003). The mean AIP levels were 0.41, 0.81 and 0.82. These values were also statistically significant (p=0.004). ***Conclusion:*** Conclusion was drowned that hyperuricemia and high AIP is associated with carotid atherosclerosis. As these biochemical markers are simple and available throughout the country, they can add diagnostic and prognostic value of carotid atherosclerosis.

1. *Dr. Shaikh Nazmus Saqueeb, Assistant Professor, Dept. of Biochemistry, Satkhira Medical College, Satkhira.*
2. *Professor Dr. Sunil Krishna Baul, Professor of Biochemistry, Satkhira Medical College, Satkhira.*
3. *Dr. Kaniz Fatema, Senior Consultant (Gynae), Satkhira Medical College Hospital, Satkhira.*
4. *Dr. Sutapa Chatterjree, Asst.prof. Radiology & Imaging , Satkhira Medical College.*
5. *Dr. Kallyanashish Sardar, Junior Consultant Medicine, SMCH, Satkhira.*
6. *Dr. Manosh Kumar Mondal, Junior Consultant Medicine, SMCH, Satkhira.*
7. *Dr. Md. Hafizur Rahman, Senior Consultant Paediatics, SMCH, Satkhira.*

Introduction

Atherosclerosis underlies the pathogenesis of coronary, cerebral and peripheral vascular disease, and causes more morbidity and mortality (roughly half of all deaths) in the Western world than any other disorder[1]. The South Asian countries like India, Pakistan, Bangladesh, Sri Lanka and Nepal contribute the highest proportion of the burden of cardiovascular

diseases compared to any other region globally[3]. According to the health bulletin 2014, published by ministry of health and family welfare, Bangladesh, death caused by diseases of circulatory system (33.2%) was highest among all causes of death.

Atherosclerosis is a condition in which deposits of yellowish plaques containing cholesterol, lipoid material, and macrophage foam cells are formed within the intima and inner media of large and medium sized arteries [4]. As a result there is progressive hardening and narrowing of the arteries. Atherosclerotic events begin in childhood and remain clinically silent until they become large enough to impair tissue perfusion, or until ulceration and disruption of the lesion result in thrombotic occlusion or distal embolisation of the vessel [5]. There are some well-known non-modifiable and modifiable risk factors of atherosclerosis. But traditional risk factors fall short in identifying individuals at high risk for atherosclerosis [6]. So there is continuous search of biomarkers which are easy to measure and standardize and independent from established risk factors [7].

An atheromatous plaque consists of a grumous core of lipid (mainly cholesterol and cholesterol esters) covered by a white fibrous cap [1]. For many years physicians only look for dyslipidemia in their patients with atherosclerosis. In a study of 27,939 healthy American women, 77% of first cardiovascular events occurred in those with only moderately elevated low-density lipoprotein cholesterol (LDL-C) and 46% occurred among those with normal levels of LDL-C. Moreover, as many as 50% of first cardiovascular events occur in individuals with neither elevated cholesterol nor any other traditional risk factors [8].

In humans, uric acid represents the end product of purine catabolism. The enzyme xanthine oxidase catalyzes the oxidation of xanthine to uric acid [9]. Hyperuricemia is defined as uric acid level more than 6 mg/dl (360 µmol/L) in women and more than 7 mg/dl (420 µmol/L) in men [10]. Though uric acid has some antioxidant effect hyperuricemia causes endothelial dysfunction by different proposed mechanism like it causes vascular smooth muscle proliferation, reduction in the bioavailability of nitric oxide (a potent vasodilator) and activation of mitogen activated protein kinase. All these lead to endothelial dysfunction and subsequently atherosclerosis. In the previous studies it was found that increased level of uric acid is associated with carotid atherosclerosis in hypertensive patients [11] with normal renal function [12]. Hyperuricemia is also independent predictors for cardiovascular mortality among a cohort of patients with asymptomatic carotid atherosclerosis [9]. Although a strong relationship between coronary and carotid atherosclerosis is commonly accepted, there are some morphological differences in the atherosoclerotic plaques [13].

Atherogenic index of plasma (AIP) is an atherogenetic risk assessment tool. It is defined as log of triglyceride (TG) to high density lipoprotein cholesterol (HDL-C) ratio where the concentrations are expressed in molar concentrations. People with high AIP have a higher risk of coronary heart disease (CHD) than those with low AIP [14]. AIP is useful in predicting the atherogenecity [14]. People with AIP <0.11, 0.11-0.21 and >0.21 are considered low risk, intermediate risk and high risk for developing atherosclerosis [14].

Large elastic arteries (e.g., aorta, carotid, and iliac arteries) and large and medium-sized muscular arteries (e.g., coronary and popliteal arteries) are the major targets of atherosclerosis [1]. Various techniques are used to obtain images of extracranial and intracranial blood vessels. The least invasive is ultrasound (Doppler or duplex scanning), which is used to image the carotid and the vertebral arteries in the neck. In skilled hands, reliable information can be provided about the degree of arterial stenosis and the presence of ulcerated plaques [5]. Carotid duplex scanning provides the degree of stenosis according to the Strandness criteria [11]. But the procedure requires skilled operator.

Biochemical markers add diagnostic and prognostic value of atherosclerotic disorders. Patients with carotid atherosclerosis detected by carotid duplex scanning can be investigated for the proposed biomarkers which may add diagnostic and prognostic values and add confidence of the operator on identifying the atherosclerosis or minimize the operator dependent errors of carotid duplex scanning.

Materials and methods

This cross sectional study was done in the department of Biochemistry, BSMMU. The blood sample of the study subjects were collected from the department of Radiology & Imaging, BSMMU and NINMAS, BSMMU who came there for carotid doppler scanning. We enrolled 111 patients who were of >30 years of age and of both sexes. Among them 37 were normal (group I), 39 had stenosis up to 50% (group II) and 35 had >50% stenosis (group III) diagnosed by carotid doppler.We excluded subjects with liver disease, chronic alcoholism, infection, acute and chronic inflammation, pregnancy, BMI >35 and patients with malignant hypertension. Purpose and procedure of the study was explained in details and informed written consent was taken from each study subject. Initial evaluation of the patients by history and clinical examination was performed and were recorded in the preformed data collection sheet. Demographic profile and pulse, BP, height, weight etc. were measured. Then fasting blood samples were collected to estimate serum uric acid and lipid profile. Then atherogenic index of plasma (AIP) was calculated from the result of lipid profile and finally association of serum uric acid and AIP was investigated with carotid atherosclerosis.

Results

This study was a cross sectional study. The study subjects were those who came for carotid doppler scanning. After getting the reports of the doppler study the study subjects were categorized into groups according the reports. The study subjects who had normal sonographic findings were grouped into group I (n=37), the study subjects who had up to 50% stenosis were grouped into group II (n=39) and the study subjects who had >50% stenosis were grouped into group III (n=35) (Table I).

Table I Grouping of study subjects on the basis of ultrasonographic findings

Ultrasonographic findings	No. of patients (n)	Percentage (%)
Normal sonographic finding, Group I	37	33.33
Stenosis up to 50%, Group II	39	35.13
Stenosis >50%, Group III	35	31.53
Total	111	100

Comparison of uric acid and atherogenic index of plasma (AIP) among different groups of the study subject is shown in table 2 which shows statistical significance.

Table II Comparison of uric acid and atherogenic index of plasma (AIP) among different groups of the study subjects

Parameter	Group I (n=37)	Group II (n=39)	Group III (n=35)	p value
Uric acid (mg/dl)	4.3 ± 1.6	6.5 ± 1.74	6.7 ± 1.59	0.003
AIP	0.41 ± 0.25	0.81 ± 0.22	0.82 ± 0.29	0.004

Results are expressed in mean ± SD. ANOVA is done to find out the level of significance.

Discussion

Atherosclerosis and its complications are the leading cause of death worldwide including Bangladesh. It is a progressive disorder starting from childhood. Early detection to prevent its progression remains the aim all over the world and risk factors have been identified for this purpose. For many years physicians only look for dyslipidemia in their patients with atherosclerosis. But traditional risk factors sometimes fall short in identifying high risk older adults. So, there is continuous search for biomarkers for developing atherosclerosis beyond traditional risk factors.

In this cross sectional study the appropriateness of some claimed novel marker of atherosclerosis is tried to be evaluated. For this serum uric acid and atherogenic index of plasma (AIP) were done in atherosclerotic patients. We went to the cross section of population who came for carotid doppler in different institutions and took their blood samples for the measurement of the markers of interest. We enrolled 111 patients and among them 37 were normal (group I), 39 had stenosis up to 50% (group II) and 35 had >50% stenosis (group III) diagnosed by carotid doppler (Table I).

To find out whether hyperuricemia is associated with carotid atherosclerosis or not we found the mean values of uric acid in the designed 3 groups is statistically significant (p=0.003) (Table II). The pathogenesis between hyperuricemia and hypertension and the pathogenesis of atherosclerosis is still unclear [16]. One of the most notable proposed mechanism is hyperuricemia and subsequent increased intracellular uric acid level which causes reduction of nitric oxide (NO) [9] which is a potent short lived biomarker. This leads to endothelial dysfunction and atherosclerosis. In 2015, Mayer et al. did a prospective cohort study on patients with asymptomatic carotid atherosclerosis and concluded that the level of serum uric acid represents independent predictor for cardiovascular mortality. Similar studies were done by Tavil et al. (2008). All of them showed that hyperuricemia is an independent risk factor for long term mortality and morbidity. Most of the studies showed hyperuricemia as a risk factor for developing long term morbidity and mortality.

People with high AIP have a higher risk of coronary heart disease (CHD) than those with low AIP [14]. AIP is useful in predicting the atherogenecity [14]. People with AIP <0.11, 0.11-0.21 and >0.21 are considered low risk, intermediate risk and high risk for developing atherosclerosis [14].

Atherosclerosis is a progressive disorder, the progression of which can be halted or

delayed by early diagnosis and taking appropriate measures. Many markers associated with atherosclerosis have been identified in the last 50 years. Some of them act as factors and others are mere indicators. Among the novel markers, many are strictly connected with inflammation or coagulation. These markers, resulting from different mechanisms underlying atherosclerosis, might have incremental value when used in combination with traditional risk factors in identifying high-risk older adults. It remains unclear which risk markers should be further examined to improve atherosclerosis risk prediction in clinical practice. With this view we have investigated some of the markers and found positive association of hyperuricemia and high atherogenic index of plasma with severity of atherosclerosis.

Conclusion

In conclusion, the findings of the present study suggest that, atherosclerosis is associated with increased levels of serum uric acid and high atherogenic index of plasma.

References

1. Mitchell, RN. 2015, Blood vessels, In: Kumar, V., Abbas, AK. & Aster, JC. (Eds), Robbins and Cortan Pathologic Basis of Disease, 9thed, Elsevier Saunders, Philadelphia, USA, pp. 483-521.

2. Ministry of Health and Family Welfare, Bangladesh, 2014, Health Bulletin 2014, 2nd edition, p. 59.

3. Mohammad, W., Ismail, A., Khatri &Subash, K. 2014, Stroke in South Asian countries, Nature review neurology, vol. 10, pp. 135-43.

4. Remaley, AT., Nader, R. &Warnick, GR. 2012, Lipids, Lipoproteins, Apolipoproteins, and Other Cardiovascular Risk Factor, In: Burtis, CA.,Ashwood, ER. &Bruns, DE. (Eds), Tietz Fundamentals of Clinical Chemistry, 5th ed, Saunders, Missouri, USA, pp. 731-805.

5. Langhorne, P. 2014, Stroke disease, In: Walker, BR, Colledge, NR, Ralston, SH & Penman, ID. (Eds) 2014, Davidson's Principles and Practice of Medicine, 22nded, Churchill Livingstone, Edinburgh, UK, pp. 1232-47.

6. Yeh, E. 2005, High sensitivity C-Reactive Protein as a risk assessment tool for cardiovascular disease, Clin. Cardiol, vol. 28, pp. 408-12.

7. Pearson, T., Mensah, G., Alexander, W., Anderson, J., Cannon, R., Criqui, M. et al. 2003, Markers of inflammation and cardiovascular disease, American heart association circulation, vol. 107, pp. 499-511.

8. Ridker, M., Rifai, N., Rose, L., Buring, E. & Cook, R., 2002, Comparison of C-reactive protein and low-density lipoprotein cholesterol levels in the prediction of first cardiovascular events, N Engl J Med, vol. 347, pp. 1557–65.

9. Mayer, F., Mannhalter, C., Minar, E., Schillinger, M., Chavakis, T., Siegert, G. et al. 2015, The impact of uric acid on long-term mortality in patients with asymptomatic carotid atherosclerotic disease, Journal of stroke and cerebrovascular diseases, vol. 24, no. 2, pp. 354-61.

10. Weisman, MH., Gano, AD., Gabriel, SE., et al. 2003, Reading and interpreting economic evaluations in rheumatoid arthritis: an assessment of selected instruments for critical appraisal. J Rheumatol, vol. 30, pp. 1739-47.

11. Tavil, Y., Kaya, MG.,Oktar, SO., Sen, N., Okyay, K., Yazici, HU. et al. 2008, Uric acid level and its association with carotid intima-media thickness in patients

with hypertension, Atherosclerosis, vol. 197, no. 1, pp. 159-63.

12. Mutluay, R., Deger, SM., Bahadir, E., Durmaz, AO., Citil, R. &Sindel, S. 2012, Uric acid is an important predictor for hypertensive early atherosclerosis, Springer Healthcare, vol. 29, no. 3, pp. 276-86.

13. Orekhov, AN., Andreeva, ER. &Andrianova, IV, 2010, Peculiarities of cell composition and cell proliferation in different type atherosclerotic lesion s in carotid and coronary arteries, Atherosclerosis, vol. 212, pp. 436-43.

14. Dobiasova, M. &Frohlich, J., 2001, The plasma parameter log (TG/HDL-C) as an atherogenic index: correlation with lipoprotein particle size and esterification rate in apoB-lipoprotein-depleted plasma (FER HD). Clinical Biochemistry, vol. 34, pp. 583-88.

15. Tan, MH., Johns, D. & Glazer, NB., 2004, Pioglitazone reduces atherogenic index of plasma in patients with type 2 diabetes. ClinChem, vol. 50, pp. 1184–88.

16. Elsayed, A., Mostafa, M., Abdelkhalik, A., Eldeeb, M. &Abdulgani, M. 2010, Hyperuricemia and its association with carotid intima-media thickness in hypertensive and non hypertensive patients, Journal of the Saudi Heart Association, vol. 22, pp. 19-23.

Original Article

STRATIFICATION OF DIABETIC FOOT PROBLEM & OUTCOME OF TARGATED MANAGEMENT IN SATKHIRA MEDICAL COLLEGE & SADAR HOSPITAL

MS Islam[1], MA Islam[2], MR Kuddus[3], M M Haque[4], S M G Azam[5], M Rasiduzzaman[6], M Moniruzzaman[7], MS Ali[8], A Galib[9]

ABSTRACT:

Introduction: Diabetes mellitus affects 1-2 percent of population. It is a metabolic disorder of importance to the surgeons. This categorization of diabetic foot problem along with customized surgical treatment is known as- stratification of diabetic foot problem and targated management. ***Methodology:*** This is a randomized prospective study of the cases of diabetic foot admitted in surgery department of Satkhira Medical College & Sadar Hospital from July 2014 to July2019.. ***Results:*** Age of the patients usually varied from 30 to 70 years although it may occur inextreme age. The maximum incidence was noted in the 5th and 6th decades of life. maximum of the patients i.e. 45% presented with spreading cellulites or necrotizing infection during admission. 55% were male and 45% were female. Male-Female ratio was 1.22:1.The maximum number patients ie about 65% developed diabetic foot after 6-10 years of suffering from DM. The blood sugar level of maximum number of patients i.e about 80% on admission was in the range of 11-20 mmol/l. blood sugar level of maximum number of patients is uncontrolled i.e. about 90% on admission. ***Conclusion:*** Diabetes mellitus affects 1-2 percent of general population. This complex metabolic disease besides its other complication gives rise to circulatory and neurological disorders of the foot. Successful management of diabetes requires active participation by the patient, who must be more than a passive recipient of treatment.

1) *Dr. Md. Shariful Islam, Assistant professor, Surgery, Satkhira Medical College, Satkhira.*
2) *Dr ,Md. Atiqul Islam, Assistant professor, Surgery, Satkhira Medical College, Satkhira.*
3) *Dr. Md. Ruhul Kuddus, Associate professor, Surgery, Satkhira Medical College, Satkhira.*
4) *Dr. Md. Mozzammel Haque, Assistant Professor, Urology, Satkhira medical College, Satkhira.*
5) *Dr. S M Golam Azam, Assistant professor, Surgery, Satkhira Medical College, Satkhira.*
6) *Dr. Md. Rasiduzzaman, Resident Surgeon,Satkhira Medical College Hospital, Satkhira.*
7) *Dr. Md. Moniruzzaman, Assistant professor Anaesthesiology, SMC, Satkhira.*
8) *Dr. Md. Swakat Ali, Assistant professor, Surgery, Khulna Medical College.*
9) *Dr. Asadullahil Galib, Asst. Professor, Surgery, Khulna Medical College.*

Introduction

Diabetes mellitus affects 1-2 percent of population. It is a metabolic disorder of importance to the surgeons.Firstly, the disease impairs some homeostatic mechanisms, which would normally come into action during and after operative stress. Secondly, if diabetes remains uncontrolled, there is a greater tendency to infection due to impairment of leucocytes

migration and phagocytic activity and leading to overgrowth of micro-organisms [1].

Eight percent of the diabetic patients have peripheral vascular disease[2].Diabetes has two separate angiopathy, which vary in their extent and functional significance. Diabetic foot ulcers and infections are usually initiated by minor trauma and can become extensive, deep and spreading. These infections required surgical drainage and debridement, which frequently leads to amputation at the toes, the trans metatarsal level or even the foot or leg.

In patients with major foot infections and signs of spreading sepsis, antibiotics active over a wide spectrum of organisms including anaerobes, are indicated. It is common to find gas in the tissues of the foot and even the lower leg in patients with an extensive infection, usually due to anaerobic organisms.These infections are specially virulent and must be treated with aggressive surgical debridement and drainage.

Since the discovery of insulin in 1922 and the advent of its wider use in practice [3] after 1923, persons with insulin dependent diabetes mellitus (IDDM) were more likely to survive with the disease for many years avoiding and managing its above mentioned complications.

5 to 15 percent of the diabetic patients experience lower limb amputations in their lifetime. 45% of all lower limb amputation are performed on diabetics, It has been estimated that half of those amputations can be prevented, if a strategy could be evolved where patients with diabetic foot are categorized in depending on clinical severity and planning different surgical procedures accordingly [4].

This categorization of diabetic foot problem along with customized surgical treatment is known as- stratification of diabetic foot problem and targated management.

Materials & Methods

Study period:This is a randomized prospective study of the cases of diabetic foot admitted in surgery department of Satkhira Medical College & Sadar Hospital from July 2014 to July2019..

Criteria of selection of cases

In this study patients were selected randomly irrespective of age and sex who admitted with diabetic foot whether it was controlled or not. If controlled the nature of control that is with diet and exercise only, with or without OHA or insulin. The different presentations of diabetic foot of these patients were with cellulitis, abscess, ulceration, gangrene, and peripheral neuropathy. Patients were examined and investigated accordingly.

OHA level of uncontrolled diabetic patients were controlled by diet, exercise, OHA, or insulin and bring back to an accepted level. Along with controlling of blood glucose level, cellulitis, abscess and ulceration were managed by broad spectrum antibiotic or incision and drainage, then dressings or surgical debridement and dressings as they needed or amputations.

OHA, if used was stopped usually at least three days before surgery.These patients while undergoing surgery were best managed with a system of continuous glucose and insulin delivery.

Postoperative blood glucose level was monitored at 2-hr interval on the day of operation, extending the interval later on. Further follow-up needed for at least six months.

Results

Age of the patients usually varied from 30 to 70 years although it may occur in extreme age. The maximum incidence was noted in the 5th and 6th decades of life. maximum of the patients i.e. 45% presented with spreading cellulites or necrotizing infection during admission. 55% were male and 45% were female. Male-Female ratio was 1.22:1.The maximum number patients ie about 65% developed diabetic foot after 6-10 years of suffering from DM. The blood sugar level of maximum number of patients i.e about 80% on admission was in the range of 11-20 mmol/l. blood sugar level of maximum number of patients is uncontrolled i.e. about 90% on admission. The blood sugar level of maximum number of patients is controlled i.e. about 85% by diet and insulin. Maximum patients show that accidental trauma is the commonest cause of flourishing diabetes.Out of 100 cases, 10% were observed to be hypertensive, and the rest had their blood pressure within normal range.Out of 100 cases, 20% were observed to be slight sensory changes in the foot, and the maximum had no neurological changes in their foot. Out of 100 cases, 14% of patients having peripheral vascular diseases & having no peripheral pulses in lower extremity, most of them required amputation., 19% of patients having their blood urea levels above normal range. The doses of insulin required to control blood glucose level. Urine test was done usually thrice daily and the dose was adjusted accordingly. E.coli was the most frequent organism in diabetic foot followed by staphyllococci in my study., 10% of the patients were given broad spectrum antibiotics for spreading infection e.g. cellulities or necrotizing fascitis, 20% were treated by incision & drainage of pus and dressings for foot abscess, 35% treated by debridement & dressings for minor foot ulcer with minor or gross infection, only 1 patient was referred to NICVD for vascular augmentation procedure i.e. angioplasty or bypass surgery and 29% were treated by amputations at different level i. e. toes; metatarsal; below knee; above knee for frank moist gangrene of forefoot, hindfoot or leg.Out of 29 cases, below knee amputation was done in 15 cases (51.7%), out of them two amputated stamps became infected in which cases above knee amputations were done, above knee amputations were done in 4 cases(13.8%), toes amputations were done in 7 cases (24.14%).

Discussion

Diabetes mellitus is a complex metabolic disorder that affects 1-2% of the population. It can give rise to many tissue complications, among which, foot is particularly vulnerable to circulatory and neurological disorder, so that even minor trauma can lead to ulceration and infection, Careful observation and assessment of the wound is essential to ensure that the integrity of the limb is not threatened, which could result in amputation. A multi-disciplinary team approach is the key to the successful management of the diabetic foot [15].

It is seen that the mean age of the diabetic patient with foot problem is 50 years. Steffen et al [15] in their study showed that the average age of patients with diabetic foot was 60 years (56.5 years for aboriginal and Torres Strait Islanders, and 66 years for Caucasians). Levin [16] in his study carried in the USA concluded that most diabetic patients develop foot problems after 40 years of age, with the

In our series, we found that 15% of the patients had foot ulcer, which not correlates with a study done by Steffen et.al. [15] in America, who found it to be 45.09%. They found cellulites in 32%, abscess is 19.6%, which in our series were 45% and 25% respectively. We found gangrene in 15%cases.

10 out of 100 patients in our series were hypertensive. Patients who are genetically predisposed to the development of hypertension may be especially at risk.

Sensory loss in the foot was present in 20% of the patients. Only one patient had diminished ankle jerk and two had diminished patellar tendon reflex.

19% of our patients showed their blood urea level above normal range. This was mostly associated with the patients who suffered diabetes for longer duration.

The doses of insulin used to control blood sugar level. In this study, if blood sugar level was below 9mmol/l, no insulin was administered, only observation was the necessity. Patients with blood sugar level more than16 mmol/l, urgent serum electrolytes estimation was done as this group of patients may approach towards ketoacidosis and appropriate measures were taken. Good blood glucose level has been known to be beneficial in improving the outcome of diabetic foot infection [15]. For all forms of foot infection, blood glucose level was brought to normal level by diet and insulin. The blood glucose level was monitored throughout the period of treatment.

At times a patients may present with a severely inflamed swollen foot with lymphangitis , early gangrene and suffer inappropriately little pain. This is a dangerous condition, which can lead to anaerobic infection, and progress to extensive gangrene, which requires immediately amputation and life is to be saved. Wide spectrum antibiotics must be given immediately in large doses taking into account of the likelihood of anaerobic infection, a suitable combination is ceftriaxone and metronidazole.

A recent analysis recommended a 12 week trial of outpatient oral antibiotics for all ulcers. However, the analysis presumed an initial inpatient surgical debridement, leaving open the tissue of when it is appropriate to seek surgical consultation or to hospitalize a patient with a diabetic foot ulcer .

Conclusion

Diabetes mellitus affects 1-2 percent of general population. This complex metabolic disease besides its other complication gives rise to circulatory and neurological disorders of the foot. So, minor trauma can lead to ulceration and infection.Incidence of cellulites with abscess formation was highest in the series followed by the incidence of gangrene, cellulitis then ulcer formation. Sensory change was present in 15% of patients.

Only cellulitis was managed by nonsurgical management among which one patient developed abscess and 4 patients developed foot ulcer.

By proper control of blood sugar level in diabetic patients and with adequate local management of foot lesion, the rate of recovery is quite high but not as satisfactory as in the management of non-diabetics.

Successful management of diabetes requires active participation by the patient, who must be more than a passive recipient of treatment. The doctor and the patient must establish between themselves partnership to work together for successful management.

Reference:

1. Smiddy FG.Diabctcs mellitus. In: The medicalmanagement of surgical patient. Ist ed.London:EdwardArnold Publishers, 1980: 10-5.

2. Dudely HAF. Emergency that involves foot of diabeticpatient. In: Hamilton Baily's emergency surgery. 11thed.Bristol: John Wright and sons Ltd, 1986;580-3.

3. Laurence DR,Bennette PN.Endocrinology. 11. Diabetesmellitus, insulin, oral antidiabetic agents. In: Clinicalpharmacology. 7th ed. London: ELBS Publishers, 1992;565-80.

4. Shultz DW, Pagh JA. Value of radiograph in determiningthe need for surgery in diabetic patients with foot ulcer.Am J Surg. 1989; 158: 525-30.

5. McMinn RMH. Anatomy of the pancreas.In: Last'sanatomy: regional and applied. 8th ed. London: Churchilland Livingstone, 1990: 351-4

6. Warwick R, Williams PL. The pancreas. In: Gray'sanatomy. 35th ed. Edinburgh: Churchill and Livingstone,1978: 1299-301.

7. Ganong WF. Endocrine functions of the pancreas and theregulation of carbohydrate metabolism. In: Review ofmedical physiology. 16th ed. East Norwalk: Appleton andLange, 1993:302-22.

8. Guyton AC. Insulin, glucagon and Diabetes mellitus. In:Textbook of medical physiology 7th ed. Philadelphia: WBSaunders Cimpany, 1986:923-36.

9. Robins SL,Cortan RS, Kumar V. The endocrine pancreasand Diabetes mellitus. In: pathologic basis of disease. 3rded. Philadelphia: WB Saunders Cimpany, 1984:973-80.

10.Kumar PJ. Clark ML Endocrinology, In. Clinicalmedicine 2nd ed. London: ELBS Publishers, 1990: 832.

11. Isselbacher KJ. Braunwald E. Diabetes mellitus. In:Harrison's principle of internal medicine. 12th ed. New York:McGraw-Hill Books Inc, 1991: 1739-59.

12.Zimmet P, Pally JB, Edwin ANIB. Diabetes mellitus.MedIntern 1993; 6:23 7-41.

13.Jawetz E, Melnick JL, Adelherg EA, Brooks GF, Butel JS,Ornston LN. Emergency viral disease of human. In: MedicinalMicrobiology. 18th ed. East Norwalk: Appleton and Lange,1989:540-2.

14. West N.I. Systematic antimicrobial treatment of foot infectionsin diabetic patients. Am J Health •1995; 52: 1199-207.

15. Steffen C, O'Rourke S. Surgical management of diabeticfoot complications: the Far North Queensland profile. Aust NZJ Surg 1998:68:258-60.

Original Article

Status of Surgical andUrological patients admitted in Satkhira Medical College Hospital

M A Islam[1], M R Kuddus[2], M M Haque[3], S M G Azam[4], M S Islam[5], M Rasiduzzaman[6], S Roy[7], A Kawsar[8], K Islam[9], M Moniruzzaman[10]

ABSTRACT:
Objectives: Analysis of various cases admitted to surgical and Urological units of Satkhira Medical College Hospital, Satkhira, Bangladesh. **Patients and Methods:** This cross sectional retrospective study was conducted from January1st toDecember31st, 2019. All data was collected on a specially designed proforma. Basic information of patients like demographic characters, management i.e. operation or conservative treatment, the outcome of management i.e. discharge, the presence of co-morbidities, postoperative complications and death were recorded. Data was analyzed by using Microsoft XL 2010. ***Results:*** Total number of admissions during study period was 910, out of these 58.9% (n=536) were males and 41.1% (n=374) were females. The mean age of the patients was 43.98 years. Hernioplasty was the commonest procedure followed by cholecystectomy. Most of the patients had uneventful recovery. Death rate was only 0.6 %(06). ***Discussion:*** Most of the patients were managed by surgery. Surgical audit is need for proper planning and better outcome of health care system.

1) Dr .Md. Atiqul Islam, Assistant professor, Surgery, Satkhira Medical College, Satkhira.
2) Dr. Md. Ruhul Kuddus, Associate professor, Surgery, Satkhira Medical College, Satkhira.
3) Dr. Md. Mozzammel Haque, Assistant Professor, Urology, Satkhira medical College, Satkhira.
4) Dr. S M Golam Azam, Assistant professor, Surgery, Satkhira Medical College, Satkhira.
5) Dr. Md. Shariful Islam, Assistant professor, Surgery, Satkhira Medical College, Satkhira.
6) Dr. Md. Rasiduzzaman, Resident Surgeon,Satkhira Medical College Hospital, Satkhira.
7) Dr.Suzit Roy, Registrar, Satkhira Medical College Hospital, Satkhira.
8) Dr. Asif Kawsar, Assistant Registrar,Satkhira Medical College Hospital, Satkhira.
9) Dr. Kabirul Islam, Assistant Registrar, Satkhira Medical College Hospital, Satkhira.
10. Dr. Md. Moniruzzaman, Assistant professor, Anaesthesiology, SMCH, Satkhira.

Introduction

The surgical audit is an important strategy to maintain standards in surgical care. This is systematic, critical analysis of the quality of surgical care that is reviewed by peers against explicit criteria or recognized standards, and then used to further improve surgical practice.

The word audit comes from the Latin word audire meaning '' to hear ''[1]. Clinical audit is quality improvement process that seeks to improve patient care and outcome through systematic review of care against explicit criteria and the implementation of change. Adapting audit system for the diversified field of surgery makes possible

to analyze huge data and identifies areas for improvement [2]. It may help in estimation of work burden, sorting of common problems and preparing for their management in future.

In surgical audit, it is difficult to set standards and apply, so we need to measure the variations in outcome. It is non putative, an educational process aimed at improving the outcome of patients. Locally relevant criteria should be compared to guide local resource allocation, surgical practice and decision making. A good surgeon must never hide his/her faults but should learn from them in order to serve patients and improve practice [3].

In our country, a structured program for clinical audit is not available. It is not a regular practice to conduct surgical audit routinely; therefore,proper clinical data is not available, which can be reviewed and analyzed in terms of morbidity, mortality and other clinical outcomes.

The aim of this study is to measure outcome of patients, service improvement and innovative techniques for the benefit of patients at Satkhira Medical College Hospital, Satkhira, Bangladesh.

Materials & Methods:

This cross sectional retrospective study was conducted at Department of General Surgery and Urology in Satkhira Medical College Hospital from January 1st to December 31st 2019. Here all surgical and urological patients, admitted via Resident Surgeon in working days or referred from other disciplines. There is paedriatic surgery department in this institute, excluded in this study. There are two ultra-clean operation theaters and two modern operation theaters at third floor in this hospital and operation days are twice in a week. Demographic data are collected from admission register. Details of the surgical procedures were recorded from operation theater (OT) register. All data were compiled in spread sheet and analyzed by Microsoft XL-2010.

Results:

A total number of 910 patients were admitted in Satkhira Medical College Hospital during 2019. Among them, 58.9 %(n=536) were males and 41.1% were females (n=374). The mean age of the patients was 43.98 years. The minimum hospital stay was 7 days and maximum was 21 days. Operative procedure was done in 87.25% (n=794) and conservative management in 12.75% (n=119). Among the operative management 79% (n=638) was general surgical procedure and 21% (n=109) was urological procedure. Hernia was the commonest procedure in general surgery 11.6% (n==72). Cholecystectomy was second most common operation in general surgery 10.34% (n=66). Transurethral resection of prostate (TURP)was the commonest procedure in urology 22.49% (n=38). A significant number of patients were admitted with diabetes mellitus 28.57% (n=260), hypertension 9.89%, chronic obstructive pulmonary disease (COPD) 7.9% (n=72) and hepatitis B 1% (n=10). The post-operative recovery was uneventful except wound infection 4.4% (n=35), wound dehiscence 3.15% (n=25), pulmonary atelectasis 1.26% (n=10) and anastomotic leakage 0.13% (n=1). The mortality was only 0.6%(n=06).

Table I: Demographic data, name of operation, comorbidity and post-operative complication of patients admitted is Satkhira Medical College Hospital from January 1st to December 31st 2019.

1) Number of patient	male	female
910	536(58.90%)	374(41.05%)
2) Procedure	Operative 794(87.25%)	Conservative 119(12.75%)
3) a) Operation (General Surgery)		
Name of operation	number	Percentage
Hernia	74	11.6%
Cholecystectomy	66	10.34%
Appendicectomy	27	4.23%
others	471	73.82%
b)Operation (Urology)		
TURP	38	22.49%
Stricture urethra	19	11.24%
Renal stone	12	7.1%
Ureteric stone	10	5.92%
Others	90	53.2%
4) Comorbid disease		
Diabetes mellitus	260	28.57%
Hypertension	90	9.89%
Chronic obstructive pulmonary disease(COPD)	72	7.91%
5) Post-operative complication		
Wound infection	35	4.4%
Wound dehiscence	25	3.15%
Pulmonary atelectasis	10	1.26%
Anastomotic leakage	01	0.13%

Table I: Shows demographic data, types of operation, comorbid disease and postoperative complication of patients admitted in Satkhira Medical College Hospitalfrom January 1st to December 31st 2019.

Discussion:

The surgical audit has become an important part of modern surgical practice and integral requirement for the surgeons to continuing professional development. In our study, a total number of 910 patients were admitted in our hospital. This is higher than Waker SH. et al[4]. There was male predominance (59%): a slightly higher than Skaikh M .et al (56%) [5]. The mean age of the patients was 43.98 years and this finding is higher than the study done by Jawid M. et al[6]. The cause of disparity is due to pediatric group of patient excluded in this study. Hernia operation was the principal operation in our study. Other study shows cholecystectomy was their main surgical procedure. Qureshi et al [7] and Bhatti et al 8 reported appendiceectomy was their main operation. This disparity is due to there is lack of emergency services in our hospital.The co-morbid diseases were higher than the study by Waqar et al. Six(06) patients died in this study, three due to septicemia, two cardio-respiratory failure and one due to electrolyte imbalance from anastomotic failure. The mortality rate was (0.66%), lower than other study.

Conclusion:

The proper structural surgical audit is a good surgical practice. Knowledge of the current pattern of admissions, disease spectrum and health care resources is beneficial for both the clinicians and patients. Accident and emergency department should be established in our institute for the better outcome of the patients in this region.

References:

1) Flint D. Philosophy and principles of auditing. Hampshire: Macmillan Education Ltd .1988.

2) Ahmed F, Baloch Q, Rashid W, Ahmed I, Kumar D.Surgical audit of cases Admitted in Surgical Unit-I of Civil Hospital Karachi. Ann Pak Inst Med Sc.2016; 12(4):235-238.

3) Khalid S, Bhatti AA. Audit of surgical emergency at Lahore General Hospital. Journal of Ayub medical College Abbottabad.2015; 27(1):74-7.
4) Waqar SH, Ali A, Hussain A. Surgical audit of patients at a Tertiary Care Hospital. JIMDC.2017; 6(2):100-103.
5) Shaikh M, Woodward M, Rahimi K, Patel A, Rath S, Macmohon S, Jha V. Use of major surgery in south India : A retrospective audit of hospital claim data from a large community health insurance program Surgery.2015;157(5):865-73.
6) Jawid M, Masood Z, Iqbal S, Sultan T. The pattern of diseases in a surgical unit at a tertiary care public hospital of Karachi. Pak J Med Sci.2004 ;(20)4:311-314.
7) Qureshi WI, Duranni KM. Surgical audit of acute appendicitis proceeding of the Sheik Zayed Post graduate Medical Institute.2000;14(1):7-12.
8) Bhatti G, Haider J, Zaheer F, Khan SQ, Pirzada MT, Khan TM. Surgical audit of Unit II , Department of Surgery, Abbasi Shahid Hospital ,Karachi. Ann Abbasi Shaheed Hosp Karachi Med Dent Coll.2006; 11(2):54-8.

Original Article

Serum Vitamin D Status among Population of Satkhira An Observational Study

QA Ahmed [1], F.Hossain[2], S. Chatterjee[3], K Sarder [4], MK Mondal [5], SM Iqbal [6], R Parvin [7], A Galib [8]

ABSTRACT:

Viatmin D deficiency is common in our country. HereCosumed food Items are rarely fortified with vitamin D. Our socioreligeous and cultural practices do not facilitate adequate sun exposure, thereby neglating potential benefits of plentiful sunshine. Consequently, subclinical vitamin D deficiency is highly prevalent in both urban and rural areas. Vitamin D deficiency is likely to play an important role in diseases like rickets, osteoporosis, cardiovascular disease, diabetes, cancer and infectious disease. So, we should have proper knowledge about vitamin D status of our community.

1. *Dr. Quazi Arif Ahmed, Associate Professor Medicine , Satkhira Medical College*
2. *Dr. Farhana Hossain, Asst. Professor, Obs Gynae ,Satkhira Medical College*
3. *Dr. Sutapa Chatterjee, Asst. Professor, Radiology Imaging,.Satkhira Medical College*
4. *Dr. Kallyanashish Sardar, Junicon Medicine,Satkhira Medical College Hospital*
5. *Dr.Manosh Kumar Mandal, Junicon Medicine,Satkhira Medical College Hospital*
6. *Dr. SM Masum Iqbal, Asst. Professore, Community Medicine, KMC, Khulna.*
7. *Dr. Razia Pervin, Assistant Registrar, Gynae & Obs, Sadar Hospital, Khulna.*
8. *Dr. Asadullahil Galib, Asst. Professor, Surgery, Khulna Medical College.*

Introduction

Vitamin D is the most common under-diagnosed and under-treated nutritional deficiency in the world.[1] Vitamin D deficiencyis widespread in individuals irrespective of their age, gender and geography. Vitamin D is synthesized in the skin on exposure to UV rays. Sun exposure alone ought to suffice for vitamin D sufficiency. Vitamin D deficiency is widely prevalent despite plentiful sunshine even in tropical countries like Bangladesh. (Vitamin D and deficiency) causing not only skeletal but also extra skeletal diseases. [2]

Vitamin D is a fat soluble steroid prohormone mainly produced photochemically in the skin from 7 dehydrocholesterol. It consists of two biocquivalent forms. One is vitamin D2, also known as ergocalciferol, which is obtained from dietery vegetable sources and oral supplements. Other is vitamin D3,also known as cholecalciferol,which is obtained primarily from skin exposure to ultraviolet B (UVB) radiation in sunlight, ingestion of food sources such as oily fish and variable fortified foods (milk, juices, margarines, yogurt, cereals).

Both the vitamins D2 and D3 are biologically inert. Once absorbed from the intestine, they are metabolized in the liver

to 25-hydroxyvitamin D [25(OH)D], composed of 25(OH)D2 and 25(OH)D3, 25(OH)D (also called calcidiol) is subsequently converted to 1,25-dihydroxy vitamin D [1,25(OH)2D], also known as calcitriol,in the kidney and selected other tissues by the action of 1 α- hhydrolase enzyme.[1-4]

The predominant effects of vitamin D are exerted through the endocrine and autocrine actions of calcitriol via activation of the vitamin D receptors in the cells. The serum level of 25(OH)D] is measured to determine vitamin D status. Serum 25(OH)D] is considered the best functional indicator of vitamin D status, reflecting the sum of cutaneous synthesis and oral intake.[3,5]

Recenty, we found in our clinical practice that many patients coming to us were presenting with generalized bodyache, low back pain and pain over other bony areas. Apart from their clinical diagnosis most of them were suffering from vitamin deficiency or insufficiency.

In this study we have tried to reflect a glimps of vitamin D status of our community.

Methods:

A cross sectional observational studywas conducted among theadult patients aged at and above 18 years with generalized body aches and pains attending both outpatient and inpatient department of Satkhira Medical College Hospital during the period of October 17th to April 18th of 2019.

Total 118 adult patients, both male and female were recruited in the study who gave consent after explanation. Following subjects were exluded from study:

1. Age less than 18 years
2. Patients who were not willing to participate in the study
3. Patients who were taking vitamin D, calcium with vitamin D or multivitamins as supplement.
4. Individuals who were suffering from chronic diseases that affected vitamin D metabolism such as chronic liver and chronic kidney disease.
5. Subjects who were taking drugs that could influence vitamin D like steroid and anti-epileptics.

The study was approved by the institutional Ethical committee.

Data collection:

After taking consent from the individuals and fulfilling the inclusion criteria of the study, a predesigned structured questionnaire was used and filled up by the attending doctors. The questionnaire recorded socio-demographic characters, clothing style, sunlight exposure, dietary habits, smoking, patient's awareness about importance of sun exposure, BMI & presence of important co-morbidity like diabetes & hypertension.

Data of total household income was used as an indicator of socio-economic status. Average monthly income was recorded in three categories.

Lower class < 20000 taka / month, middle class 20000-50000

Taka/ month & higher class > 50000 taka/ month.

Vitamin D analysis:

The serum 25(OH)D is the most reliable marker of vitamin D status. So we measured serum 25(OH) D levels of all study participants & recorded the result in data collection sheet. Biochemical estimations were carried out using 25(OH) D immunoassay. It is used to determine the presence of vitamin D in human serum and plasma using CIMA technology.

Statistical Analysis:

Statistical analysis was carried out using

SPSS 22. Descriptive statistics was carried out. Frequencies are presented for categorical variables. Continuous variables were presented as mean +_SD. Mean different test(Z test) was done to find out the association of vitamin D levels with different socio-demographic factors. A p value <0.05 was considered to be Statistically significant.

Results:

A total 118 of adult patients presented with generalized aches and pains were included in the current study. Among 118 population, 74.6 % (n=88) were female and 25.4 (n=30) were male. Prevalence of vitamin D insufficiency is 72.9%. Out of study subjects 84 (71.2%) were vitamin D insufficient, 2 (1.7) were vitamin D deficient and vitamin D level of 32 subjects were normal.

Regarding distribution of Level of education are as follow: 21.2 % is illiterate, 59.3% from primary school. 13.6% from secondary school, 2.5 % from higher secondary school and 3.4% are graduate.

Age distribution of study patients are as follow: 18-30 years 9.3%, 31-50 years 36.4%,

51-70 years are 39 % and more than 70 % are 15.3%. Among 18-30 years vitamin D deficiency and insufficiencyare found in 1person (9.1%) and 7 (63.6%) persons. Among 31-50 age group deficiency and insufficiency are as follow 1 (2.3%) and 27 (62.8%). Among 51-70 and more 70 years deficiency and insufficiency are 0 and 0 and 34(73.9%) and 16 (88.9%) respectively and P value is 0.187.

Between Muslim and Hindu vitamin deficiency are 2(1.8%) and 0(0%)and insufficiency are 78 (71.6%) and 6 (66.7%) and p value is 0.187. Between rural and urban vitamin D deficiency are 1 (1%) and 1 (5.9%) and insufficiency are 70 (69.3%) and 14 (82.4%).

Among fair, brown and dark population deficiency are 1 (8.3%), 1 (1.1%) and 0 (.0%)

And insufficiency are 8(66.7%), 62(71.3%) and 14 (73.7%).

Among the patients who wear veils,2 (2.4%) were vitamin D deficient and 60 (73.2%) were vitamin D insufficient. Among those who did not wear veils, 0 % was deficient and 24 (66.7%) were insufficient.

According to BMI 16.9% of the study population were under weight, 36.4% were of normal weight, 26.3% were overweight and 20.3% were obese.

Regarding occupation unemployed 35.5%, Housewife 50 %, small businessman 1.7%, cultivator 6%, student 4%, indoor job holder 2.5%, large business holder .8% and fisherman .8%.

Distribution of population according to socioeconomic class revealed 16.9% of lower class, 66.9 % of middle class and 16.1 of higher class.

Rural and urban study population distribution were 85.6% and 14.4% respectively.

Table : 1

Vitamin D	Frequency	Percent
Deficiency (0-10 ng/ml)	2	1.7
Insufficiency (10-30 ng/ml)	84	71.2
Normal (30-100 mg/ml)	32	27.1
Total	118	100.0

Discussion:

People living in Bangladesh are at anatmosphere which suits cutaneousvitamin D synthesis throughout

the year . Still vitamin D deficiency is prevalent in our country. This study was designed to find out the prevalence of vitamin D deficiency among patient who had presented with generalized aches and pain. We also tried to find out the factors which were associated with vitamin D deficiency.

It was alarming to find out that prevalence of vitamin D insuffiency was 71.2%. It indicated that doctors should routinely follow vitamin D levels in patients with musculoskeletal symptoms such as bone pain, myalgia and generalized weakness. Correction of vitamin D level improve these symptoms dramatically.

Mean vitamin D level among male was 25.4 ng and female was 25.12 ng indicating both the values to be lower than the normal range. Mean vitamin D level of males were higher than that of females. Lack of sun exposure due to staying inside home (50 % house wives) and wearing skin covering veils(73.2% of female population) were contributing to this crisis.

In our study hypovitaminosis D was found in all age groups. Severely deficient vitamin D level (less than 10 ng/ml) was found in 18-30 and 31-50 years of age.

This result was unexpected since an inverse association between vitamin D3 and age had been shown in several previous population based studies.

In our study we found that people who are living in rural areas had higher levels of vitamin D due to more exposure to sunlight.

Conclusion.

In a tropical country like Bangladesh the pevalance of vitamin D deficiency among patients presenting wth with generalized pain is high among all groups and both sexes. Female gender, urbanization, obesity,dark skin complexion, wearing veil and lifestyle factors are some of the the important factors associated with vitamin D insufficiency and deficiency in Bangladesh. From our study findings,we strongly recommend screening for vitamin D insufficiency of population who are at risk based on sun exposure, diet, obesity, age, sex & life factors as features and symptoms are treatable. Increasing awareness about the importance of sun exposure and encouraging consumption of natural food rich in vitamin D can resolve this crisis to some extent. Vitamin D fortification or supplementation may be an option to improve vitamin D status of our population.

Referrence

1. Holick, MF. And Chen, TC. 2008, "Vitamin D deficiency: a worldwide problem with health consequences",AM J ClinNutr, vol. 87, pp.1080-86.

2. Hewison, M, Zehnder, D, Chakraverty, R. and Adams, JS. 2004, "Vitamin D and barrier function: a novel role for extra-renal 1 alpha-hydroxylase." Mol Cell Endocrinol, vol. 215, pp.31-38.

3. Darmochwal-Kolarz, D, Leszczynska-Gorzelak, B, Rolinski, J.andOleszczuk, J. 1999, "T helper 1-type and T helper 2-type cytokine imbalance in pregnant women with preeclampsia". European Journal of Obstetrics and Gynecology and Reproductive Biology. Vol.86. no.2, pp.165-170.

4. Mayer, F., Mannhalter, C., Minar, E., Schillinger, M., Chavakis, T., Siegert, G. et al. 2015, The impact of uric acid on long-term mortality in patients with asymptomatic carotid atherosclerotic disease, Journal of stroke and cerebrovascular diseases, vol. 24, no. 2, pp 354-61.

EDITORIAL POLICY

Information to Authors
Journal of Satkhira Medical College

Journal of Satkhira Medical College (JSMC), the official organ of Teachers Association of Satkhira Medical College, is a peer reviewed journal. It is published twice in a year in the month of January and July. Articles are received throughout the year. The journal will published original papers, review articles, case reports and short communication related to Medical Science.

Submission of manuscripts
Papers are accepted for publication with an understanding that they are submitted solely to the Journal of Shatkhira Medical College (JSMC) and are subject to peer review and editorial revision. Statement and opinions expressed in the papers, communications and letters here in are those of author(s) and not necessarily those of the editor(s) or published.

Preparation of Manuscripts
Three copies of the article and the manuscripts on a CD should be submitted to the editor. Manuscripts should be typed in English on one side of white good quality paper with margins of at least 25 mm and using double space through out. Each component of the manuscript should begin on a new page in the sequence of:

1) Title page: The title page should include the title of the article, name of the department(s) and institution(s) to which the work should be attributed, name and address of the author with post code responsible for correspondence and source of support for work in the form of grants, equipment, drugs etc.

2) Abstract: A structured abstract must be provided which should indicate in brief the objective and purpose of the study, a briefly worded description of the study with summary of the results and a statement of the study's conclusion.

3) Introduction.
4) Aims and Objective.
5) Materials and methods.
6) Results.
7) Discussion.
8) Conclusion.
9) Acknowledgment

10) Reference: It should be numbered in the sequences in which they appear in the text and then listed in this order in the reference section.

11) Table and legends for illustrations: Pages should be numbered consecutively in the middle bottom, beginning with the title page.

Measurements should be in SI unit, but blood pressure should be expressed in mm of Hg. Statistical methods should be defined in the method section of the paper, Standard abbreviations should be used. The full terms for which an abbreviation stands should precede its first use in the text.

Original articles are usually upto 1500 to 2000 words and review articles 2000 words long with minimum number of tables or illustrations. Reports on rare or uncommon cases are welcome. Most editorials are solicited, but unsolicited editorials of usually upto 1000 words are considered delightedly.

Manuscript submission in computer disc
Satkhira Medical College Journal encourages manuscript submission on CD, along with the standard three hard copies. Each disc must be labeled with the following: Date, Name of principle author, word processing software and version number, format type, file names.

Manuscript submission in E-mail manuscript submission on e-mail instead of CD is available. The e-mail address is:

Three copies of manuscript submission on paper also necessary.

References

References should be numbered in the order in which they appear in the text. References should be identified in the text, tables, and legends by Arabic numerals (in parenthesis). At the end of the article the full list of references should give the names of authors, unless there are more than six, when only the first three should be given, followed by et al. The authors' name are followed by the title of the article, the title of the journal abbreviated according to the style of the index medicus, year of publication, the volume number, and the first and last page number of the article. Reference to books should give the names of the any editors, place of publication, publisher, year and relevant page(s). Unpublished observations or personal communications should be referred to as such in the text and should not be include in the final list of reference. Paper which have been submitted and accepted for publication should be included in the reference list, the phrase "in press" (in parenthesis) replacing volume and page number.

The references must be verified by the author(s) against the original documents. Example of correct forms of references are given below:

1) Standard Journal articles: (List all authors when six or less; when more than six, list only three and add et al.).

Thakur CP, Kumar M, Kumar P, Mishra BN,

Panday AK. Rationalization of regimens of treatment of Kala-azar with sodium stibogluconate in India: a randomized study. Br Med J 1988; 196: 1556-60.

2) Personal author(s) in a book:

Eisen HN. Immunology: an introduction to molecular and cellular principles of the immune response. 5th ed. New York. Harper and Row, 1974; 406.

3) Editor, complier as number in a book: Robbins SL, Cortan RS, Kumar V, eds. Pathological Basis of Disease. 3rd ed. Philadelphia: WB Saunders, 1984: 236 - 48.

4) Chapter in a book:

Weinstein L, Swartz MN, Pathologic properties of invading microorganisms. In: Sodeman Jr, Sodeman WA, ed. Pathologic physiology: mecganism of disease. Philadelphia: WB Saunders, 1974: 457 - 72.

5) Dissertation or Thesis:

Uddin MM, Study of Hypoglycemic Effect of Fenugreek (Methy) in Type 2 Diabetic Patients (Thesis). Bangladesh: Rajshahi Medical College under Rajshahi University, 2005.

Tables

Each table should be typed on separate sheet. Table should have brief title for each, should be numbered consecutively using roman numerals (I, II, V, X) and be cited in the text in consecutive order. Internal horizontal and vertical rules should not be used.

Illustrations

All drawings should be made with black Indian ink on white paper. Letters, numbers and symbols should be large and thick enough to be visible if and when the figure is reduced for publication. Photographs and photomicrographs should be supplied as glossy black and white prints un-mounted. Figure number, an indication of the top edge and name of first author should be marked lightly on the back of each figure with soft pencil. Legend for each illustration should be referred to as figures numbered consecutively in the text in Arabic numerals (1, 2, 6, 9).