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The manuscripts submitted in this journal should not have been published in any other journal before. All submitted papers are subjected to be reviewed by the board of reviewers and editorial panel before accepting any manuscripts. The unaccepted articles will not be sent back, but will be destroyed. Proof corrections by the authors are well appreciated.

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Abstract

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Body/Text:

The body of the manuscript/text should be divided into the following sections: i) Introduction, ii) Materials and Methods, iii) Results (include tables and diagrams), iv) Discussion, v) Conclusion, and vi) Acknowledgement if any (particularly on funding, study subjects and co-author).

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It includes a short yet robust background purpose and the rationale for the study (or summarized observation), including pertinent references, but data or conclusion from any work should not to be included.

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Acknowledgements

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2. Paganini HA, Chao A, Ross RK, Henderson Aspirin use and chronic diseases: a cohort st of the elderly. BMJ 1989; 299: 1247-1250

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I. Harverd medical school Available https:// en.wikipedia. org/wiki/havard medical college, accessed October 2011

(iv) Thesis/Dissertations

1. Khan MAH. Lipid profile and renal function status of hypothyroid patients [MD Thesis). Dhaka Bangabandhu Skeikh Mujib Medical University:2005

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- study concept
- study design
- data collection & processing
- statistical analysis
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Editorial

Primary PCI (Percutaneous Coronary Intervention), is the best treatment after Myocardial Infraction (MI)

Dear Sir,

In terms of cardiology, PCI (Percutaneous Coronary Intervention) depicts angiogram and stenting of cardiac patient. Primary PCI that indicates immediate angiogram and stenting in Myocardial Infraction (MI) setting (STEMI) as recommended in the Guidelines like ACC/AHA (American College of Cardiology/American Heart Association), and by the ESC (European Society of Cardiology) as Class-IA indication.

Further,

- Class-I recommendation means this treatment/ procedure should be given to the patient & its benefit is >>> risk.
- Label of evidence A means result of this treatment is proven by multiple randomized clinical trial & meta-analysis.
- Primary PCI should be performed in patients with STEMI if ischemic symptoms less than 12 hours' duration.[1] (ACC Class IA)
- A routine Primary PCI strategy should be considered in a patient presenting late (12-48 hours) after symptom onset. [2] (ESC Class IIa).

It has been seen that only medical management by antiplatelet, thrombolytics & heparin in delayed PCI (stenting) in STEMI patients results in higher mortality. These patients ultimately developed Heart Failure with reduced ejection fraction after MI as there is irreversible myocardial damage. Despite improvements in therapy, the mortality rate in patients with HF has remained unacceptably high. Congestive heart failure remains highly lethal, with a median survival time of 1.7 years in men and 3.2 years in women and a 5-year survival rate of 25% in men and 38% in women[3].

Moreover, heart failure patients need repeated hospitalization with Acute Left Ventricular Failure (ALVF) & increasing number of medications increase economic burden. Most common cause of death in heart failure are ALVF, recurrent RTI, Arrhythmias, Electrolyte imbalance etc. To prevent or minimize myocardial necrosis the only way is early revascularization (reestablished coronary blood flow) that is Primary PCI. To save me myocardium, to save lives, to reduce mortality & sufferings of STEMI patients, to reduce economic burden, Primary PCI should be done 24/7 where it is possible. Primary PCI is beneficial for patients, is an established treatment worldwide and recommended (Class-IA) by ACC/AHA/ESC as well as other international guidelines.

Here is an example of a 53 years male presented with STEMI inferior with two hours chest pain with complete heart block with cardiogenic shock at 3 am at night & we did primary PCI within 70 min successfully with TPM & Inotropes support.

In this critical situation, femoral route is better than radial route. But for stable MI patient we prefer radial route.

Radial access is recommended over femoral access if performed by an experienced radial operator[4] (ESC class IA)

Thrombolysis by fibrinolytics is not the definitive treatment at present. It is only part of definitive treatment where Cathlab & Primary PCI team is not available both in rural & urban area. Patient should be transferred immediately after thrombolysis to a PCI

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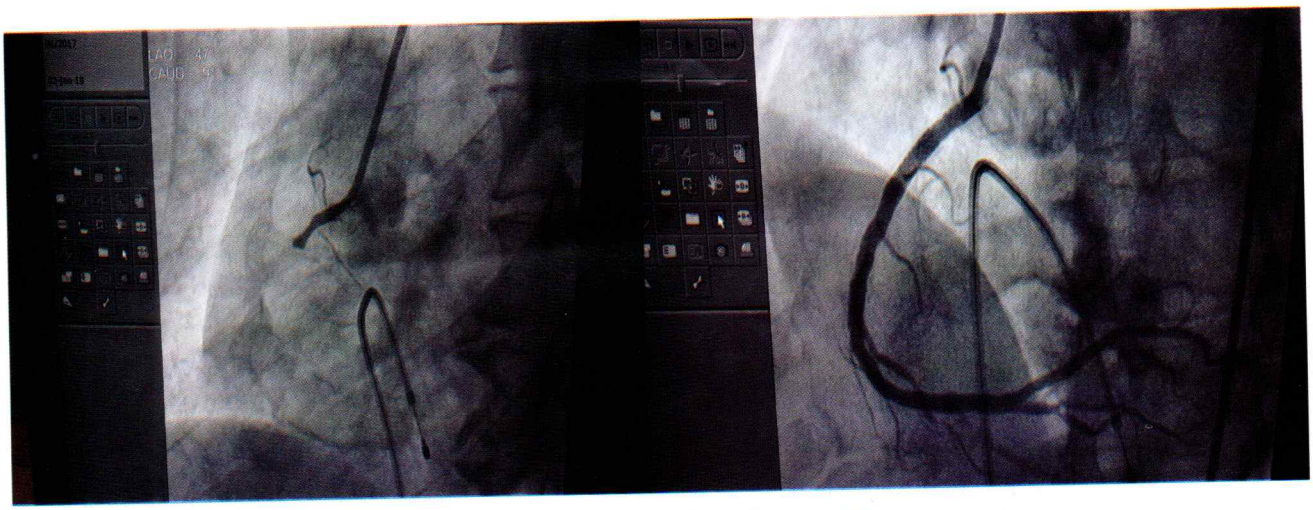


Before Primary PCI

After Primary PCI

Fig.-1: Result of primary PCI

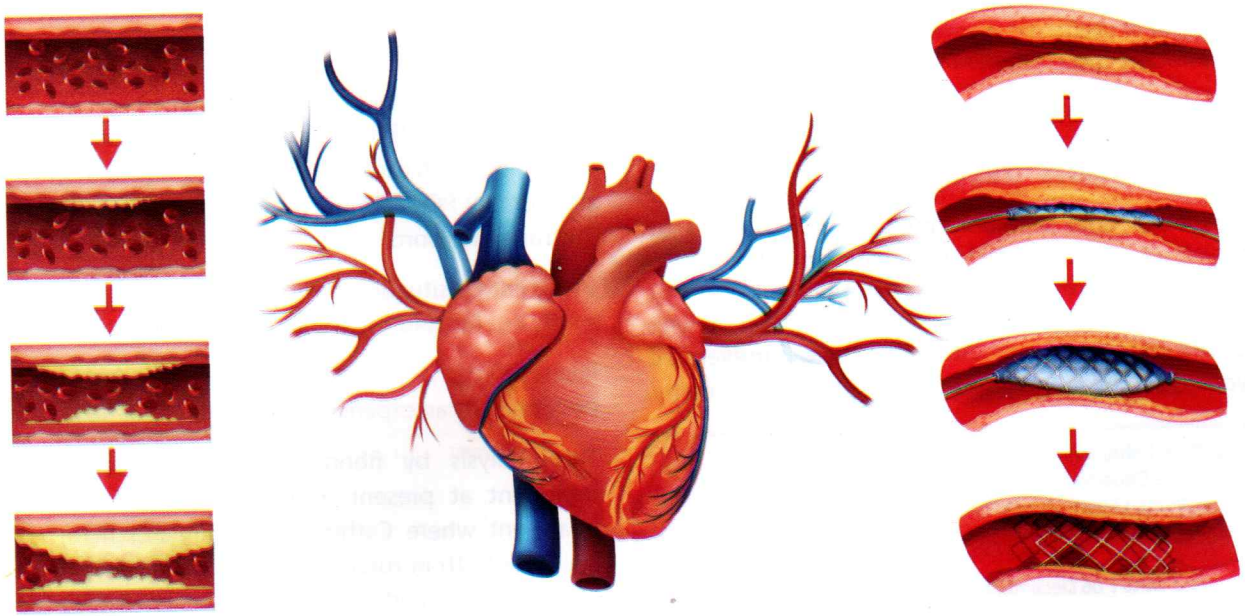
capable hospital for Pharmaco-invasive PCI within 24 hours. Pharmaco-invasive PCI means thrombolysis given in one hospital then the patient transferred for angiogram & stenting to a PCI capable Hospital.

Transfer to PCI capable center following fibrinolysis is indicated in all patients immediately after fibrinolysis. [5] (ESC Class-IA)

For thrombolytic treatment developed world uses Tenecteplase but we use streptokinase.

Efficacy, that is vessel patency rate after Tenecteplase is 90% to 95% meaning thrombus will dissolve & reestablish blood flow to MI affected area of Myocardium in 95 patients out of 100 patients. Comparing with this vessel patency rate of Streptokinase is only 60 to70 % effective, means thrombus will remain as it is in 30 to 40% patient & myocardium of that supplied territory will completely damage with time. Due to affordable pricing like 5,000 Tk. for Streptokinase comparing 50,000Tk for Tenecteplase, we use Streptokinase. Previously Tenecteplase was not available in our country. Now it is marketed by two renewed pharmaceutical companie Radiant & Healthcare as Metalyse & Tplase, which mode it readily available.

Angioplasty for coronary artery disease



In case of thrombolytic treatment, only thrombus will dissolve partially or fully but the main disease that is ulcerated atheromatous plaque or block remain as it is which may cause further heart attack. Also myocardium of that supplied territory become weak as it will get less nutrition & oxygen.

It was thought earlier in a critical patient like Cardiogenic Shock & acute severe Heart Failure patient should be treated conservatively in CCU, which was proved completely wrong by trials & guidelines. These patients need more urgent angiogram & angioplasty to improve mortality & morbidity.

Primary PCI should be performed in patients with STEMI and cardiogenic shock or acute severe HF, irrespective of time delay from MI onset .[6](Class IA)

In our country only few corporate cardiac centers are doing 24/7 hours primary PCI. Other hospitals cannot give this treatment because of three main reasons, one is our patients are mostly poor they can't afford to buy this treatment. Another reason is lack of well trained committed PPCI team. Finally, this message about latest treatment & update about MI treatment is mostly not informed to health professionals. To overcome these obstacle we need to develop good Insurance policy, we need more and more skilled primary PCI team throughout the country, and need more Cath lab center.

Conclusion:

Primary PCI is the best treatment in MI(STEMI) but it should be done by well trained, skilled Primary PCI team. Operator should be capable enough to manage any complications instantly with good support system & setup in cathlab & CCU. Procedure should be completed as fast as possible to spend minimum time in cathlab. Counseling to patient party with written consent should be taken before procedure. DC machine and bed side echocardiography unit Intubation set & TPM should be double checked before primary PCI.

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Original Article

Laparoscopic Vs Open Appendectomy - A Retrospective Cohort Study

Sardar Rezaul Islam[1], Shah Alam Sarkar[2], Dababrata Paul[3], Md. Hanif[4], Sheikh Mahmood Kamal[5]

Abstract

Background: Open appendectomy (OA) has been the treatment of choice for acute appendicitis since its introduction by Mc-burney in 1884. Laparoscopic appendectomy (LA) though widely practiced, has not gained universal approval. LA was first described in 1983. Some early studies showed equivocal results about benefit of LA. So, we decided to do this study with a view to evaluate the therapeutic benefit of LA by comparing with conventional OA .

Materials and methods: We collected data of 872 appendectomies from January 2012 upto June 2017 for a period of 5 years. Out of them 410 had conventional OA and 462 had LA. e compared the mean operation time, time of first oral feeding, narcotic analgesic requirement, duration of post operative hospital stay.

Results: We found that mean operation time was 32±5.8 minute and 38± 7.5 minute in LA and OA respectively. Duration of post operative hospital stay was 1.2 days shorter in Laparoscopic group. LA required 1.1 shots of less analgesic than OA. Oral feeding was resumed 21 hours earlier following LA compared to OA. Laparoscopic appendectomy was safely performed in paediatric patient without any adverse effect. We also found that, in female patient, concurrent ovarian cysts, tubal pregnancy and endometriosis can be diagnosed and managed laparoscopically in the same sitting. LA was performed on pregnant patients in first and second trimester without any fetal loss.

Conclusion: Our study found that laparoscopic appendectomy is an effective and safe procedure irrespective of age and sex of the patient. LA has added advantage of early return of bowel movement, less post-op hospital stay and less requirement of narcotic analgesic. Incidence of surgical site infection is less than half in LA compared to OA.

Key words: Acute appendicitis, Laparoscopic appendectomy, Open appendectomy, Laparoscopic vs open appendectomy

Introduction:

Open appendectomy has been a safe and effective operation for acute appendicitis for more than a century. According to the literature, approximately 7% of the population develop appendicitis in their life time, with peak incidence between the ages of 10 and 30 years, thus making appendectomy the most frequently performed abdominal operation.[1] Recently, several authors proposed that the new technique of laparoscopic appendectomy should be the preferred treatment for acute appendicitis. However, unlike laparoscopic cholecystectomy, laparoscopic appendectomy(LA) has not yet gained popularity.[2] Laparoscopic cholecystectomy is now considered a standard method of performing cholecystectomy and has mostly replaced the old method throughout the world, while appendectomy has yet to achieve such popularity.[3] Since its introduction by Mcburney in 1884, appendectomy has been a treatment of choice for acute appendicitis.[4] For more than a century, open appendectomy remained the gold standard of treatment of acute appendicitis and for interval appendectomy. In 1981, Semm, a German gynecologist performed the first laparoscopic appendectomy.[5,6] Despite its use even before laparoscopic cholecystectomy, LA has not yet emerged as gold standard appendectomy. LA has potential advantages of shorter hospital stay, early mobilization, early return of bowel function, acceptable complication rate along with the recent enthusiasm of minimally

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invasive surgery. These definite advantages have led some authors to advocate this approach as the procedure of choice for uncomplicated appendicitis. [7,8]

Patients and methods:

We conducted retrospective review of consecutive patient with appendectomy between January 2012 and January 2017 for a period of 5 years. All the operations were performed in the two surgical units of a teaching hospital.

Pre-operative diagnosis was made using history, clinical examination coupled with laboratory findings and imaging studies. In open group only appendix removed via Mcburney's incision were included in the study. All patients where midline incisions given were excluded from the study. Operating time was calculated from the time of first incision upto the placement of last stitch on the closing wound. Post-operative hospital stay, in days, was defined as the time the patient left the operation theater upto the time of discharge from the hospital. Number of shots of injectable narcotic analgesics given to the patients post-operatvely were recorded. Time of resumption of oral food, in hours, were calculated from the time of surgery.

Data were analyzed using standard statistical method. Descriptive statisticals including means, medians, standard deviation, percentages were used to describe study population on all variables. For categorical variables X^2 test and Fisher exact test were used to make comparison.

Procedure description: For the laparoscopic approach, a 10-mm trocar was placed at the umbilicus and 2 additional 5 and a 10mm trochars were inserted in the lower abdomen and right hypochondrium respectively (Fig-1) The meso-appendix was transected after applying titanium hemoclip. The base of the appendix were ligated with an endo loop constructed with a Roeder's knot on a No-1 vicryl thread.(Fig-2) The endo loop was pushed to ligate the base of the appendix with a knot pusher (Fig-3 & 4). A single endo loop was used. The specimens were removed via the umbilical port. In case of peritoneal collection only suction was used. No irrigation was used.

In open approach, we used traditional Grid –Iron incision over the Mc-burney's point. The appendix base were transfixed with a no1/0 vicryl suture. Appendix base was not invaginated.

All patients received preoperative and post operative antibiotic. A combination of 3rd generation cephalosporin and metronidazole used. In presence of severe systemic sign an aminoglyside, usually Amikacin was added. All patients were discharged on resumption of solid food and complete remission of fever.

We successfully operated on very old patient laparoscopically without any difficulty.We operated on patients above 60. But we avoided LA on patients with cardiac disease.

We operated on 2 pregnant patients laparoscopically in first and second trimester without any fetal loss. Two patients with pregnancy were operated in the open group also without fetal loss as well.

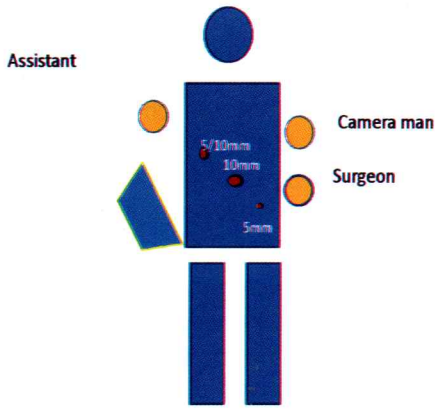

Fig.-1

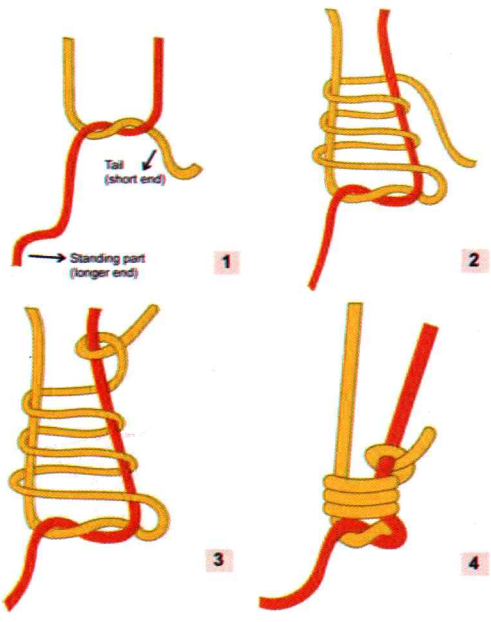

Fig.-2

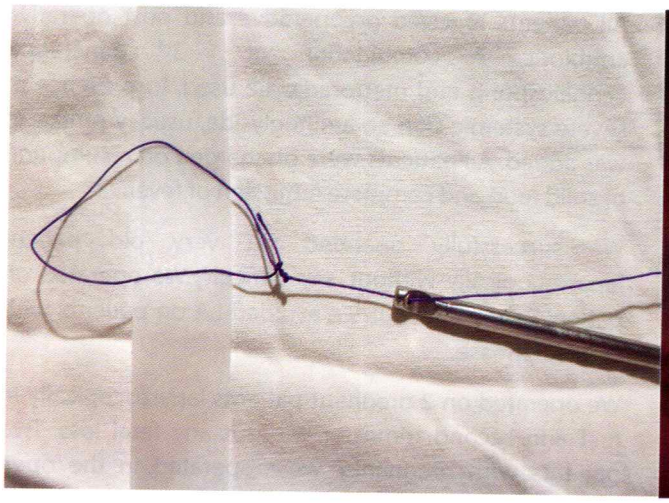

Fig.-3

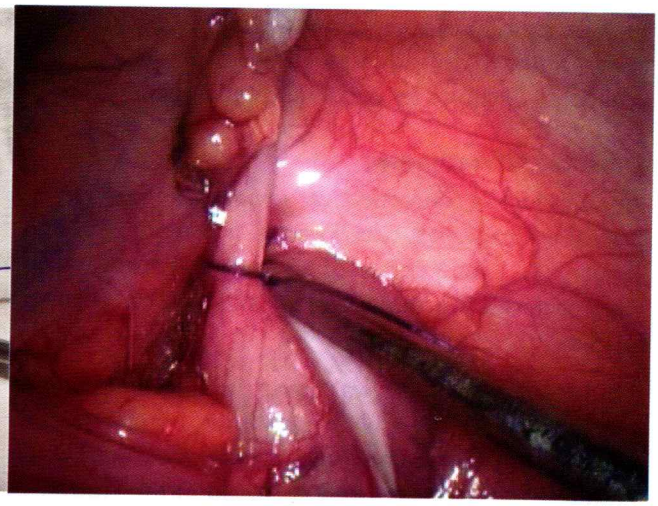

Fig.-4

Results:

In this five year period, we performed total of 872 appendectomy. Out of which 410 were open appendectomy and 462 were laparoscopic . Out of the laparoscopic group 180(39%) were adult male, 259 (56%) were adult female, 16(5%) were children. Age of the patients ranges from 2 to 72 years. There were two pregnant patient in the LA group in their first and second trimester. There were two pregnant patient in the open group also.There were no death in either group. We had converted 11(3.4%) cases. Some con-commitent pathology was managed during LA. We did 16 laparoscopic cholecystectomies, managed 4 tubal pregnancy and 21 ovarian cystectomy while doing LA. (Table-1)

We recorded the operating time from the time of incision to the last skin stich. We found the operating time in LA was 32±5.8 minute and in OA was 38±7.5 minute. LA group required 5 minutes less operating time than OA(OR-0.79,CI-95%).

We calculated narcotic analgesic doses required for both group. On average number of shots required for OA were 3.1 while LA were 2 (OR-0.30, CI 95%). So LA required 1.1 shots less than OA.First oral food was resumed after 59 hours after surgery in OA on average. and 38 hours after LA(OR-0.41, CI 95%). Mean difference were 21 hours in favour of LA.

We calculated duration of hospital stay from the time of surgery upto the time of discharge from the hospital. The post operative hospital stay was 4.4 days in OA and 3.2 in LA (OR-0.47, CI95%). LA group required 1.2 days less post op hospital stay than OA.(Table-II)

Table - I

Con-commitment pathology managed during LA

Con-commitent pathology	Number
Lap Cholecystectomy	16
Excision of tubal pregnancy	4
Lap Ovarian cystectomy	21

Table-II

Outcome comparison between LA and OA

Outcome	LA	OA	Mean difference	Odds ratio
Operating time (minute)	32±6	38±7.5	-5	0.79 CI 95%
Number of analgesic doses (narcotic)	2	3.1	-1.1	0.30 CI 95%
Resumption of oral food (Hours)	38	59	-21	0;41 CI 95%
Hospital stay (days)	3.2	4.4	-1.2	0.47 CI 95%

Discussion:

Out of our 462 patients of LA group 259 were adult female (56%).This is the group where laparoscopic approach is very much indicated. As con-commitent pelvic pathology can be diagnosed and managed very effectively. In our series we managed 4 cases of ruptured ectopic pregnancy and performed 21 ovarian cystectomy during this period in women of reproductive age group. Any patient of reproductive age having suspected appendicitis, should have laparoscopic appendectomy as any concomitant pelvic pathology can be dealt with in the same laparoscopic method. We did 16 cholecystectomies as these patents were found to have gall stones on pre operative ultrasonography. We did not insert additional trocar for this purpose. If we found that patient will have LA and cholecystectomy, we inserted conventional 4 trochar for lap cholecystectomy and did appendectomy through the same ports. We did not require to insert any trocar on the left iliac fossa.

Our 23(5%) patients belonged to pediatric (below 12 years) age group. We used the same trochar position in children also.We inserted camera trocar slightly above the umblicus in very small children.

We put intra abdominal pressure at 11 or 12mm of Hg in children. We did not encounter any difficulty while operating on children, only instruments were crowded due less intra abdominal space .No difference in mortality or major complication was observed between LA and OA among children.[9]

Our 25 patients were above 60 years. No special problem was encountered in operating on old patient. But we did not attempt LA on patients with heart failure as increased inta-abdominal pressure may compromise cardiovascular hemodynamics.[10]

We rarely found very obese patient in this rural based medical college hospital. OA in obese patient is particularly difficult through Mc Burney's incision and often requires larger incision. LA in obese patient has extra advantage in this regard.[11]

Complication following LA are also found to be less. Number of wound infection after LA is almost less than half in comparison to OA. As a result, LA has better cosmetic result. But it has slightly higher rate of residual absecess.[12,13,14] But one study has shown that the rate is higher only if appendix is perforated (9% vs 2.6%). In acutely inflamed or gangrenous appendicitis there is no significant difference in rate of intra abdominal abscess formation.[15,16]

During the early part of our study we were inserting double ligature at the base of the appendix to secure the stump. As I came across a study which concluded that there was no difference in post operative mortality and morbidity between the use of single loop and double loop in LA.[17] Since then I have been using single loop to secure the appendicular stump. As a result operation time was reduced by few minutes.

When we came across to perforated appendix and pus collection,we used suction only to clean the pus from the peritoneal cavity. We did not use irrigation at all. A prospective randomized trial was published in the literature, which concluded that there is no significant difference in outcome between suction and irrigation combined and suction alone during LA in case of perforated appendicitis.[18] In this study the incidence of residual abscess was found to be same in both group with perforated appendicitis. Duration of hospital stay was also not different.

Adhesion formation is now one of the common complication following intra abdominal operation. A study has shown that rate of adhesion is about 80% in OA compared to 10% in LA when the patient was laparoscoped three months after the surgery.[19]

Regarding the indication of LA we may conclude that indication of laparoscopic appendectomy include female of reproductive age group, doubtful diagnosis of appendicitis, recurrent appendicitis, high working class, obese patient, cirrhosis of liver, sickle cell disease and immuno-compromized patient.

General anesthesia and pneumoperitoneum required for laparoscopic procedure poses risks to certain group of patients with cardio-respiratory compromise. So LA is not recommended for patients with COPD or cardiac disease. LA should also be avoided in previous lower abdominal surgery, generalized peritonitis and stump appendicitis.

Laparoscopic appendicectomy in pregnancy is associated with a low rate of intra-operative complications in all trimesters. However, LA in pregnancy is not associated with a significantly higher rate of fetal loss. Rate of preterm delivery appears to be similar or slightly lower following a laparoscopic approach. Laparoscopic appendectomy appear to be safe for pregnant women.[20]

Conclusion:

Our study clearly demonstrates that laparoscopic appendectomy is superior to open appendectomy. LA

has comparable operative time with OA. LA is also clearly associated with less postoperative analgesic use and early resumption of oral food compared to OA. Postoperative hospital stay is also shorter in LA. Concomitant gallstone can be operated in the same sitting without making two incision. In female patient concomitant ovarian cyst, tubal pregnancy can be diagnosed and managed laparoscopically. We believe that LA is the procedure of choice for most patients regardless of age, sex and BMI.

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Original Article

Nipple Discharge: Evidenced Based Observation from Dept. of Surgery, Ad-din Hospital

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Background

Nipple discharge (ND) is the most common symptom in patients referred to breast cancer (Br-Ca) clinics accounting for 2–5% of all referrals and remains the 3rd most common breast symptom after breast pain and breast lump.[1]

Almost 15 years back, in 2007, A group of British surgeons led by Richard, T et el from Reading, UK, commented that ND remained a common sign of Br-Ca2, which 3–9% women presented as main symptom.[3,4]

The majority of patients are referred under the cancer guidelines because nipple discharge is traditionally regarded a sign of breast cancer,3 the incidence reported at 5–12%.4 However, although nipple discharge may be the presenting symptom, many cases may also have an underlying breast mass or abnormal mammography.[5-7]

The aim of this study is to assess the incidence of breast cancer in patients presenting with nipple discharge alone, who had normal clinical and radiological examinations. Nipple discharge causes significant anxiety among females, especially when bloodstained[8], although in most cases the aetiology is physiological or benign.[9] However, nipple discharge has been reported to be associated with breast cancer up to 15% of cases with remarkable variation of 5–15%.[10]

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Causes of nipple discharge:

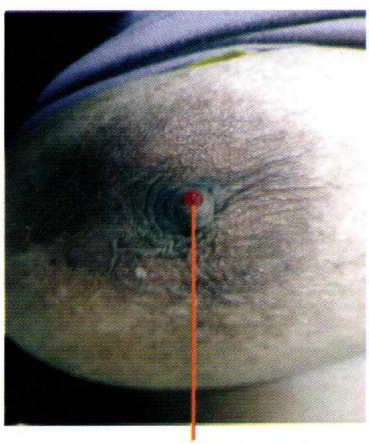
Nipple discharge may be categorized as physiological and pathological. Physiological nipple discharge is usually bilateral and originate from multiple ducts. The common causes are: pregnancy, lactation, hypothyroidism, pituitary adenoma, oral contraceptives, antihypertensives, and tranquilizers.[11] Pathological nipple discharge is spontaneous and mostly unilateral. It usually emanates from a single duct or may be associated with a mass or any skin changes.[12]

Pathological nipple discharge can again be classified as benign and malignant. Benign causes include ductal ectasia (6-59%), papilloma (35-56%),[13] papillomatosis, mastitis, fibrocystic changes.[14]

Among the malignant causes, ductal carcinoma in situ, Paget's disease of the nipple are common.

Benign breast diseases are mostly seen in women of reproductive age group, that peaks from 30 to 50 years[15]. On the other hand the incidence of breast cancer reaches its peak during postmenopause.[16]

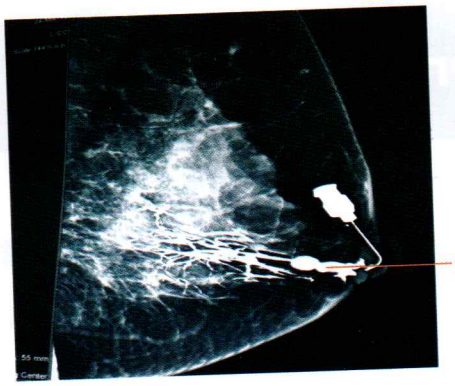
Danger signs associated
with lump
Blood stained
Unilateral
Spontaneous and persistent

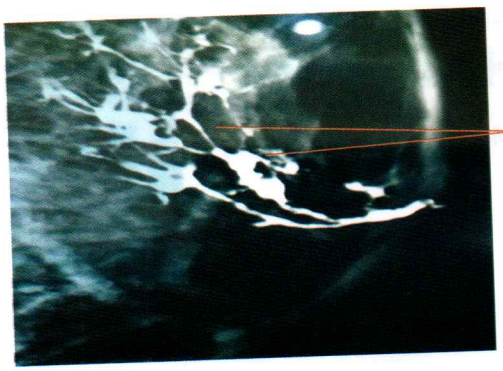


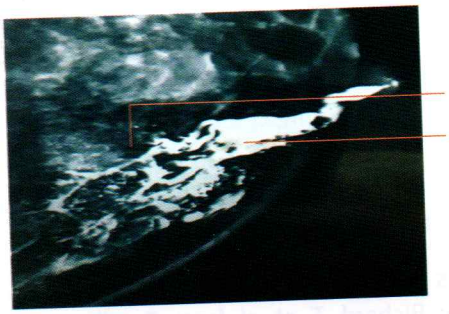
Single duct blood stained discharge

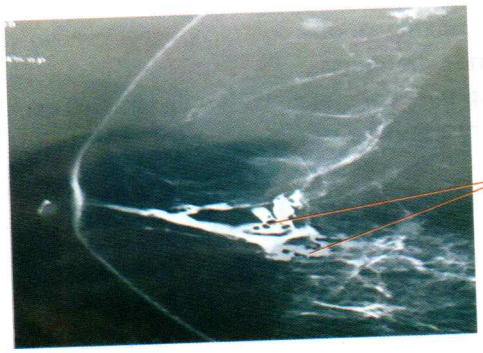
Investigations: Major investigations conducted in a patient with nipple discharge are: USG of Breast, Mammogram, Ductogram, Ductoscopy, MRI, Cytology of nipple discharge[17].

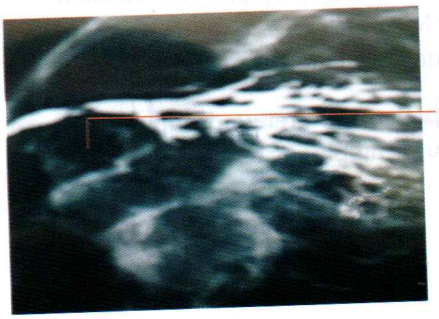
Core biopsy is done if there is any palpable lump.

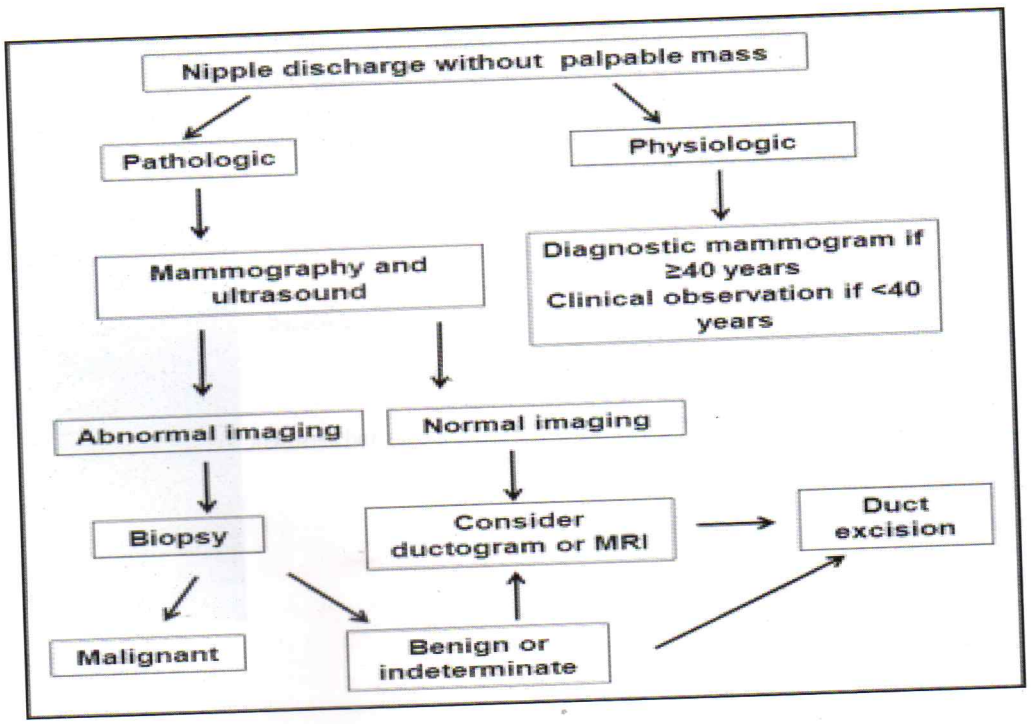












Indications of surgery:

Indications of surgery in nipple discharge depends on duct involvement.

1. In single duct involvement surgery is usually performed if there is blood stained nipple discharge.[18]

- Associate with lump
- Persistent discharge
- Recent origin age >50 years

2. **Multiple duct discharge**

- Persistent discharge, distressing

Types of surgery

In benign cases microdochectomy, total duct excision[19], vaccum assisted biopsy are usually done

In malignant cases, surgical intervention is performed according to stage current protocol[24].

Materials and Method

Study site: Ad-din Women's Medical College Hospital, Dhaka.

Popular Diagnostic Center, Dhanmondi, Dhaka.

Study design: Prospective study

Study Period: January 2018 to December 2019.

Sample size: 180 cases.

Sampling technique: Patient records, radiology findings and discharge cytology, pre-operative core biopsy findings in suspicious cases were recorded and final histopathological findings were correlated in operated cases.

Inclusion criteria:

Patients presenting with unilateral, bilateral, single or multi-ductal nipple discharge were included in this study.

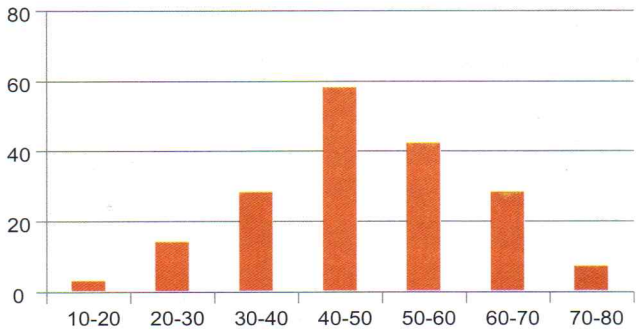
Exclusion criteria:

Pregnant patients, lactating mothers, patients with incomplete record or lack of follow-up were excluded from this study.

Results:

Of 1360 patients, 180 presented with nipple discharge (13.24%). Among them 62 had bilateral discharge (34.4) and 118 presented with unilateral discharge (65.6%).

Age distribution



Age distribution shows that most of the cases were from 30-50 years.

Associated with palpable mass:

Type of discharge	Total cases	Palpable mass	Malignancy
Serous	81	0	1
Greenish	23	3	0
Pus	26	8	0
bloody	27	11	5

Of palpable mass, the discharge type was more being serous which is 81 (45%), followed by pus (N=26), bloody discharge (27) and 27 had greenish discharge (15%).

Breast imaging findings:

Findings	Number	%
Normal	45	25%
Fibrocystic changes	58	32.2%
Duct papilloma	28	15.55%
Duct ectasia	26	14.44%
Microcalcification	9	5%
Duct wall hyperplasia	14	7.77%

Findings of breast imaging yielded Fibrocystic changes in most of the cases (32.2%), Followed by normal findings in 25% cases. 15% on average showed ductal papilloma and duct ectasia. Among 9 (5%) cases microcalcification was found.

Nipple discharge cytology revealed that atypical cells were present only in 5 cases (2.7%).

Non-operated 120 patients

For non-pathological discharge
- ✓ **bilateral discharge**
- ✓ **discharge only on expression**
- ✓ **not blood stained and**
- ✓ **negative on cytology and**
- ✓ **no other radiological or clinical abnormalities**
- ✓ **has systemic diseases such as elevated TSH**
- ✓ **or prolactin**

↓

Medical management or Follow up

Surgical procedures:

Microdochectomy	30 cases
Total duct Excision	13 cases
Duct excision with Segmental excision	10 cases
Duct excision with WLE with SLB	5 cases
Duct excision with WLE with axillary dissection	1 case
Simple mastectomy with SLB	2 cases

Among the patients, 30 underwent microdochetomy. Total duct excision and duct excision with segmental excision was done in 13 cases and 10 cases respectively. Simple mastectomy was performed in 2 cases and duct excision with WLE with axillary dissection in 1 patient.

Histopathological diagnosis

Intra ductal papilloma	28 cases
Duct ectasia	13 cases
Inflammatory & benign	10 cases
DCIS	4 cases
Invasive cancer	5 cases

Histopathological diagnosis revealed intra ductal papilloma was found in most if the cases (28), followed by duct ectasia (13 cases). 10 cases were found to be inflammatory & benign. In 4 cases ductal carcinoma in situ was found and 5 had invasive cancer.

Recently the development of endoscopic tools and fiber optics will allow safer diagnosis and treatment without any sacrifice in function and excellent aesthetic results.

Discussion:

Hemorrhagic nipple discharge with a palpable breast mass frequently signifies a malignant lesion. Among 180 cases, 4 (2.22%) were identified as DCI and the 5 (2.7%) were invasive cancer.

Intra-ductal papilloma was the leading cause of 28 cases (15.56%) whereas 13 cases (7.2%) had pathological nipple discharge and duct-ectasia as the second cause.

Our finding remain similar to Sala et al study.

Among the cause, severe discharge (81.45%) remained most common: of which one case was malignant and 27 cases (15%) had blood stained discharge; among them 5 cases (18%) were malignant. This finding remain similar to Sala et al study.

Patients with PND for whom surgical intervention is still recommended include those with abnormal imaging findings and personal history or family history of breast cancer 21, 22. Dupont et al. found that patients with BRCA 1/2 mutations, history of ipsilateral breast cancer, and atypia on core needle biopsy had higher rates of upstage to malignancy at time of surgery 23. Bloody discharge and imaging abnormalities were also strong risk factors for underlying carcinoma and atypia in their study.

For patients with copious nipple discharge, nipple discharge that causes discomfort, or nipple discharge that persists for more than two years even if imaging is negative, surgery should be considered .21

Conclusion:

Bloody discharge without a palpable mass in patients over 50 years of age must also be considered as highly suspicious of invasive carcinoma. Absence of red blood cells in the discharge is not reliable for excluding breast cancer and therefore both blood-stained and non-blood stained (serous and serosanguinous) PND should still be fully investigated in order to avoid missing an underlying malignancy.

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Original Article

Relationship between Serum Amylase and Lipase with Body Mass Index in under 30 Years Old Diabetic Patients

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Abstract

Background: Diabetes mellitus (DM) is becoming more common in young people, and the etiopathogenesis may involve a synergistic interaction between exocrine and endocrine pancreatic dysfunction. Low serum amylase and lipase levels indicate widespread pancreatic damage and are associated with diabetes.

Aim: This study aimed to observe the level of amylase and lipase in under 30 diabetic patients and to correlate them with body mass index (BMI).

Materials and methods: This cross-sectional study encompassed 55 under 30 diabetic subjects [age 23.51±4.32 years, BMI 23.31±5.50 kg/m^2; mean±SD] diagnosed on basis of American Diabetes Association (ADA) criteria. Serum amylase and lipase were measured by AMY and LIPL methods respectively. Glucose was measured by glucose oxidase and HbA_1C by high-performance liquid chromatography (HPLC) methods.

Results: About 15% subjects had low level of serum amylase and 35% of serum lipase. Mean serum amylase and lipase was 44.78±4.06 U/L and 112.09±10.41 U/L respectively. There was no statistically significant difference of either serum amylase or lipase among the BMI categories. (underweight vs. normal vs. overweight vs. obese: 46.57±36.61 vs. 47.91±37.96 vs. 39.59±15.48 vs. 45.25±29.68 U/L, p =0.862); (underweight vs. normal vs. overweight vs. obese: 113.14±91.18 vs. 117.61±80.34 vs. 102.76±71.31 vs.115.13±81.46 U/L, p = 0.948) respectively. However, fasting plasma glucose (13.36±7.08 vs. 12.83±4.96 mmol/L, mean±SD; p=0.047) showed statistically significant and relatively higher value in the group having low lipase level. Neither amylase nor lipase correlated with any of the variables as fasting plasma glucose, 2 hour plasma glucose and BMI (p=NS for all). However, though amylase did not show any correlation with HbA_1C (r=0.174, p=0.203), serum lipase showed significant correlation with HbA_1C (r=0.302, p=0.025).

Conclusions: No significant correlation found between serum amylase and lipase with BMI of the study subjects. HbA1c had only significant positive correlation with serum lipase but not with serum amylase.

Keywords: Diabetes mellitus, Body Mass Index (BMI), serum amylase and serum lipase.

Introduction

Diabetes mellitus (DM) is a common clinical problem over the world. The prevalence is increasing due to the growing problem of obesity.[1] Type 2 DM is related with the interaction between genetic, environmental and behavioral risk factors.[2]

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Elevated serum amylase, an exocrine enzyme that is produced by pancreatic acinar cells, levels are widely used as screening test for acute pancreatitis in clinical practice.[3] For many years, low serum amylase was thought to reflect diffuse pancreatic destruction secondary to advanced pancreatic diseases, such as chronic pancreatitis.[4] Disturbance of serum amylase is associated with insulin deficiency in patients with Type 1 diabetes and, less commonly, with Type 2 diabetes.[5] Moreover, serum amylase levels are also elevated in other conditions, including diabetic ketoacidosis[6] and renal insufficiency.[7] Low serum amylase levels are observed in individuals with chronic pancreatitis.[8] Recent studies showed that the serum amylase levels may be associated with endocrine and metabolic diseases.[5] Low serum amylase levels were associated with increased risks of metabolic abnormalities,

metabolic syndrome and diabetes. A previous study by Muneyuki et al. of asymptomatic middle-aged adults showed that low serum amylase levels were associated with decreased basal insulin levels and insulin secretion, as well as increased insulin resistance.[9] Serum lipase is also related with DM. Quiros et al.[6] have reported that the secretion of lipase is hampered with decreased level of insulin.

Metabolic syndrome (MetS) and body mass index (BMI) are established independent risk factors in the development of diabetes.[10] Obesity consists of heterogeneous phenotypes resulting from interplay between genetic and environmental factors.[11] Increased BMI has been associated with metabolic and cardiovascular risk factors including diabetes, hypertension, dyslipidemia, but there is increasing evidence that sub-phenotypes of obesity exist that appear to deviate from the standard dose response relationship between increased BMI and its adverse clinical outcomes.[12] It has been shown that the normal-weight/MetS phenotype is associated with a three- to fourfold higher risk for diabetes as compared with control subjects.[13] On the other hand, metabolically healthy but obese or obese/without MetS individuals, have been identified who, despite having BMI exceeding 30 kg/m^2, are relatively insulin sensitive and have a rather favorable cardiovascular risk profile with a three- to fourfold lower risk for diabetes as compared with obese insulin-resistant individuals.[14] There has been, however, no consensus regarding the definitions of obese/without MetS and the existence of a healthy obese phenotype based on the definition of absence of MetS has been questioned.[15] The aim of the present study was to evaluate the relation of serum amylase and lipase with body mass index (BMI).

Materials and Methods

This cross-sectional observational study was carried out in the Department of Endocrinology, Bangabandhu Sheikh Mujib Medical University (BSMMU) over a period of 18 month between September 2015 to February 2017.

Ethics: The study protocol was approved by Institutional Review Board, BSMMU (No. BSMMU 2015/2745). Informed written consent was taken from each participant.

Study design: Fifty-five patients with DM less than 30 years of age were included by consecutive purposive sampling in this study. Patients with gestational diabetes mellitus, other specific types of DM (except FCPD) and those with co-morbidities like CLD, CKD were excluded from the study. Data were collected using pre-tested semi-structured questionnaire. Participants were asked about their socio-demographic status. Height, weight, waist circumference and blood pressure of each participant were measured as per standard procedures.

Biochemical analysis: About 5 ml venous blood was taken from each subject in a test tube maintaining all aseptic precaution. Serum was separated by centrifugation at 3200 rpm for 10 minutes and was stored at department of Endocrinology under -20^0 C until assay for serum amylase and lipase. Serum amylase and lipase were measured by AMY and LPIL method respectively, glucose was measured by Hexokinase/G-6-PDH method and HbA_1C was measured by high-performance liquid chromatography (HPLC) method in the department of biochemistry, BSMMU.

Operational definition: DM was defined as patient fulfilling ADA (American Diabetes Asssociation) 2015 criteria {fasting plasma glucose ≥ 7.0 mmol/L, 2-hour plasma glucose after 75 gm OGTT (oral glucose tolerance test) ≥ 11.1 mmol/L, HbA1c ≥6.5% or in a patient with classic symptoms of hyperglycemia or hyperglycemic crisis, a random plasma glucose ≥ 11.1 mmol/L.

Normal level of Serum amylase was defined as 25-115 U/L and Serum lipase as 73-393 U/L. (Ref. Chavez RG. U.S. Patent 4,963,479)

Sample size calculation: The minimum sample size calculated was 55 using the formula, for cross sectional study (Steves K. Thompson). The standard deviation (SD) of amylase (σ) was 9.16 [Yadav, 2013]. 95% confidence interval (z) and 5% margin of error (d) were used.

Statistical analysis: Statistical analyses were performed by using window based computer software SPSS-22 (Statistical Packages for Social Sciences) (SPSS Inc, Chicago, IL, USA). Quantitative data were expressed as mean, standard deviation, standard error and qualitative data were expressed as frequency and percentage. Association between categorical variables socioeconomical status, family history of DM & duration of DM were analyzed by chi-square test and continuous variables age, BMI, Waist circumference, waist/hip ratio, SBP, DBP, FPG, 2 hour plasma glucose, HbA1c, serum amylase & serum lipase were analyzed by t-test & ANOVA test. Correlation was done by Pearson's correlation test. For all statistical tests, we considered p value <0.05 as statistically significant and 95% confidence limit was taken.

Results

In our study population, the mean age was 23.51±4.32 years, BMI was 23.31±5.50 kg/m^2, waist circumference was 81.11±12.40 cm and waist hip ratio was 0.89±0.04 (all mean±SD). Males were more than females (54.5% vs. 45.5%) with 63.6% having family history of Diabetes mellitus. Acanthosis nigricans was present in 33%. Mean systolic BP was (115±16) mm of Hg and diastolic BP was (77±9) mm of Hg (mean±SD). Fasting plasma glucose, 2-hr plasma glucose and HbA1c were (13.02±5.72) mmol/L, (19.61±7.49) mmol/L and (9.95±3.06)% respectively (mean±SD) (Table 1).

There was no statistically significant difference of either serum amylase (underweight vs. normal vs. overweight vs. obese: 46.57±36.61 vs. 47.91±37.96 vs. 39.59±15.48 vs. 45.25±29.68 U/L, p =0.862) or lipase (underweight vs. normal vs. overweight vs. obese: 113.14±91.18 vs. 117.61±80.34 vs. 102.76±71.31 vs.115.13±81.46 U/L, p = 0.948) among the BMI categories (Table 2).

Comparison of clinical variables between low and normal level of serum amylase group showed no statistical significant difference between two groups for age (p=0.269), BMI (p=0.638), waist circumference (p=0.502), waist/hip ratio (p=0.116), systolic BP (p=0.721), diastolic BP (p=0.924), fasting plasma glucose (13.35±6.54 vs. 12.96±5.64 mmol/L, mean ± SD; p=0.879), 2 hour plasma glucose (18.51±5.59 vs.19.77±7.78 mmol/L, mean ± SD; p=0.611), HbA_1C (9.48±2.71 vs. 10.03±3.14, mean ± SD; p=0.620), socioeconomic status (p=0.530) and family history of DM (p=0.944). Only duration of diabetes which was relatively lower with most of the subjects having normal amylase (70.9%, 39/55; p= 0.059) (Table 3).

Comparison of clinical variables between low and normal level of serum lipase group was found no statistically significant difference between two groups for age (p=0.104), BMI (p=0.411), waist circumference (p=0.288), waist/hip ratio (p=0.875), duration of DM (p=0.303), systolic BP (p=0.184), diastolic BP (p=0.282), 2 hour plasma glucose (21.43±9.14 vs. 18.45±6.55 mmol/L, mean ± SD; p=0.288), HbA_1C (9.98±3.16 vs. 9.93±3.05, mean ± SD; p=0.947), Socioeconomic status (p=0.423) and family history of DM (p= NS). However, fasting plasma glucose (13.36±7.08 vs. 12.83±4.96 mmol/L, mean ± SD; p=0.047) showed statistically significant and relatively higher value in the group having low lipase level (Table 4).

Correlation showed neither amylase nor lipase correlated with any of the variables as fasting plasma glucose, 2 hour plasma glucose and BMI (p=NS for all). However, though amylase did not show any correlation with HbA_1C (r=0.174,p=0.203), Serum lipase showed significant correlation with HbA_1C (r=0.302, p=0.025) (Table 5).

Table 1: Base line Characteristics of study subjects (n=55)

Characteristics		Frequency (%)
Age (mean ± SD, years)		23.51±4.32
BMI (mean ± SD, Kg/m^2)		23.31±5.50
Waist circumference (mean ± SD, cm)		81.11±12.40
Waist hip ratio		0.89±0.04
Gender		
	Male	30 (54.5%)
	Female	25 (45.5%)
Family history of DM		35 (63.6%)
Acanthosis nigricans		18 (32.7%)
Systolic BP (mean ± SD, mm of Hg)		115±16
Diastolic BP (mean ± SD, mm of Hg)		77 ±9
Fasting plasma glucose (mmol/L)		13.02±5.72
2-h plasma glucose (mmol/L)		19.61±7.49
HbA1c (%)		9.95±3.06

(Within parenthesis are percentages over column total)

Table 2: Serum amylase and lipase among study subjects according to BMI status (n=55)

Variables	N (%)	S. amylase (U/L) [Mean±SD]	S. lipase (U/L) [Mean±SD]
Total	55 (100)	44.78±4.06	112.09±10.41
Underweight	7 (12.7)	46.57±36.61	113.14±91.18
Normal	23 (41.8)	47.91±37.96	117.61±80.34
Overweight	17 (30.9)	39.59±15.48	102.76±71.31
Obese	8 (14.5)	45.25±29.68	115.13±81.46
p-value		0.862	0.948

Comparison was done by One-way ANOVA

Table 3: Comparison of clinical and biochemical characteristics between low versus normal level of serum amylase group (n=55)

Characters		Group		p-value
		S. Amylase (Low) <25 U/L	S. Amylase (Normal) 25-115U/L	
Age (year)		21.38±5.73	23.87±3.99	0.269
BMI (kg/m2)		22.32±6.32	23.48±5.40	0.638
Waist Circumference		78.00±13.83	81.64±12.22	0.502
Waist/Hip ratio		0.91±0.03	0.89±0.02	0.116
Duration of DM	<1 year	4(7.3%)	39(70.9%)	0.059
	>1 year	4(7.3%)	8(14.5%)	
Systolic blood pressure		113.75±9.16	115.21±16.45	0.721
Diastolic blood pressure		76.25±9.16	76.60±9.56	0.924
Fasting plasma glucose (mmol/L)		13.35±6.54	12.96±5.64	0.879
2 hr Plasma glucose (mmol/L)		18.51±5.59	19.77±7.78	0.611
HbA1c (%)		9.48±2.71	10.03±3.14	0.620
Family history of DM		5(9.1%)	30(54.5%)	0.942

Data were expressed as mean±SD; frequency, percentages.
Comparison was done by Student's t test for quantitative data and Chi-Square test for qualitative data.

Table 4: Comparison of clinical and biochemical characteristics between low versus normal level of serum lipase group (n=55)

Characters		Group		p-value
		S. lipase (Low) <73 U/L	S. lipase (Normal) 73-393 U/L	
Age (year)		22.05±5.11	24.28±3.68	0.104
BMI (kg/m2)		22.44±5.70	23.76±5.41	0.411
Waist Circumference		78.63±12.35	82.42±12.39	0.288
Waist/Hip ratio		0.89±0.04	0.89±0.04	0.875
Duration of DM	<1 year	13(23.6%)	30(54.5%)	0.303
	>1 year	6(10.9%)	6(10.9%)	
Systolic blood pressure		11.32±13.92	116.94±16.18	0.186
Diastolic blood pressure		74.74±8.41	77.50±9.89	0.282
Fasting plasma glucose (mmol/L)		13.36±7.08	12.83±4.96	0.047
2 hr Plasma glucose (mmol/L)		21.43±9.14	18.75±6.55	0.288
HbA1c (%)		9.98±3.16	9.93±3.05	0.947
Family history of DM		12(21.8%)	23(41.8%)	1.000

Data were expressed as mean±SD; frequency, percentages.
Comparison was done by Student's t test for quantitative data and Chi-Square test for qualitative data.

Table 5: Correlations of Serum amylase and Serum lipase with clinical and biochemical parameters

	r-value	p-value
S. amylase vs. FPG	-0.003	0.981
S .amylase vs. 2h-PG	-0.061	0.667
S. amylase vs. HbA1c	0.174	0.203
S.amylase vs. BMI	-0.148	0.281
S. lipase vs. FPG	0.125	0.362
S. lipase vs. 2h-PG	-0.005	0.969
S. lipase vs. HbA1c	0.302	0.025
S. lipase vs. BMI	-0.077	0.579

By Pearson's correlation test;
r=Pearson's correlation coefficient.

Discussion:

Diabetes mellitus is a common clinical problem over the world with increasing prevalence in all age group. The rising trend of this disorder in our young population is a major concern and the etiopathogenesis implicating the intricate interplay between exocrine and endocrine pancreatic function in an ongoing area of research. Recent studies showed that the serum amylase and lipase levels may be associated with increased risks of metabolic abnormalities, metabolic syndrome and diabetes.

Metabolic syndrome (MetS) and body mass index (BMI) are established independent risk factors in the development of diabetes which reflects the present study results.[13] The baseline characteristics of our study subjects like mean BMI in the overweight category, positive family history of DM in a significant number of them, absence of history of diabetic emergency or typical symptomology of FCPD suggest that DM in our young population is quite different from that found in previous literature and they could be contributed to either type-2 or other categories of DM that needs to be established from large scale population based study in the future.

There was no statistically significant difference of serum amylase and lipase among the BMI categories. However other researchers like Muneyuki et al.[9] observed significant correlation between Serum amylase was with BMI that is dissimilar to our finding. About 15% subjects had low level of serum amylase and 35% of serum lipase found in our study. Muneyuki et al.[9] found less number of study subjects had low serum amylase.

No significant difference was found between the low and normal amylase groups for age, BMI, waist circumference, waist/hip ratio, systolic BP, diastolic BP, fasting plasma glucose, 2 hour plasma glucose, HbA1c, socioeconomic status and family history of DM but duration of diabetes which was relatively lower with most of the subjects having normal amylase. Muneyuki et al.[9] found significant difference in BMI between low and normal level of serum amylase. But they did not find significant difference in systolic BP, diastolic BP, age, HbA1c & fasting plasma glucose between low and normal level of serum amylase.

Similarly, there were no statistically significant difference between low and normal level of lipase group for age, BMI, waist circumference, waist/hip ratio, duration of DM, systolic BP, diastolic BP, 2 hour plasma glucose, HbA_1c, socioeconomic status and family history of DM. However, fasting plasma glucose showed significant and relatively higher value in the group having low lipase level.

Fasting plasma glucose had negative correlation with serum amylase and positive correlation with serum lipase but not statistically significant. Other study found significant negative correlation of FPG with serum lipase and serum amylase[16] and also found positive significant correlation of serum lipase with FPG.[17]

BMI had negative correlation with both serum amylase and serum lipase but not statistically significant in our study. On the contrary, others found significant negative correlation between serum amylase and BMI.[10]

In present study, 2 hour Plasma Glucose had no significant negative correlation with both serum amylase and serum lipase. Surrogate measures of insulin secretion and insulin sensitivity have been derived from the oral glucose tolerance test (OGTT).

In our study, HbA1c had positive correlation with serum amylase which was not statistically significant but HbA1c had a significant positive correlation with serum lipase. Similar study found positive significant correlation of serum lipase with FPG[17]. Another study, concluded that in type 2 Diabetes mellitus, wherever the blood glucose level was higher, the serum amylase activity was found to be significantly lower[18] which was consistent with the present study.

Conclusion

Serum amylase and lipase were found to be relatively normal in under 30 young diabetic and no significant correlation with BMI. HbA1c had a significant positive correlation with serum lipase but no correlation with serum amylase. Further evaluation encompassing wide scale population is needed to explore the matter clearly.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Original Article

Outcome of Unsafe Abortion Using Medical Methods in Rural Community

Dil Afroz[1], Shumsun Nahar[2], Ismat Ara[3]

Abstract

Background: *Unsafe abortion is one of the most important causes of maternal morbidity and mortality in our country. Misuse of medical methods for termination of unwanted pregnancy can cause serious maternal health injury.*

Objective: *This study is aimed to assess the outcome of unsafe abortion by injudicial use of medical methods.*

Material and Method: *The cross sectional study was carried out in the department of gynecology and obstetrics of Jahurul Islam Medical College & Hospital, Kishoregonj from November 2018 to October 2019. Total 65 patients (both inpatient and outpatient) of unsafe abortion caused by using medical method were included in this study.*

Result: *The maximum outcome of this study shows that 84.61% patients were admitted with incomplete abortion. After proper management at the hospital, 85% were cured and 15% were improved and out of danger.*

Conclusion: *Unethical use of medical methods can cause devastating outcome for a woman. Rational use of these drugs and awareness regarding all type of contraceptive methods can improve the condition.*

Key words: *Unsafe abortion, Medical methods, Outcome.*

Introduction

Unsafe abortion is defined as a procedure for terminating an unwanted pregnancy either by persons lacking necessary skills, or in an environment lacking the minimal medical standards or both (WHO).[1]

Medical methods of termination of pregnancy have become most popular nowadays due to their availability, easy administration and cost effectiveness. Most commonly used drugs are Mifepristone and Misoprostol. These drugs are widely prescribed by unskilled persons or used by patient themselves for termination of unwanted pregnancies.

Six out of ten unintended pregnancies end in an induced abortion.[2] Every year 68,000 women die of unsafe abortion, making it one of the leading causes of maternal mortality (13%). Among women who survive from unsafe abortion, 5 million of those suffer from long term health complications.[3] It is one of the most neglected problems of health care in developing countries.[4]

In early pregnancy (up to 9 weeks), medical regimens of 200 mg Mifepristone and 800 µgm Misoprostol have been endorsed by Royal College of Obstetrician and Gynecologist (RCOG) as an effective and appropriate method of termination of pregnancy.[5]

Due to availability of these regimens, most of the cases take it themselves or unskilled persons prescribe these without supervision to terminate unwanted pregnancies. As a result, these women suffer from severe lower abdominal cramps, prolonged irregular per vaginal bleeding, sepsis; sometimes, in severe cases, ruptured uterus also occurs. This study is aimed to determine outcome of unethical use of medical methods for unsafe abortion.

Material & Methods

Cross sectional study was carried out in the Department of Gynecology and Obstetrics of Jahurul Islam Medical College & Hospital, Kishoregonj, Bangladesh from November 2018 to October 2019.

Total 65 patients attending in the D epartment of Gynecology and Obstetrics (both inpatient and outpatient) who had used medical methods by

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untrained persons or unregistered clinic or at home at a gestational age more than 9 weeks but less than 22 weeks.

Result

This study was undertaken with an objective to assess the outcome of unsafe abortion by using medical methods. Total 65 cases of unsafe abortion were included.

Table – I

Demographic characteristics of the study patients

Demographic characteristics		**Frequency**	**Percentage (%)**
Age (years)	<= 20	13	20%
	21 - 30	33	50.8%
	31 - 40	18	27.7%
	40 <	1	1.5%
Socioeconomic condition	Low	6	9.2%
	Middle	55	84.6%
	High	4	6.2%
Educational status	Primary	38	58.5%
	HSC	20	30.8%
	Graduate	7	10.8%

Table I shows that 33 (50.8%) of total 65 patients belong to age groups of 21 - 30 years and most of them 55 (84.6%) came out from middle class family of who, 38 (58.5%) had completed their primary education.

Table – II

Drugs used for unsafe abortion of the study patients.

Drugs	**Frequency**	**Percentage (%)**
Mifepristone	5	7.7%
Misoprostol	11	16.9%
Both (Mifepristone & Misoprostol)	49	75.4%

Table II yields that 49 patients (75.4%) took both drugs (Mifepristone & Misoprostol).

Table – III

Outcome of unsafe abortion of the study patients

Outcome	**Frequency**	**Percentage (%)**
Incomplete abortion	55	84.6%
Hemorrhage	27	41.5%
Hypovolemic shock	14	21.5%
Septic abortion	8	12.3%
Renal insufficiency	3	4.6%
Ruptured uterus	1	1.5%

Table III demonstrates that admitted patients had following complications: incomplete abortion - 55 (84.6%); hemorrhage - 27 (41.5%); hypovolemic shock - 14 (21.5%); and, others 14(18.4%).

Table – IV

Treatment of complications

Treatment	**Frequency**	**Percentage (%)**
Dilatation & Curettage	55	84.6%
Blood transfusion	14	21.5%
Antibiotic therapy	8	12.3%
Laparotomy	1	1.5%

Table IV shows that about 55 (84.6%) patients had undergone dilatation, evacuation and curettage.

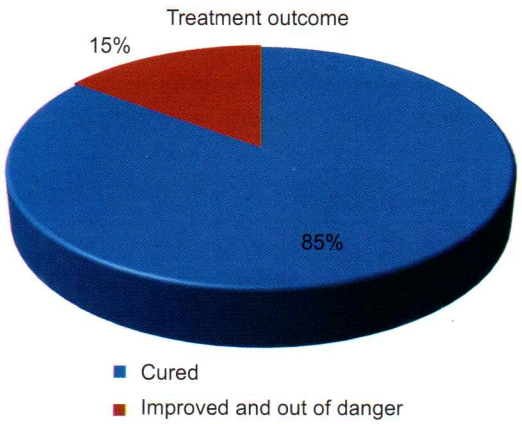

Fig.-1: *Treatment outcome*

Figure 1 showed that 85% patients had completely cured while 15% patients had improved and out of danger.

Discussion

Millions of women seek induced abortion worldwide. When it is successful and complete, it remains secret and if complicated, gets highlighted due to their management at hospital level. The hospital data represents just tip of the iceberg[6].

Total 65 patients underwent unsafe abortion by using medical methods at home or unregistered clinic are included in this study. 33 patients (50.8%) belong to age 21-30 years, 55 patients (84.6%) come from middle class family and 38 patients (58.5%) completed their primary education.

Among 65 cases in this study, 49 patients (75.4%) took Mifepristone 200 mg and Misoprostol 200 µgm 4 tablets buccally. After unsafe abortion, patients were admitted in this hospital with following complications: incomplete abortion - 55 (84.6%); hemorrhage - 27 (41.5%); hypovolumic shock - 14 (21.5%) septic abortion - 8 (12.3%); renal insufficiency - 3 (4.6%); ruptured uterus - 1 (1.5%).

As those patients who took medical regimen for abortion are of more than 10 weeks of pregnancy, about 55 patients has undergone dilatation, evacuation & curettage. 14 patients needed blood transfusion which can also cause health hazards and 8 patients needed antibiotic therapy for septic abortion. Due to ruptured uterus, 1 patient has undergone laparotomy. Lack of family planning & knowledge and misuse of medical regimen for abortion not only causes economic hazards but also increase the chance of morbidity and mortality.

Unsafe abortion can cause many complications including pelvic sepsis; septicemia; hemorrhage; renal failure; ruptured uterus. If expert and emergency treatment for these is not available, women can die. It has been observed that various complications and sufferings can occur in spite of proper treatment. In this study, 85% patients completely cured while 15% patients improved and out of danger.

Conclusion

The availability of Mifepristone and Misoprostol and, misuse of these drugs (terminates unwanted pregnancies) lead to serious maternal health injuries and increased death rates. Implementation of law for rational use of medical methods and community awareness for consistent and correct use of modern contraceptive methods can improve this condition.

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Original Article

Prevalence of Urinary Tract Infections (UTIs) Among School Going Children in Dhaka, Bangladesh: A Dipstick Test Study

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Abstract

Few studies have evaluated dipstick urinalysis for children. It is an easy, quick and reliable test for predicting urinary tract infection (UTI) within a short period of time. The aim of this study was to evaluate urinary tract infection among school going children who were completely unaware about their urinary tract infection through dipstick urinalysis. It is a cross-sectional study. In this study urine specimens were collected from 2239 school children from six different schools of different places in Dhaka city and its downtown. Dipstick urinalysis for nitrite and leukocyte were performed for this study. Sensitivity, specificity, positive and negative predictive values with 95% confidence intervals were calculated. Visual readings were compared to readings with a urine chemistry analyzer. There were 5.95% children who had only leukocytes present in urine, among them 6.50% boys and 5.21% girls. When investigating for UTI in children at schools, we suggest nitrite and leukocyte esterase dipstick be combined. There are no clinically relevant differences between visual and analyzer dipstick readings.

Key words: Dipstick. Infection, Leukocytes, Nitrites.

Introduction

Dipstick urinalysis is often the first measure for detecting bacteriuria.[1] The diagnostic value of dipstick urinalysis is most often evaluated for children and working age adults, preferably women which may lead to different results depending on age group and patient criteria. Thus, the clinical value of dipstick urinalysis could be quite different for elderly patients at nursing homes compared to younger patients whereby elderly patients have a higher prevalence of bacteriuria.[2,3,4]

Dipsticks using nitrates and leukocyte esterase have become available as markers of urinary tract infection (UTI) now a days. Leukocyte esterase is an enzyme from neutrophils not normally found in urine and is a marker of pyuria. Nitrates are produced by the bacterial breakdown of dietary nitrates. Most urinary pathogens reduce nitrates to nitrites.[5] Dipsticks use as a routine screening test for UTIs both in children and adults. In children, the method of urine collection is often variable, and UTIs have far reaching implications.[6]

A positive urine culture may confirm the diagnosis and is considered the gold standard in scientific studies. Moreover, susceptibility testing may be performed on cultured bacteria and may guide antibiotic therapy. Considering these facts, it is no surprise that urine samples are the most frequently received specimens in many microbiology laboratories. Nevertheless, a high number of these urine cultures will not yield any bacteria at all, and percentages for negative urine cultures up to 80% have been reported.[7,8] In Dipstick test, where only nitrites and leukocyte esterase - and not proteins and

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blood – show fair accuracy, compared with a quantitative culture.[9]

This dipstick test has a limited use in screening for asymptomatic bacteriuria. The leukocytes test component of the dipstick test appears to have the highest reliability and validity. A positive test merits empirical antibiotics, while a negative test is an indication for urine culture. The urine dipstick test if positive will also be useful in follow-up of patient after treatment of urinary tract infection. This is useful in a developing country like Bangladesh, where people are very much unaware about their diseases as well as their children's diseases.

Material and Methods:

It is a cross sectional study. The demographics of the Dhaka and its downtown are composed of children representing the entire population who are studying in various schools. The total number of children included our study was 2239 carried out between April 2012 and February 2018. Permission and consent was taken from the school authorities as well as parents of students. The students and their parents were instructed how to obtain a clean mid-stream urine specimen. Age of the students were between 06 to 16 years.

In this study, we use dipstick (urine quick test; Combur-10-Test™, Roche, Mannheim, Germany). for biochemical analysis which consists of 10 reagents: pH, specific gravity, protein, RBC, glucose, leukocytes, nitrites, urobilinogen, bilirubin and ketones. We considered nitrites and leukocytes for our study. Each strip reacts with the substance present in urine and quickly changes color (60-120 seconds). The color of the strip was compared to the color chart present in the dipstick container.

Statistical analysis was done by using statistical package of social science SPSS version 16. Qualitative data were expressed in the form of numbers and percentages. Differences between groups were evaluated by chi-square test. Fisher's exact test was used for small samples.

Results:

Table I: Leukocytes (>5/hpf) present in urine.

Total	Number	percentage
Boys (1343)	87	6.50
Girls (896)	45	5.11
Total- 2239	132	5.95

Table I shows boys have more in percentage of leukocytes in urine. There were 132 children (5.95%) who had only leukocytes present in urine , among them 87(6.50%) boys and 45(5.11%) girls.

Table II: Nitrites present in urine.

Total	Number	percentage
Boys (1343)	60	4.46
Girls (896)	23	2.65
Total- 2239	83	3.73

Table II shows presence of Nitrites in urine was more in boys than girls. Total 83 children (3.73%) had presence of nitrites in urine, among them 60(4.46%) boys and 23 (3.73%) girls.

Discussion:

UTI is a common cause of fever in young children, often accompanied by subtle and non-specific clinical findings [10]. In a small percentage of children this may lead to kidney scarring, and at a later age to hypertension, and even renal failure [11].

The leucocyte-esterase test had a much higher accuracy in urology patients, consequently also in tertiary care, and when using a catheter for urine-collection. Sensitivity is highest in primary care, but requires further diagnostic work-up because of the high rates of false positives. In primary care negative results do not exclude the presence of infection.

Here, boys have more in percentage of leukocytes (>5/hpf) in urine. There were 132 children who had only leukocytes(>5/hpf) present in urine, among them 87 (6.50%) boys and 45 (5.11%) girls.

The accuracy of the dipstick for nitrites was affected only by the cut-off point for the nitrites and the population tested. The differences between the studies with regard to implicit cut-off points may be effected by human, instrumental or environmental factors. Patient populations and care setting were highly correlated. Pre-test probabilities differed between some levels of care. While it is often expected that pre-test probability increases with each level of the health care system, the test for nitrites might perform better in asymptomatic patients and in patients who are not on antibiotics. [12].

In our study we found presence of Nitrites in urine were more in boys than girls. Total 83 children (3.73%) had presence of nitrites in urine, among them 60 (4.46%) boys and 23 (3.73%) girls. Children who had leukocytes in urine had nitrites in urine, in other words who had nitrites in urine also had leukocytes.

Conclusion:

Overall, this study demonstrates that the urine dipstick test alone seems to be useful in all populations to exclude the presence of infection if the results for nitrites or leukocyte-esterase are negative. But positive test results have to be confirmed to be high on the basis of the clinical history or a combination of other tests. In family practice, the combination of both tests with at least one positive result is very important.

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Updated Review Article

Nutritional Knowledge and Dietary Habit of Medical Students: A Systematic Review

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Abstract:

Background: There is a general perception amongst the common mass that medical students have a greater knowledge about the dietary habits and healthy lifestyle. Here we present a systemic review that aims to evaluate nutritional knowledge, eating habits and overall satisfaction regarding nutrition education of medical students. **Methodology**: In this systematic review following Crowly J method, (28a, 28b) A literature search was done between October 1, and December 1, 2021 utilizing computer-based search of MEDLINE, PubMed, Scopus and allied health literature. Medical subject headings were used in the execution of 'PubMed' and 'MEDLINE' searches that included 'Medical student', 'Nutrition' and 'Nutrition knowledge', etc. The search was restricted to site studies published since 2012 up to Aug 2022. **Findings:** Total 35 studies were selected which included quantitative & qualitative studies, and curriculum initiatives from LIMS like , India, Pakistan, Malaysia, Ghana, Lithuania, Iran, Albania, rich countries UAE, Saudi Arabia and western ones (Canada, USA, etc.). Our analysis showed decreased level of satisfaction regarding nutritional education and also, medical students susceptible to irregular dietary habits and unhealthy lifestyle. **Interpretation:** This survey identified both healthful and unhealthful dietary practices among the medical undergraduates. However, it is evidenced that their knowledge regarding nutrition and balanced diet have an impact on their lifestyle and dietary practices. Besides, their curriculum should be revised and awareness on healthful practices should be encouraged to adopt a healthy lifestyle that promotes individual health as well as of the society.

Key words: Nutritional knowledge, Diet pattern, Undergraduate medical students

Introduction:

Diet pattern of young adults has become an important issue of research worldwide. In recent times, with the increasing burden caused by the lifestyle diseases on the health sector, there has been a renewed interest in the relationship between food and health.[1] There are many social, cultural, and psychological factors associated with eating attitudes and behaviors. Cultural transition, social changes, westernization, family environment, exposure to mass media, and globalization all have a significant impact on eating attitudes and behaviors among young people.[2] More specifically, these characteristics can mold the eating habits and establish a certain food culture during adolescent years, which ultimately may lead to a strong or a poor diet in adulthood.[3] College students are in the emerging adulthood period, which is critical as because these young people establish independence to adopt life-long patterns of health and behavior. It is the time when they may get accustomed with unhealthy lifestyle characteristics and increased risk of obesity and chronic diseases.[4,5]

There is a general perception amongst the common masses that the students of health sciences have a greater knowledge about the correct dietary habits and healthy lifestyle as compared with non-medical students. This is significant as they are the future physicians and the students who personally adopt a healthy lifestyle are likely to positively influence their patients. However, studies have shown that medical and paramedical students especially who stay in hostels away from their home are susceptible to irregular dietary habits, lack of exercise, and addiction.[1] There is no evidence to indicate that knowledge of balance diet translates into maintaining good health practices.

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Risk factors for the development of serious chronic diseases in later life can be altered by adaptation of healthy lifestyle, behavior or health hazards during adolescence and young adulthood.[6] Previous studies about barriers to healthy eating and physical activity showed that the most frequently reported barriers to healthy eating were the lack of time and stress, which is associated with poor diets and inactivity, convenience and lower cost of less nutritious fast food, lack of availability and high cost of healthier food, taste preferences (e.g. for fast foods) and lack of nutritional knowledge and skills.[2]

Lifestyle changes, peer pressure, poor hygiene, limited finances, and access to food also contribute to erratic eating patterns. Skipping breakfast or meals has become very common among medical students. Diet of college students usually include little variety and often turn into high fat snacks. These poor eating habits acquired during this period can lead to serious diseases later in life. [7]

Also the psychological stress of educational institutions may lead to harmful consequences like decreased life satisfaction, depressive moods, poor academic performance, diminished empathy and reduced competence skills. Literature suggests that those medical students who do not adopt healthy lifestyle, fails to provide effective health care to community in future as well.[8]

Delivering knowledge about health amongst medical students is essential because in addition to requiring it for themselves, as future physicians they shall promote health awareness and wellness amongst societies.[6]

Knowing the medical students' knowledge, attitude and practices of nutritional and lifestyle habits helps to enhance their academic performance and nutrition of the community, which will consequently lead to a healthier society, as they will constitute the main body of future physicians and professionals.[9]

This study was aimed to evaluate nutritional knowledge, eating habits and overall satisfaction regarding nutrition education of medical students.

Methods:

Search strategy and selection criteria:

This systematic review critically synthesizes literature on nutrition education and dietary pattern provided to medical students. This systemic review was conducted following Crowly J method. A literature search was done between October 1, and December 1, 2021, which included computerized searches, ancestry searching, and journal hand searching to ensure the inclusion of all eligible studies. On March 10, 2022, this same search strategy was repeated to capture any relevant studies published since October 1, 2021. A health librarian assisted with the computer-based search of MEDLINE, PubMed, Scopus and allied health Literature for quantitative and qualitative studies on dietary pattern and medical nutrition education provided to med students. The studies included quantitative studies, qualitative studies, and curriculum initiatives from (India, Pakistan, Malaysia, Ghana, Lithuania, Iran, Albania but in rich countries (UAE, Saudi Arabia) including in western ones (Canada, USA, etc.). Medical subject headings were used in the execution of PubMed and MEDLINE searches. Search terms related to medical students included "nutrition in medical education", , and "undergraduate medical nutrition education", "dietary pattern", "dietary habit". Search terms for the topic of interest included "nutrition", "knowledge", "skills", "nutrition counselling", "confidence", "nutrition care", or "nutrition education", "diet", "food habit". Google Scholar was used to obtain additional articles identified by journal hand searching.

The search was restricted to studies published since 2012, because the most recent synthesis of literature on medical nutrition education was published in 2012 if they met any of the following criteria: examined any aspect of recently graduated or current medical students' dietary pattern, nutrition knowledge, attitudes, skills, or confidence in nutrition or nutrition counselling; evaluated nutrition curriculum initiatives for medical students; or assessed current medical students' perceptions of nutrition education.

Data analysis: All search results (database) were imported into EndNote. Duplicate entries were database removed before screening. Data were extracted by using a table developed by the research team. Data extracted included author, year, country, aim, research design, sample, participants, and relevant findings. Relevant findings were those that related to the inclusion criteria, including students' dietary pattern, nutrition knowledge, attitudes, skills, and confidence to provide nutrition care, as well as perceptions of the nutrition education received during medical training. To ensure accuracy, another investigator cross-checked the extracted data of all included studies using the full-text study.

Research in context:

Evidence before this study:

Adequate nutrition is of great importance for every individual. Unbalanced diet is a modifiable risk factor for cardiovascular disease, cancer, diabetes etc and so on. Usually doctors are considered the one to apply nutrition knowledge among the patients to protect them from chronic disease and other health conditions.. Many oversees literature are available online. All of them have established the fact that the diet pattern of medical students has to be improved, followed by minimizing the gap between the nutrition knowledge and attitudes necessary for the doctor to provide effective care to the patients. We did a systematic review of studies published since 2012, that investigated dietary pattern and nutrition education provided to medical students to come up with a new idea to approach the evidence-practice gap in medical nutrition education

Added value of this study: It has been a matter of argument in the past that although the doctor have a little influence over the myriad structural causes of diet related disease, a poorly trained medical personnel can be itself as one structural risk factor. Hence, it is of concern that medical students should follow a balanced diet pattern and healthy lifestyle along with sufficient knowledge and skills to provide necessary health-care to the population. Through comparing with previous published articles we came to the conclusion that nutrition knowledge and training is a must to include into the curriculum and steps should be taken to incorporate student engagement having nutritional balanced food.

Implications of all the evidence available:

Despite the centrality of nutrition to a healthy lifestyle, medical students are not supported to provide high-quality, effective nutrition care. To ensure graduating medical students are supported throughout their education to provide optimal nutrition care to patients, health awareness programs and training on nutritional education should be arranged for the promotion of balanced diet and healthy lifestyle among the medical students. Curriculum initiatives is an important part of alleviating students' knowledge and skills on proper nutrition. Also, students' engagement in cooking and food preparation and availability of low cost healthier food in the school campus has to be ensured. Counselling sessions, seminars on time management, stress relaxation and meditation workshops have to be arranged from the authority time to time. Moreover, outdoor recreational activities for all academic years should be arranged for having a healthy lifestyle.

Results:

The findings of all literature search (n=34) is shown in the following tabular form

SL No	Surveys	Design & Participants	Outcomes assessed	Outcomes assessed
1	Nupura et al, 2018, India [1]	130 students of a medical college	Dietary habit among medical students	The knowledge and practice regarding healthy diet and nutrition does not bode well. Only 68% had breakfast daily and only 10% had a fruit daily.
2	Eapen et al, 2006, UAE[2]	495 adolescent girls	Eating attitude and symptomatology of adolescent girls	High EAT associated with age, BMI, internalization of thin ideal and drive for thinness etc. Half of those were found to have propensity of anorexic behavior, while 2% met full clinical syndrome
3	Daniels et al, 2006[3]	-	The consequences of overweight and obesity in childhood	Shows how obesity in adulthood can damage each and how childhood obesity exacerbates the damage. Obesity affects the cardiovascular system, also being overweight in childhood can result in development of heart disease in future.
4	Deshpande S, Basil MD, Basil DZ, 2009[4]	194 Canadian undergraduate university students	Factors influencing healthy eating habits along with an application of health belief model	The influence of gender, importance of healthy diet, dietary status, food features. Also, HBM has allowed to understand the comparative influence of various factors
5	Nelson et al, 2008[5]	Emerging adulthood and college-aged youth	Age for weight related behavior change	Illustrates evidence resulting from adverse changes in diet, physical activity and weight, discuss the influence of food and beverage on adults and the importance of health promotion.
6	Shireen et al, 2018[6]	233 female students between 1 8–25 years of age, from first two years of medical college	study is aimed to explore perception of students about health risk behaviors; eating routines, life style and stress handling practices	The overall results of the study revealed positive health behaviors among medical students. Year I MBBS had superior acquaintance on healthy eating routines, lifestyle patterns and stress handling practices as compared to senior class.

SL No	Surveys	Design & Participants	Outcomes assessed	Outcomes assessed
7	Sanjeev et al, 2017, Karnataka, India[7]	175 students of Nitte University with 93 Medical, 49 Dental, 33 nursing students	Dietary patterns among students of health sciences and its association with morbidity	87 (49.71%) students skipped breakfast, 14 (8%) students skipped lunch, 14 (8%) students skipped dinner. 5.7% of subjects were underweight, 85.2% of subjects had a normal BMI and 9.1% were overweight.
8	Sajwani et al, 2009, Karachi, Pakistan[8]	350 students between aged 17-24 years from 6 private universities of Karachi--three medical and three non-medical Institutions	Compare the differences in knowledge and practices regarding healthy lifestyle among medical and non-medical students of Karachi	On a 10-point scale, the average knowledge score of students on general and clinical nutritional knowledge was 5.7 +/- 1.51 and 4.4 +/- 1.77, respectively. Lack of time was identified the most common reason for skipping meals and as a barrier to exercise.
9	Abrar et al, Saudi Arabia,2017[9]	207 students between ages 19-24 years from basic and clinical levels in the faculty of medicine.	To assess the knowledge, attitude and practices on healthy lifestyle (healthy	54.1% students knew their daily calorie need, but the majority (84.5%) do not calculate their calories whereas 15.5% calculate their calories. About 35.3% of students based all their meals around starchy foods, 28% have only one starchy meal. Only11.0% male and 10.4% female follow balanced diet
10	Škėmienė et al, 2007, Lithunia[10]	349 first- and third-year students of the Faculties of Medicine and Pharmacy at Kaunas University of Medicine	To compare the dietary habits between first-year and third-year students, to compare male and female students' nutrition, and to evaluate the tendencies of its change.	The majority of students did not follow the dietary regimen and consumed the majority of food products during the second half of the day. Students consumed insufficient amounts of vegetable fats and fish products, fruit and vegetables. Students consumed insufficient amounts of vegetable fats and fish products, fruit and vegetables
11	Garipağaoğlu et al, 2012, Istanbul[11]	The population in this study included two groups of students: one had taken nutrition course, and the other was engineering students who had not taken such a course.	Aimed to validate a questionnaire on dietary fibre (DF)-related knowledge in a Turkish student population.	The questionnaire had satisfactory construct validity. It was found that one-fifth of the students were unsure of the correct answer for any item, and 52.5% of them were not aware that the DF have to be consumed on a daily basis. Also, only 36.4% students were able to correctly identify the food source of DF.
12	Sivashunmugam et al, 2017, Malaysia[12]	93 second year medical students	Aims to determine the prevalence of overweight and obesity among the preclinical students, correlate the relationship of BMI and WC and evaluate the knowledge and perception of obesity of obese and overweight students	Out of 93 students who participated in the study, 23 (25%) were overweight and 21 (22%) were obese. Study reveals that the prevalence of obese and overweight individuals is increasing day by day and also, there is knowledge gap.
13	Khan et al, 2016, India[13]	244 medical students conducted at four medical colleges of Lahore, Pakistan	The prevalence of obesity among students of medical colleges of Lahore and to study its correlation with high-caloric diet intake and physical inactivity.	21% students had BMI ≥25.0 kg/m(2). Higher total daily caloric intake was associated with central obesity but not a BMI >25. Only 28.7% students had regular walk or jogging.
14	Ackuaku-Dogbe EM, Abaidoo B,2014 Ghana[14]	154 pre-clinical and 163 clinical medical students	To assess the level of breakfast skipping and its effect.	71.92% skip breakfast and it results in poor concentration, tiredness and feeling fatigue.
15	Emine et al, 2018[15]	1537 medical students studying in 1,2,3 & 6th grade students at Ege University Faculty of Medicine.	To assess the level of breakfast skipping and its effect.	71.92% skip breakfast and it results in poor concentration, tiredness and feeling fatigue.

SL No	Surveys	Design & Participants	Outcomes assessed	Outcomes assessed
16	Simth, Leggat, 2007-16	66 manuscripts from India, the US, Australia, Japan, Pakistan, Turkey and the UK	A systematic international review of tobacco smoking habits among medical students.	Low smoking rates were found in Australia and the United States, while generally high rates were reported in Spain and Turkey.
17	Nathalie et al, 2017, California[17]	A total of 200 students across 10 California pharmacy and medical schools	To assess dietary and lifestyle practices and investigate whether they adhered to behaviors consistent with current dietary and exercise guidelines.	The majority of students consumed sodium <2300 mg/day (73%) and dietary cholesterol <300 mg/day (84%), only 50% had a saturated fat intake ≤10% total kcal, 13% met fiber intake goals, 10% consumed ≥8 servings/day of fruit and vegetables, and 41% exercised ≥150 minutes/week
18	Hala AL-Otaibi, Saudi Arabia[18]	960 female students at King Faisal University in AL-Hasa, Saudi Arabia	To investigate the daily consumption of fruits and vegetables and the psychosocial factors related to the consumption	Seventy-eight percent of students consuming <5 servings/day of fruit and vegetable with only 22% of them consuming >=5 servings/day, majority of them are in the normal BMI category. For psychosocial factors the higher consumption group are more knowledgeable about the daily consumption of fruit and vegetable.
19	Sorhaindo A, Feinstein L, 2008[19]		A review of the literature on the relationship between aspects of nutrition and physical health, mental health and behavioral or social outcomes in children.	Deficiencies in dietary intake are precursors to disease and illness that impact upon morbidity and mortality. Additionally, the timing, frequency, content and quality of food eaten is related to developmental, cognitive and behavioural outcomes that influence quality of life
20	Khademalhossini Z, Ahmadi J, Khademal hosseini Z, 2015, Iran[20]	A total of 1020 students, from 4 different districts and 10 different schools in Shiraz, Iran,	To investigate prevalence of tea, coffee and Nescafe consumption among high school students in Shiraz, Iran and find out whether there is a relationship between these three beverages with depression and anxiety	To assess the knowledge, attitude and practices on healthy lifes : Prevalence of tea, coffee and Nescafe consumption in high school students in Shiraz was 79.5%, 54% and 54% respectively. There was an inverse significant relationship between consumption of these three beverages with depression and anxiety.
21	Mackus et al, 2016[21]	A total of 800 Dutch university students	To examine the knowledge of caffeine content of a variety of caffeinated beverages	Most prevalent sources of caffeine were coffee beverages (50.8%) and tea (34.8%), followed by energy drink (9.2%), cola (4.7%), and chocolate milk (0.5%). hey overestimated the caffeine content of energy drinks and cola, and underestimated the caffeine content of coffee beverages.
22	Frantz D et al. US,2016[22]	122 recent medical graduates	To assess interns' perception of clinical nutrition education during medical school.	Only 29% of interns reported they had been sufficiently trained in nutrition.
23	Hyska J et al,2015, Albania[23]	347 medical and allied health professional students	Perceptions of knowledge, attitudes and practices in public health nutrition	Approximate one-third of the students were not satisfied with the quality and quantity of nutritional education received
24	Perlstein et al, 2017, Australia[24]	Surveys of first-year medical students across four consecutive cohorts, 2013–16 (n=555	Medical students' knowledge of dietary guidelines and self-reported dietary practices	Each year, between 59% and 93% of students correctly identified the recommended daily servings for fruit and between 61% and 84% knew the vegetable recommendations; 40–46% met the guidelines for fruit intake and 12–19% met the guidelines for vegetable intake

SL No	Surveys	Design & Participants	Outcomes assessed	Outcomes assessed
25	Schoendorfer et al, 2017, Australia[25]	Survey of first-year to fourth-year medical students (n=928)	Medical students' attitudes towards nutrition, and intention to do nutritional assessment with patients	87% of respondents indicated that "high risk patients should be routinely counselled in nutrition",despite overall student support of nutritional counselling (70%) and assessment (86%), students were reluctant to do dietary assessments and only 38% indicated that asking for a food diary or other measure of dietary intake was important
26	Hargrove et al, 2017, USA[26]	Survey of first-year and second-year medical students (n=257)	Medical students' nutrition knowledge and confidence in nutrition	The average nutrition knowledge score was 70% and 51% scored below the pass rate of 73%; most participants (n=143, 56%) felt comfortable counselling patients on nutrition recommendations, yet only 30 (12%) were aware of the current dietary reference intakes
27	Perlstein et al, 2016; Australia[2]	Survey of first-year to fourth-year medical students (n=197)	Medical students' perceptions of providing nutrition care	Most preclinical students (first to second year) agreed that medical graduates should understand nutritional issues; students reported limited confidence to show this knowledge (26–41%) for individual conditions; improvement was seen among students in the clinical context (third to fourth year; range 26–81%)
28	Crowley et al, 2015; New Zealand[28]	Survey of fifth-year medical students (n=183)	Medical students' perceptions of providing nutrition care and nutrition training	Students believed incorporating nutrition care into practice is important, yet were less confident that patients improved their diet after receiving this care; most students (60%) perceived the quantity of nutrition education received to be good or very good, and more (83%) perceived the quality of nutrition education received to be good or very good;
29	Schoendorfer N, Schafer J,2015[29]	1037 medical students of first four years	Perception of nutrition and the use of blended learning technique to engage student's engagement and clinical practice development in relation to nutrition education in first year	91% felt nutrition important to health care and 82% felt it important in general practice. Only (45%) felt they could discuss nutrition with patients
30	Connor et al, 2015, USA[30]	Survey of first-year to fourth-year medical students (n=312	Medical students' perceptions of competency and use of nutrition resources	42% reported that professional nutrition resources were their most commonly used nutrition resources; most students (70%) reported feeling competent in their ability to provide basic nutrition education to patients
31	Fiore et al, 2015; Italy[31]	Survey of first-year to sixth-year medical students (n=1038)	Medical students' adherence to the Mediterranean diet	Dietary adherence was reported as poor (21%), average (57%), and good (23%); sex significantly affected adherence scores (female>male; p<0•01); early or late medical school year did not affect results (adjusted OR 0•95; p=0•15)
32	Mogre et al, 2018, Ghana[32]	Qualitative interviews with fifth-year medical students (n=23)	Medical students' perceptions of providing nutrition care	Medical students believe the doctors play a pivotal role in providing nutrition care to patients; the barriers include the misconception that nutrition care is not the responsibility of doctors; poor communication with nutrition professionals; and lack in curriculum to provide nutrition education
33	Cooke et al, 2017, USA[33]	Qualitative interviews with third-year and fourth-year medical students (n=78)	Medical students' perceptions of providing nutrition care for managing childhood obesity	Med undergrads asked for more training regarding childhood obesity; perceived barriers to childhood obesity prevention and treatment include deficiency of knowledge, lack of access and constrained time during consultations
34	Danek et al, 2017, USA[34]	Focus groups and qualitative interviews with medical students (n=48), residents (n=14), and doctors (n=10	Medical students' perceptions on nutrition training received	Students felt nutrition was poorly integrated into the curriculum; residents stated they feel less confident offering nutrition counselling and desire to gather more educational classes in this domain

DISCUSSION:

The importance and benefits of healthy food cannot be over-emphasized. Food provides the body with necessary amount of energy, vitamins, minerals and antioxidant which are involved in processes that promote neuronal survival[35], by synthesizing neurotransmitters responsible for the efficient flow of information across synapses all over the body. Research has provided exciting evidence for influence of dietary factors not only in building the body or preventing disease but also on specific molecular systems and mental function.[36] Any imbalance in the micronutrients can lead to alteration in brain function, impaired memory, minimizing ability to solve problem, also may lead to chronic diseases.[37]

A study by Sanjeev et al showed 5.7% of subjects were underweight, 85.2% of subjects had a normal BMI and 9.1% were overweight[7] which is consistent with the results found in the study conducted at West Bengal by Sarkar et al wherein the prevalence of normal BMI was 72.7%, the proportion of underweight and overweight were 16% and 11.4% respectively.[38]

A study carried out among medical students in Lithunia cited that their diet was not balanced, consuming insufficient vegetable fats and fish products, fruits and vegetables and thus their food may lack in vitamins and dietary fibers or nutrition.[10]

In the study conducted by Yadav et al it was found that 214 (53.5%) were vegetarians and 186 (46.5%) consumed a mixed diet.13 Sharma et al in their study found that 50.5% of the subjects were vegetarian and 49.5% were non-vegetarian (N=200).[39] A study conducted among 1000 healthy young female students aged 11-28 years in Mysore by Omidvar et al found that there were 332 (33.7%) vegetarians, 88 (8.9%) regular non-vegetarians and 564 (57.3%) were occasional nonvegetarians.[40]

In Maharastra, India, 2014 75% of the participating students had only 1–2 portions per day.[2] The same goes with medical students in California, 2017 which shows only 10% of students met recommendations for daily fruit and vegetable intake.[17]

In a similar study carried out amongst 207 under-graduate students at the University of Hail, Saudi Arabia in 2017, only 11.1% admitted that they eat fruits and vegetables daily.[9] However, this dissimilarity is due to the difference of feeding habit in different culture.The same goes with medical students in California,2017 which shows only 10% of students met recommendations for daily fruit and vegetable intake.[17] All these figures are falling short of the five daily servings of fruit and vegetables as recommended by the World Health Organization. Vitamins and minerals are very essential in humans even though they are needed in small accounts.[19] They help in collagen synthesis, energy production, bone formation, and have antioxidant functions.[41] Minerals also play a role in maintaining water balance, protein structure stability, bone strength and immune responses.[37]

Lack of time was also cited in a study by Sajwani *et al.*[8] Similar findings were found among the medical students of Ghana, where 71.92% skipped breakfast, resulting in fatigue and poor attention.[14] In a study carried out among medical students in Lithunia was cited that 49.6% of female and 63.2% of male first year students most of the time ate in a hurry.[10]

The study in medical students of Ege University, Turkey, where smoking was more prevalent in males compared to females (24.3% vs. 11.7%, $p<0.001$).[15] High caffeine intake in adolescents has been linked with difficulty in sleeping, feeling tired in the morning and with high blood pressure.[42,43] Measures should be taken to educate students on the harmful effects of caffeine consumption in an effort to curtail this habit.

Eight studies[24-31] reported on medical students' perceptions of nutrition education in medical training. The studies indicated that the nutrition education received by medical students is insufficient to develop confidence in providing nutrition care. Students perceived that they should understand nutritional issues related to specific conditions and chronic lifestyle diseases[27] and that incorporating nutrition care into practice is important,[28] especially as routine practice among highrisk patients.[25] Students perceived that their nutrition education was inadequate because of their current limited nutrition knowledge and the ongoing poor integration of nutrition into curricula,[23,33] absence of priority for nutrition education, absence of faculty to provide nutrition education, poor application of nutrition science to clinical practice[32] (such as witnessing little or no nutrition counselling during shadowing experiences),[33,34] absence of scientific rigour in the teaching curriculum,19 and poor collaboration with nutrition professionals.[32-34]

FINANCIAL STATEMENT: No funding was associated with this study.

CONFLICT OF INTEREST: None

CONCLUSION:

This survey provided a unique insight on both healthy and unhealthy dietary practices among the medical undergraduates. However, it is evidenced that their knowledge regarding nutrition and balanced diet have an impact on their lifestyle and dietary practices. Besides, their MBBS curriculum should be revised targeting to increase awareness on healthy food practices which should be encouraged to adopt a healthy lifestyle not only to promote individual health but also to build a robust community health as well.

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Mini Review

Early Initiation of Breastfeeding (EIBF)

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Early initiation of breast feeding

Feeding practices play a vital role in determining the optimal development of infants. Breastfeeding promotion is a key to child survival strategy. Although there is an extensive scientific basis for its impact on post neonatal mortality, evidence is sparse for its impact on neonatal mortality. Initiation of breastfeeding shortly after delivery may enhance breastfeeding's protective effect against diseases because of the protective properties of human colostrum contained in early breast milk.

Provision of mother's milk to infants within one hour of birth is referred to as "early initiation of breast feeding" and ensures that the infant receives the colostrum, or "first milk", which is rich in protective factors. [1]

Early initiation of breastfeeding is important for both the mother and the child. There are a number of reasons to encourage early breastfeeding. Mothers are benefited from early suckling because it stimulates production of breast milk and facilitates the release of oxytocin, which helps to contract the uterus and reduce postpartum blood loss. The first breast milk contains colostrum, which is highly nutritious and has antibodies that protect the new-born from diseases. Early initiation of breastfeeding also encourages bonding between the mother and her new-born.

Early initiation of breastfeeding could reduce neonatal mortality rate which would contribute to the achievement of the Millennium Development Goals. Globally over one million new born infants could be saved each year by initiating breastfeeding within the first hour of life.[2,6]

A goal included in Healthy People 2010 and again in Healthy People 2020 aimed to increase the proportion of mothers who breastfeed their babies ever, at six months. But the type of feeding practices that the mother follows depends on many variables and socio-economic conditions of the family.[3]

Around the world, early initiation of breastfeeding (breastfeeding within one hour of birth), had been reported to reduce neonatal mortality by 19.1-22%. [4] This is particularly important in resource poor countries like Bangladesh. The finding of a related conducted study was that the overall rate of EIBF was higher, at 75% [5] than has been typically reported in prior studies using DHS survey data of 2004. Some variations in rates between sites may have been due in part to health system-wide disruptions in service delivery.

The biggest gaps were found to be in putting baby to the breast within the first hour of birth (40% gap); feeding colostrum and not giving other fluids, foods or substances within the first three days (54% gap). [7,8]

In Dhaka, Bangladesh, less than 5% of mothers reported not giving their infants colostrum.[8] Lack of knowledge about dangers of perception of "insufficient milk" were main reasons given by mothers for these practices.

Overall, 60 percent of children are breastfed within one hour after birth.[9] The 2013 Utilization of Essential Service Delivery Survey and the 2012-13 Multiple Indicator Cluster Survey reported lower exclusive breastfeeding rates of 60 percent and 56 percent respectively.[10]

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In spite of the decline in exclusive breastfeeding between 2011 and 2014, the prevalence of exclusive breastfeeding of infants up to 6 months in 2014 was 5 percentage points higher than the HPNSDP target of 50 percent of exclusive breastfeeding by 2016.[11]

Epidemiological evidence indicates that the following IYCF practices will have substantial impacts on health and nutrition indicators in Bangladesh (Lancet 2008, BDHS 2007, WHO/PAHO 2003, and National IYCF Strategy 2007). [12,13] The Government of Bangladesh (GOB) has taken several important steps to address IYCF problems. The overall goal of the National IYCF Strategy (2007) is to improve nutritional status, growth and development, health, and survival of infants and young children in Bangladesh through optimal IYCF practices.[7] In addition to the National IYCF Strategy, the National Neonatal Health Strategy (2009) is also supportive of IYCF.[14]

The previous findings show that huge gaps continue to exist in breastfeeding behaviors, mostly due to lack of awareness as to why the recommended breastfeeding practices are beneficial, the risks of not practicing them, as well as how to practice them well.

If early initiation of breastfeeding is done in 24% of all newborns in this country within one hour of birth, then about 700 neonate deaths could be averted annually.[15]

Early initiation of breast feeding enhances "Maternal-infant bonding". The bonding process occurs in both infant and mother and has tremendous implications for the child's future development.[16]

Our study on early initiation of breastfeeding practice revealed that more than half of the respondents were between age group of 15-25 years. Majority of the mother were housewives and educated up to primary level and graduation level.

Most of the responders who breastfed their baby belonged from the lower class and middle class family. The current study revealed that maximum mothers got their baby closer immediately after the delivery and most of them breastfed their baby within one hour of delivery. It was evident from the current study that most of the mothers had the knowledge of starting EIBF and they got the knowledge regarding EIBF from the doctors and from their academic education.

We also found that having no breast milk flow in the breast was another important cause for not starting EIBF and most of the cases it was because of C-section delivery.

we found that there is no relation among knowledge, education and occupation level of mothers with EIBF because they got the information regarding importance of early initiation of breast feeding from different sources like family, doctors, academic education and media. EIBF of the babies is also not significantly influenced by mothers' age group and education level.

But the practice of EIBF significantly is influenced by monthly family income, delivery method and complications of babies during birth. Because of C-section delivery most of the mothers couldn't breastfeed their babies within one hour of delivery. Also, maximum babies who had complications they couldn't suck properly at the moment of first time breastfeeding.

Overall the findings indicated that most of the respondents of our previously selected areas were aware of starting breastfeeding within one hour of delivery and it is a very positive sign for our developing country.

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Letter to the Editor

Can a Short Training on Basic Research Skill Development Open up a Window in Adding Values to Clinical Internship that May Adjunct in their Job-hunting Drives, Subsequently?

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Dear Editor,

We, some of AWMC's intern doctors are thrilled to comment on the inception of the Ad-din Research Unit (ARU)[1] which we admire greatly, and therefore accepted its extended activities whole-heartedly.

First things first:

Let us first address the growing concern among intern doctors on our current training and future directions. Such concerns range from trying to recall the generic/trade name of drugs (including dosage and duration) to more serious thoughts such as "Should we (interns) be preparing for our post-graduation during our internship?"

It is during our internship when we must arrive at a precise decision about our future, and we must take the necessary steps to reach our cherished goal. The steps that we take during the span of the internship period are cumulative and multi-faceted. These aforementioned steps must not only hone our clinical skills and guide our treatment protocol, but they must also reveal the complex path towards our post-graduation, *per se*.

Clinical Training Adjunct with Basic Research Skill Development

Now taking AWMCH as the case, the pro-poor, pro-women urban based hospital has been involved with a wide spectrum of excellent clinical practices, serving countless patients allowing ample opportunities to learn medical science in-depth. Likewise, the ARU (Ad-din Research Unit), since its inception in June 2022, is striving hard to study some of such important cases and infectious disease outbreaks (dengue, hand-foot-mouth disease, etc.) meticulously. And, in doing so, the ARU (converted to MRU Medical Research Unit, AWMC) created ample opportunities for us- the interns in building strong pillars that will, in addition with clinical skills would provide them basic research experience. Thus, this experience has increased our self-confidence in adding values in our resume significantly.

We, a cross-sectionally sliced team of intern doctors placed at the Dept. of Obs & Gynae, felt elated being affiliated with MRU. The team took a small part in its scientific/research activities, from time to time, utilizing our short breaks and gaps- in-between our clinical duties.

Some of our interns fortunately got partially attached with a collaborative research between China and AWMCH-titled "Evaluation of trimester specific changes in gestational lipid profile and placental atherosclerosis in pre-eclamptic (PE) mothers." with Prof. Laila Noor (and Prof. Nahid Yasmin) launched under the supervision of Dr. Kazi Selim Anwar. PE is defined as a "multi-system disorder of *unknown aetiology*" by DC Dutta[1], that has one of the highest rates of maternal mortality (MMR) in Bangladesh.[2] We, therefore, consider ourselves very fortunate to have delved into this study of this entity that has not been known to be studied in Bangladesh, as of yet. Again, there is an issue to test if it is possible or feasibility to juggle an internship blended with primary research training.[3,4]

Despite plenty of existing barriers, undoubtedly, we had to navigate a complex system, replay when there were

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recurrent failures, and most of all, we had to keep patience as required. Now that we have discussed the feasibility, let's now foresee how this might benefit our upcoming future, directly or indirectly. Undeniably, in broader sense, today's research may help countless patients tomorrow. Data that we would find might even appear in textbooks, where such clinical entities will no longer be termed as "unknown aetiology."

Highlights on Future Endeavour

In addition, our intern team's involvement in basic research might assist us in achieving professional certification to build up a stronger curriculum vitae (CV), which looks prudently stronger towards facing rampantly growing competition; with its limited space- no matter if we seek for government job or try for international offers.

As an example, following our community-based training on public health will boost our CV, too:

- One-month long residential field site training (RFST) during our 3rd year Community Medicine
- Fortnight long clinical & administrative practice in a selected THCs during our internship

Thus, our partly-associated activities with MRU will pay us back in multi-folded means as follows:

- Not only towards job-hunting
- But also in reaching out a basic knowledge on clinical research
- With a touch of biostatistics/ SPSS- an essential tool used in public health management.

The aforementioned teaching-learning (TL) efforts have provided us with enough confidence to face our job interview, both for clinical and/or public health research specialities. We are convinced that the experience of conducting surveys and collecting data made us clearer with some preliminary knowledge of biostatistics that we also learnt in Community Medicine.

Wrapping Up

We, therefore, envisage that medical students engaging in research & development (R&D) activities, primarily, yet part-timely, should take this golden opportunity R&D activities that the MRU upstretched for us. This really remains much worthy.

To wrap up: Yes! we found R & D activities a bit difficult while kicking it off, but the way the MRU acclimatised us, in turn, groomed us up as its team-members with due motivation and subsequent short-term training has recharged us to take on R & D opportunities for more successful career. The interns largely remain obliged to Dr. Kazi Selim Anwar, the Head of MRU, who is determined to carry the MRU to international heights with his robust leadership role.

Here, we must extend our gratitude to our respected **Prof. Dr. ARM Luthful Kabir** Sir, Head of the Paediatric Department of AWMCH, who has always pressed upon the importance of research in his captivating talks during our class lectures, and in turn, has inspired us greatly. We had noticed one thing during our part-time involvement that **Prof. ARM Luthful. Kabir, Dr. Richmond R Gomes, Prof. Mahmuda Hassan, Prof. Narayan Bhowmik** and **Dr. Saiful Islam** had been keenly assisting to run MRU activities towards its innovative activities of this unique MRU whole heartedly.

Conclusion

We feel that in these next few weeks, every medical student and intern doctors should be in touch with, the MRU. In retrospect, the end result has shown us that it was, and is, indeed possible to manage our clinical duties along with our beloved research, side by side. It may seem difficult at first, but we must create a climate to let all intern doctors explore more opportunities, particularly in the field of research and development activities, more.

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