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Editorial

International Accreditation for Quality Medical Education: Its necessity & challenges in Bangladesh

The World Federation for Medical Education (WFME) declared in 2010 that every country should have its own independent accreditation councilto ensure the quality of medical education.Without accreditation, graduates of any country would not be allowed to study and engage in jobs in the first world like USA, UK, Canada and Australia after June 2023 which was extended up to June 2024.[1] Among the South East Asian countries, India, Pakistan, Sri Lanka & Nepal already received accreditation from the World Federation of Medical Education (WFME).Bangladesh is not accredited till now. If Bangladesh does not receive accreditation from the World Federation for Medical Education (WFME), it's Bachelor of Medicine, Bachelor of Surgery (MBBS) will not be recognized internationally in many countries like United States, United Kingdom, Australia, and Europe. Not only that the Bangladeshi MBBS graduates will lose out on job opportunities and will not be able to participate in any training programs in first world country.Without accreditation, Bangladesh will be failed to admit the foreign students in any Govt/Private medical colleges& loses foreign currencies.

In Bangladesh, currently the number of medical colleges and seats have been increased, but the quality of education has not been improved at the same rate. Bangladeshi medical colleges face a number of challenges, including a shortage of teachers and infrastructure. To receive accreditation from the WFME, Bangladesh must address these challenges & solve accordingly.

In the mean time, **Bangladesh Medical Education Accreditation Bill, 2023** was passed in the parliament on 07 September 2023 aiming to ensure quality medical education by acknowledging the academic curriculum and the concerned institutions by providing accreditation certificates.[2] **The Bangladesh Medical Education Accreditation Act, 2023** was published on 18 September 2023. By this act, Bangladesh Medical Education Accreditation Council was already formed.[3] Now Bangladesh Medical Education Accreditation Council needs to be approved by World Federation of Medical Education (WFME) first. In order to achieve accreditation, Bangladesh Medical Education Accreditation Council should have to follow the guidelines provided by World Federation of Medical Education (WFME).After getting the approval, the country council can start to accredit both public and private medical colleges of country as per World Federation of Medical Education (WFME) guidelines.

For our country's accreditation, **"International Conference on Accreditation for Quality Medical Education"** was held on 29-30 September 2024 at Hotel Inter Continental, Shahbag, Dhaka. The president of World federation of Medical

Education (WFME) **Prof. Ricardo Leon Borquez** and representatives from Indonesia, India, Sri Lanka, Thailand, Mexico, USA and UK joined in that conference. Hopefully Bangladesh Medical Education Accreditation Councilwill achieve international accreditation for quality of medical education as soon as possible.

Dr. Md. Maruf-Ur-Rahman
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&

Co Executive Editor
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TABLE OF CONTENTS

Journal of Dhaka National Medical College & Hospital

JDNMCH Volume - 30 Number -2, September- 2024

Instruction for Authors:

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Preparation of manuscript

The journal aspects manuscripts prepared under the guidelines of International Committee of Medical Journal Editors (ICMJE) (www.icmje.org). Authors are requested to follow the following general framework-

a) Manuscript written in English and typed on one side of A4 size white paper.
b) Text in Times New Roman font in 12 point.
c) Double spacing should be used throughout .
d) Five cm margin for the header and 2.5 cm for the remainder.
e) Vancouver referencing style approved by U.S. National Library of Medicine (NLM) is preferred though Harvard style and others may also be submitted.
f) Pages are to be numbered consecutively at the lower end of each page beginning with the title page.
g) All scientific units should be expressed in System International (SI) units. Traditional units may be used where they are widely accepted.
h) All drugs should be mentioned in their generic form. The commercial name may however be used within brackets.

Each of the following section should begin on separate page-

- Title page
- Abstract
- Text (Introduction, Materials and method, Results, Discussion). Insert tables and legends where they fit.
- Acknowledgement (if applicable).
- References.

Title Page

Title of the article (Should be concise, informative and self explanatory).
Name and email address of the author to whom correspondence regarding manuscript to be made.
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Abstract

May be structured with subheadings of Background Objective, Materials and Method, Results, Conclusion. Not mandatory for review articles and case reports.
Should not exceed 250 words.
Three to five keywords below the abstract may be used.

Text

Introduction

States the purpose of the article and summarizes the rational of the study.
Brief review of the subject.

Materials and method

Should be very clear mentioning study design, place and period.
The selection criteria of the study population including controls (if any).
The methods and the apparatus used in the research. The procedure of the study in such a detail so that other workers can reproduce the results.
Statistical procedure should be briefly and comprehensively addressed. Specify the computer software used (if any) along with version.

Results

Presented in sequence in the text, tables and illustrations.
Describe without comment.
Supplemented by concise texual description of the data presented in table and figures only where it is necessary.

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Tables should be simple, self explanatory and supplement, not duplicate the text.

They should be numbered consecutively with Roman numerical(I, II, III,IV,etc) in order of text.

If abbreviations are to be used, they should be explained in footnotes.

Captions should in bold (Table I: …….)

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Should reflect the authors' comment on the results and to relate them to those of other authors.

Should contain well- founded arguments.

Acknowledgement

Individuals, organizations or bodies may be acknowledged in the article and may include-

Nane (or a list) of funding bodies.

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Standard journal article

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Organization as author

Hypertension Prevention Program Research Group Hypertension, Insulin, and Proinsulin in Participants with Impaired Glucose Tolerance Hypertension. 2010; 20(6): 576-82

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Genaud G, Spierings EL, Keywood C. Tolerability and safety of Frovatriptan with Short and Long Term Use for Treatment of Migraine and in Comparison with Sumatriptan. Headache. 2009;25 supple: 541-47

Books

Personal author(s)

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Editor(s) /compiler(s) as author

Gilstrap LC, Cunningham FG, VandorstenJP, editors. Opetative Obstetrics. 2nd ed. New York: McGraw-Hill; 2002

Author(s) and editor(s)

Breedlove GK, Schorfheide AM. Adolescent Pregnancy. 2nd ed. Wieczorek RR,,editor. While Plains (NY): March of Dimes Education Services; 2001.

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Abood S. Quality Improvement Initiative in Nursing Homes: the ANA Acts in an Advisory Role. Am J Nurs [Internet]. 2002 Jun [cited 2002 Aug 12]; 102 (6) Available from : http:/www.nursingworld. org/AJN/2002/june/Wawatch.htmArticle.

Homepage/Web site

Cancer-Pain.org [Internet]. New York: Association of Cancer Online Resources [updated 2002 May 16; cited 2002 Jul 9]. Available from: http://www.cancer-pain.org/.

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J. Dhaka National Med. Coll. Hos. 2024; 30 (02): 07-14

Original Article

Conservative Treatment Versus Surgical Management of Uncomplicated Acute Appendicitis in Adult

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Abstract

Background

Acute appendicitis remains the common surgical condition and appendicectomy remains the mainstay of treatment for over 130 years. Possibility of non-surgical treatment has been proposed since the middle of the 20th century. An increasing amount of evidence supports the use of antibiotics as conservative treatment instead of surgery for treating patients with uncomplicated acute appendicitis.

Objectives

To compare conservative treatmentwith appendicectomy in the management of uncomplicated acute appendicitis in adult confirmed by clinical findings and investigations.

Methods

Ahospital based prospective type of comparative observational study was conducted over a period of three years from 1st January 2020 to31st December 2022 in the Department of Surgery, Dhaka National Medical College Hospital. Total 224 patients of acute appendicitisdiagnosed with history taking, clinical examination, laboratory profile, ultrasonography proven in surgery department of Dhaka National Medical College Hospital were included. Total study population were divided into two groups randomly, one was surgically treated and another one was treated conservatively.Patient treated with conservative treatment received intravenous Ceftriaxone (1 gm/12 hourly) and Metronidazole (500mg/ 8 hourly) for 3 days followed by 7 days of oral Cefixime (400 mg twice daily) and oral metronidazole (500 mg 3 times per day) for 2 days. Patients randomized to the surgical treatment group were assigned to undergo standard open appendicectomy by grid iron incision. The primary end point for the surgical intervention was the successful completion of an appendicectomy and the primary end point for conservative treatment group was discharge from the hospital without the need for surgery.

Results

In this study, the maximum number of patients 80 (35.71%) was between18-25year age group.Out of 224 cases 126 (56.23%) cases were male and 96 (42.85%) were female. Male and female ratio was 1.3:1. Large numbers of respondents 99 (44.19%) werestudents followed by housewife 48 (21.42%). Leukocyte count (Mean±SD) in surgically treated groupwas 12.7× 109/L and conservative treatment group was12.3× 109/L. Alvarado score was 6-7, which was same in bothgroups. Per-operatively, no collection was seen in right iliac fossa in 86 (76.78%) and serous and purulent collection found in 15 (13.39%) and 11 (9.82%) cases respectively. Only 15 (13.39%) patients had greater omentum present around the appendix, rest 97 (86.60%) patients don't have greater omentum around the appendix. During operation, 81 (72.32%) appendixes found severely inflamed, 3 (2.67%) were gangrenous and 2 (1.78%) were perforated. Although 8 (6.77%) patients had macroscopically normal appendix. Per-operatively, we found appendiceal lumen was obstructed in only 26 (23.21%) patients. Outcome of the acute appendicitis patient were, median hospitalstay

more in conservative treatment group 4.1 days in comparison to surgically treated group 3.4 days. Treatment failed 31 (27.67%) patients were treated by appendicectomy.Among 31 patients, appendix of all 31 (100%) patients were severely inflamed and 25 (80.64%) patients lumen found obstructed with fecalith. Greater omentum found fixed with appendix in 26 (83.87%) patients and serous and purulent collection found in 20 (64.51%) and 11 (35.48%) patients respectively. Readmission required due to recurrent appendicitis occurred in 9 (8.03%) patients in conservative treatment group, who was then treated by appendicectomy, where surgically treated group required no readmission. One third of recurrences appeared within 30 days and two-thirds between 3 and 6 months after hospital discharge. Surgical site infection occurred in 29 (25.89%) patients. Treatment efficacy was 72.32% for conservative treatment.

Conclusions

The current evidence does not support the routine use of antibiotics as the mainstay of treatment of uncomplicated acute appendicitis because of recurrence and appendicectomy remains the current gold standard.

Keywords

Acute appendicitis, Conservative treatment, Complicated appendicitis, Uncomplicated appendicitis, Ultrasonography.

Introduction

Acute appendicitis is inflammation of the vermiform appendix and remains the most common cause of the acute abdomen in young adults. The mainstay of treatment is appendicectomyand consequently, this is one of the most commonly performed operation in acute abdomen.[1] More than 3000000 appendicectomies are performed annually in the United States.[2] Lifetime risk of developing appendicitis is approximately 7%. Most frequently occurs in 2nd & 3rd decades of life. Mortality is 0.2 deaths per 100000.[3] Appendicectomy is generally well tolerated. As it is a major surgical intervention and can be associated with serious postoperative morbidity.[4,5] It has been thought that acute appendicitis invariably progresses to perforation. This line of thinking underlies the belief that emergency appendicectomy is required when the diagnosis is appendicitis. Fitz's and McBurney's publication predated the availability of antibiotics by 40 years showed, in the absence of antibiotics, appendicectomy saved lives by reducing the risk of severe pelvic infection when appendicitis waspresent.[6,7] However, appendicitis can be notoriously difficult to diagnose, and there exists a negative appendicectomy rate of 10%–20% despite the use of preoperative computed tomography (CT).[8]

Diagnosis of acute appendicitis is mainly clinical and the Alvarado score is a numerical scoring system ranging from 1 to 10 that assesses symptoms, signs, temperature and blood results to help in diagnosis of acute appendicitis.[9] Pathologically, acute appendicitis is divided into two type, acute catarrhal variety and acute obstructive variety. Obstruction of appendiceal lumen seems to be essential for the development of complicated appendicitis (gangrene and perforation). Lumen of appendix can be occluded by fecalith, tumor or intestinal parasites (Oxyuris vermicularis). In many cases, the appendix lumen is patent despite the presence of mucosal inflammation and lymphoid hyperplasia. Continued lymphoid hyperplasia, mucus secretion and inflammatory exudation increases intra luminal pressure and causes obstruction. Resolution can be occurred at this point either spontaneously or in response to antibiotic therapy (these refers to acute catarrhal variety of appendicitis).[10]

Early postoperative complications of appendicectomy includes wound infections, intra-abdominal abscesses, ileus, fecal fistula andlate complication is adhesions.The mainstay of treatment for other intra-abdominal inflammatory processes, such as diverticulitis, consists initially of conservative management with antibiotics.[11] In view of the potential morbidity associated with an

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open appendicectomy, is there a role for conservative management with antibiotics? A number of reports exist regarding possible conservative management of appendicitis, with or without interval appendicectomy, and many pediatric centers practice this approach in patients with uncomplicated appendicitis.[12-14]

Conservative management of acute appendicitis includes nothing per oral for certain period, intra venous fluid and electrolytes administration, broad spectrum antibiotics, analgesics, antiulcerant.[15] Even though appendicectomy has been the mainstay treatment for appendicitis, relatively soon after antibiotics were available, Coldrey reported treating 471 patients with acute appendicitis with antibiotic therapy in 1956. Mortality was low (0.2%) and recurrent appendicitis occurred in only 14.4% of patients.[16] Consequently, the aim of this study was to evaluate the current role of conservative treatment with antibiotics versus surgical management of acute appendicitis (appendicectomy) and to assess if appendicectomy remains the gold standard of care.

Materials & Methods

Ahospital based prospective type of comparative observational studywas conducted over a period of three years from 1stJanuary 2020 to 31st December 2022 in the Department of Surgery, Dhaka National Medical College Hospital after obtaining requisite consent from the patients. The populations of this study included male and female patients ranging from 18-70 years. Total 224 patients diagnosed as acute appendicitisby history taking, clinical examination and investigationslike complete blood count, ultrasonography of whole abdomen (sensitivity 81% and specificity 88%), plain x-ray KUB region, urine routine microscopic examination etc. Being a resource-limited country, none of the patients underwent a CT scan abdomen for the diagnosis of uncomplicated acute appendicitis, following the hospital policies. Conservative treatment offered randomly selected uncomplicated acute appendicitis patients. Theywere given Inj. Ceftriaxone 1gm intra venous 12 hourly,Inj. Metronidazole 500mg intra venous 8 hourly for 3 days then oral Cefixime 400mg 12 hourly of 7 days and oral Metronidazole 400mg 8 hourly for 2 days. A six-hourly recording of; temperature, blood pressure, pulse rate, respiratory rate, and the local abdominal sign was done. Patients who improved were discharged. Failureof treatment judged by- progression of abdominal pain, raising of fever, increasing pulse rate, lack of overall improvement in 24 hours after hospital admission. Conservative treatment failed patients were surgically operated by open appendicectomy. All surgically treated patients were operated via grid iron incision. Both groups of patients wereevaluated during follow up with a questionnaireat 3 and 6 months. Patients with repeated disease symptoms, like persistent pain in the right iliac fossa, leukocytosis, and anorexia, and ultrasound findings of an inflamed appendix on a follow-up visit or in an emergency within six months after successfully managing conservatively, were labeled recurrent appendicitis.The effectiveness of conservative treatment was defined as clinical resolution of all symptoms without the need for surgical intervention, along with tolerating oral diet and no recurrence within six months of follow-up.Patients with complicated appendicitis, which was defined as the presence of perforation, abscess, or suspicion of a tumor on the ultrasound scan, were excluded. Other exclusion criteria were pregnancy (pregnant patient directly operated due fear of serious complication), patient who are unable to cooperate and provide informed consent, the presence of serious systemic illness and patient with total white blood cell count more than 14.5× 10^9/L (more the WBC count more the inflammation and more chance of complicated appendicitis). The collected data were entered into the computer and analyzed by using SPSS (version 20.1).

Results

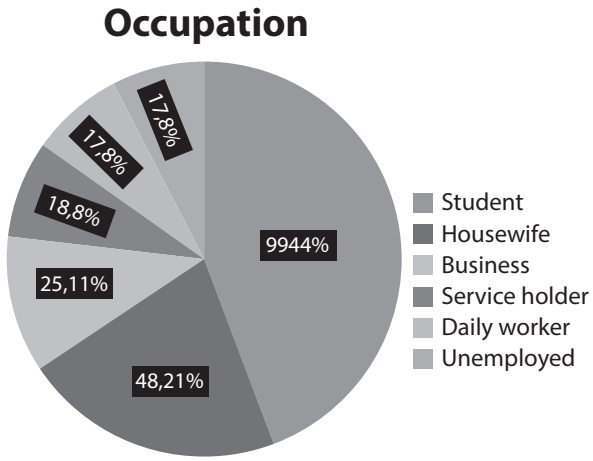
A total 224 cases of suspected uncomplicated acute appendicitis patient were enrolled for this study. Patients were divided into two comparative groups. After detailed examination and investigations, demographic features, per operative findings were correlated and outcome was observed.

Table-I: Age and sex distribution of the patients (n=224)

Age (years)	frequency				Total	
	Male		Female			
	n=126	% of gender	n=96	% of gender	n=224	% of total population
18-25	46	36.50%	34	35.41%	80	35.71%
26-33	34	26.98%	29	30.20%	63	28.12%
34-41	20	15.87%	13	13.54%	33	14.73%
42-49	11	8.73%	10	10.41%	21	9.37%
50-57	09	7.14%	08	8.33%	17	7.58%
58-65	04	3.17%	03	3.12%	07	3.12%
>65	02	1.58%	01	1.04%	03	1.33%

Maximum number of patients were male 126 (56.25%) and maximum patients were in age group between 18–25 years (35.71%) among them male was 46 (36.50%) and female 34 (34.69%).

Figure-I: Distribution of the patients according to occupation category (n=224)



Large number of patients were student 99 (44.19%) followed by housewife 48 (21.42%).

Table-II: Baseline characteristics of the acute appendicitis patients (N=224)

Baseline characteristics	Surgically treated group (n=112)	Conservative treatment group (n=112)
Leukocyte countD) (Mean±S	12.7× 109/L	12.3× 109/L
Alvarado score	6-7	6-7

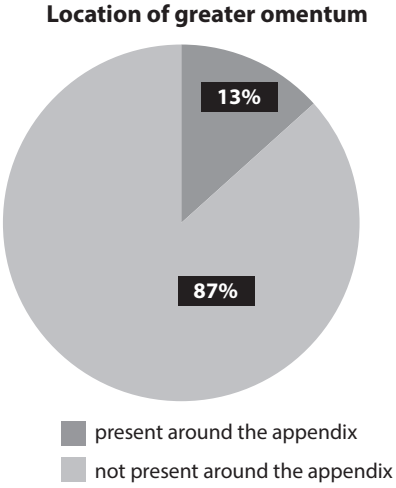
Leukocyte count (Mean±SD) in surgically treated groupwas 12.7× 109/L and conservative treatment group was 12.3× 109/L. Alvarado score was 6-7, which was same in bothgroups.

Table-III: Peroperatively presence of collection in right illiac fossa in surgically treated group(n=112)

	Nil		Serous		Purulent	
Presence of collection at right iliac fossa	n	%	n	%	n	%
	86	76.78%	15	13.39	11	9.82

No collection was found in right illiac fossa in 86 (76.78%) patients indicating uncomplicated appendicitis and 11 (9.82%) patients had purulent collection which indicated complicated appendicitis.

Figure-II: Per operatively location of greater omentum in surgically treated group (n=112)



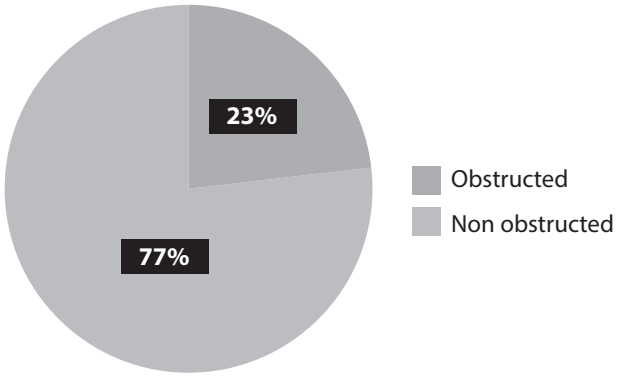
In 97 (86.60%) patients greater omentum wasn't found around the appendix.

Table-IV: Per operatively gross appearance of appendix in surgically treated group (n=112)

	normal		Minimally inflamed		Severely Inflamed		Gangrenous		perforated	
Gross appearance of the appendix	n	%	n	%	n	%	n	%	n	%
	8	6.77	18	16.07%	81	72.32%	3	2.67%	2	1.78%

Severely inflamed appendix found in 81 (72.32%) patients and gangrenous and perforated appendix found in 3 (2.67%) and 2 (1.78%) respectively. Although 8 (6.77%) patients had macroscopically normal appendix.

Figure-III: Per operatively condition of lumen of appendix in surgically treated group (n=112)



In 86 (76.78%) patients, lumen of appendix was not found obstructed.

Table-V: Outcome of the acute appendicitis patients (N=224)

Outcome	Surgically treated group (n=112)	Conservative treatment receiving group (n=112)
Median hospitalstay (Day)	3.4	4.1
Surgical site infection	29 (25.89%)	NA
Intestinal obstruction	1(0.89%)	0(00)
Ileus	5(4.46%)	NA
Treatment failure/conversion	NA	31(27.67%)
Readmission	0(00)	9(8.03%)

Median hospital stay was more in conservative treatment receiving group 4.1 day than surgical treatment group. Significant surgical site infection found in 29 (25.89%) patients after operation. Other post-operative complications were seen but conservative treatment failed in 31 (27.67%) patients who need conversion to appendicectomy.

Discussion

The treatment of uncomplicated acute appendicitis is under active research with non-operative management proving safeand cost-efficient.[17,18] Similarly spontaneous resolutionwith symptomatic treatment has also been seen inuncomplicated acute appendicitis.[19] There is also significant morbidity associated with an appendicectomy.[1] As such, it is important to determine whether appendicectomy remains the gold standard for treating acute appendicitis.In our study, maximum number of patients were male 56.25% and 35.71% patients were in between 18-25 years age group. We found 46 (36.50%) male and 34 (34.69%) female were within 18-25 years. Male female ratio in our study was 1.3:1. With the increasing age male female ratio was decreased. In a study at Ontario shows, among 65675 cases of acute appendicitis, 58% of the patients were male. The age-specific incidence of acute appendicitis followed a similar pattern for males and females, but males had higher rates in all age groups. Female: Male age-adjusted rate ratio was 1:1.4.[20] Large number of patients 99 (44.19%) were student, followed by housewife 48 (21.42%) found in our study.Baseline total white blood cell (WBC) median count was 12.7× 109/L in surgical group and 12.3× 109/L in conservative treatment group. More the WBC count, there is more chance of complicated appendicitis. A study showed, Mean WBC counts in acute appendicitis were 14.5 +/- 7.3 x109/L, gangrenous 17.1 +/- 3.9 x 109/L and perforated appendicitis 17.9 +/- 2.1 x 109/L. This reflected apersistently higher WBC count inthe complicated (gangrenous, perforated) appendicitis compared with acuteappendicitis ($p < 0.05$).[21] The increase in leucocyte count was an early marker of appendiceal inflammation, whereas the CRP value increased markedly only after appendiceal perforation or abscess formation.[22] That why cut off value of total WBC count in our study was 14.5 x 109/L. Patient with more than 14.5 x 109/ L were excluded from this study.

Per operative features includes presence of collection in right iliac fossa, location of greater omentum, gross appearance of appendix macroscopically and occlusion of lumen of appendix. No collection was found in 86 (76.78%) patients and serous and purulent collection found in 15 (13.39%) and 11 (9.82%) cases respectively. Usually, purulent collection found in complicated appendicitis. Only 15 (13.39%) patients had greater omentum present around appendix, rest 97 (86.60%) patients don't have greater omentum around the appendix. We know greater omentum known as the abdominal policeman and presence of greater omentum near the appendix and fixed with appendix, mesoappendix indicates complicated appendicitis.[23] During operation 81 (72.32%) appendix found severely inflamed, 3 (2.67%) were gangrenous and 2 (1.78%) were perforated. Although 8 (6.77%) patients had macroscopically normal appendixappendix (7.5%), gangrenous appendix (3.5%) and appendicular lump (1.5%).[24] Obstruction of lumen of appendix seems to be responsible for complicated appendicitis. Per operatively, lumen of appendix found obstructed in 26 (23.21%) patients. Other 86 (76.78%) patients had patent appendiceal lumen. A study on importance of fecalith in aetiology of acute appendicitis showed, number of cases with fecalith was 261 (36,1%).[25] In case of uncomplicated appendicitis, presence of fecalith is less than complicated appendicitis. Appendicitis in pregnancy period is serious and usually present as a complicated appendicitis.. A study in Nepal showed, the most common per operative finding was acutely inflamed appendix (84%) followed by perforated.

A study related to appendicitis with pregnancy revealed, operation done within 24 hours of symptom onset in 19 of 54 (35%) instances of proven appendicitis. Perforation occurred in 23 of 54 patients (43%), all of whom had symptoms exceeding 24 hours ($p<0.0005$).

Five instances of perinatal death and one cases of extreme perinatal morbidity were associated with negative laparotomies.[26] That's why we excluded pregnant patient with appendicitis from this study. The APPAC trial is the largest multicenter, open-label, noninferiority RCT of antibiotic treatment for appendicitis conducted to date.[17] When the trial was designed, it was assumed that there would be sufficient benefits from avoiding surgery and that a 24% failure rate in the antibiotic group would be acceptable, which is nearly similar to our treatment failure rate 27.67%.Conservative treatment failed patients were treated by appendicectomy. Appendix of all 31 (100%) patients were severely inflamed and 25 (80.64%) patients lumen found obstructed with fecalith. Greater omentum found fixed with appendix in 26 (83.87%) patients and serous and purulent collection found in 20 (64.51%) and 11 (35.48%) patients respectively. Dozens of studies have shown that presence of an fecalith is associated with both an increased risk of antibiotic failure and recurrence,[27-29] which is consistent with this study.

A number of authors have recently proposed that acute appendicitis may be managed conservatively with antibiotics.[9,11,30,31] From this study, patient required less hospital stay in comparison to conservatively treated group. A majority of articles documented similar hospital stay with both treatment methods. Some, however, reported that the length of hospital stay in the conservative treatment group was longer than that of the surgery group,[32,33] which is consistent with our study. But surgical site infection found in 29 (25.89%) patients.A study showed, incidence of surgical site infection of 7.0 per 100 appendectomies (95% prediction interval: 1.0–17.6), varying from 0 to 37.4 per 100 appendectomies.[34] In general, the complications in the antimicrobial therapy group were lower than those in the surgical group.

Comparing treatment success between the conservative treatment and surgical groups, the complication-free cure rate is more objective. we found the primary treatment efficacy was 72.32% for conservative group initially, which is consistent with the previous study.[35,36] However, we found that after 6month follow-up of conservatively treated group, efficacy decreased to 64.28% mainly due to recurrences.On the otherhand, in surgical group 75% patient was discharged uneventfully and 25% patient developed surgical site infection (which was managed by only dressing) and other minor complicationsand none of them came to us with complain within 6 months of follow up time.In comparison with surgical, the cure rate of the conservative treatment group is significantly lower, suggesting that it may not be the optimum treatment for uncomplicated acute appendicitis only considering of recurrence.

Conclusions

Acute appendicitis is the most common cause of the acute abdomen in young adults, and whereas conservative management may have a role as a bridge to surgery, the mainstay of treatment is currently operative. Treating conservatively of uncomplicated appendicitis is still debatable because the risk of recurrence. Research poor country like us needs further big scale study on this topic with long term follow-up.

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Original Article

Evaluating the Burden of Autoimmune Thyroid Disorders: Findings from Tertiary Care Facilities of Bangladesh

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Abstract

Introduction: Autoimmune thyroid disorders (ATDs) like Graves' disease and Hashimoto's thyroiditis affect 2%-5% globally, yet localized data in Bangladesh are scarce. This study investigates genetic, environmental, and gender factors influencing ATD prevalence. Understanding these risks is crucial for effective management and public health strategies.

Methods: This observational cross-sectional study in two major Bangladesh healthcare facilities aimed to assess the burden of autoimmune thyroid disorders. With a sample size of 73 participants, strict inclusion criteria targeted individuals likely to have ATDs—18 and above, showing suspected thyroid disorder based on Thyroid-Stimulating Hormone (TSH) values or already on thyroid medication. The study gathered comprehensive clinical data through medical record reviews, focusing on prevalence, demographics, and the correlation between TSH levels and ATDs. This design offered a snapshot of ATD prevalence and management in these Bangladeshi healthcare settings.

Result: The study involved 73 participants, primarily aged between 31 and 50, with a female predominance (83.56%). The average age was 41.77 years. BMI ranged from 18.55 to 44.55, with 47.95% overweight and 27.40% at a healthy weight. The most prevalent thyroid conditions were subclinical hyperthyroidism (38.36%) and hyperthyroidism (35.62%), with an average TSH level of 12.25 micro IU/I. 30.14% tested positive for thyroid antibodies, indicative of autoimmune thyroid disorders, while 32.88% had diabetes, the most common comorbidity. Hypertension (21.92%) and dyslipidemia (9.59%) followed. Menstrual irregularities were reported by 26.03% of participants, with menopause in 28.77%. The study explored associations between thyroid status and comorbidities but found no statistically significant correlations for diabetes, hypertension, dyslipidemia, NAFLD, impaired glucose tolerance, or CKD across different thyroid statuses.

Conclusion: The study highlights the high prevalence of autoimmune thyroid disorders (ATDs) in Bangladesh, particularly subclinical hyperthyroidism and hyperthyroidism, with a significant female predominance. It emphasizes the need for increased awareness and targeted screening, especially in middle-aged individuals. The study also highlights the complex interplay between ATDs and comorbid conditions.

Keywords: Thyroid Disorders, Autoimmune, Grave's Disease, Hyperthyroidism, Hypothyroidism.

Introduction

Autoimmune thyroid disorders (ATDs), primarily Graves' disease and Hashimoto's thyroiditis, are significant contributors to global thyroid pathology, affecting 2%-5% of the global population.[1] These disorders, characterized by an aberrant immune response against thyroid antigens, lead to a spectrum of clinical manifestations ranging from hyperthyroidism in Graves' disease to the hypothyroidism commonly seen in Hashimoto's thyroiditis. The global burden of ATDs is substantial, with varying prevalence and incidence rates across different regions, reflecting a complex interplay of genetic, environmental, and possibly regional factors.[2,3] Graves' disease, the most common

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cause of thyrotoxicosis, accounts for 70-80% of hyperthyroidism cases.[4] It presents with symptoms like sweating, weight loss, and palpitations, often leading to significant morbidity. On the other hand, Hashimoto's thyroiditis, characterized by thyroid autoantibodies, manifests a spectrum ranging from euthyroidism to overt hypothyroidism. The prevalence of Hashimoto's thyroiditis in patients with thyroid disorders in a tertiary care setting was reported as high as 48.33%, indicating its significant clinical impact.[5] Understanding the risk factors for ATDs is crucial in comprehending their epidemiology and guiding preventive strategies. Several factors contribute to the development of ATDs, including genetic predisposition, environmental triggers, and lifestyle influences. Genetic factors play a pivotal role, with family history of thyroid disorders significantly increasing the risk.[6] Environmental factors, such as iodine intake, smoking, and exposure to certain chemicals, have been implicated in the pathogenesis of ATDs.[7] Additionally, gender is a notable risk factor, with women being more susceptible than men, likely due to hormonal influences.[8] Age also plays a role, with ATDs commonly presenting in mid-life, although they can occur at any age.[9] Furthermore, other autoimmune conditions, such as type 1 diabetes and celiac disease, are frequently associated with an increased risk of developing ATDs, suggesting a shared autoimmune pathway. These risk factors highlight the multifactorial nature of ATDs and underscore the importance of a comprehensive approach to their study and management. While global data on ATDs are extensive, specific insights from South Asia, particularly Bangladesh, are less prevalent. Studies in neighboring countries like India have shown a high prevalence of thyroid disorders, including ATDs, in tertiary care settings, suggesting a similar trend might be present in Bangladesh.[3,10] However, localized data from Bangladesh remain sparse. A study focusing on thyroid disorder prevalence during pregnancy in Bangladesh reported a significant burden, with a prevalence of 34.98%, highlighting the need for early detection and management.[11] This gap in localized data is a significant barrier to formulating effective health policies and patient management strategies in the region. The current study aims to bridge this gap by evaluating the burden of ATDs in a tertiary care facility in Bangladesh. Understanding the prevalence, clinical presentation, and management challenges of ATDs in this setting is crucial for developing targeted healthcare interventions. Moreover, this study's findings could inform broader public health strategies and healthcare system improvements in Bangladesh, particularly in the context of non-communicable diseases. The relevance of this study extends beyond local healthcare settings. ATDs have been linked to other systemic health issues, including an increased risk of Alzheimer's disease in older populations.[12] Additionally, the complexity of ATDs is highlighted in rare cases where patients exhibit transitions between Hashimoto's thyroiditis and Graves' disease, presenting unique diagnostic and therapeutic challenges.[13,14] These findings underscore the need for comprehensive understanding and management approaches for ATDs. In conclusion, this study aims to provide a detailed analysis of the burden of autoimmune thyroid disorders in a tertiary care setting in Bangladesh. By doing so, it seeks to contribute valuable insights to the existing body of knowledge on ATDs, particularly in a region where such data are limited. The findings are expected to aid in the development of more effective management strategies for ATDs, ultimately improving patient outcomes and informing public health policies in Bangladesh and similar settings.

Materials and Methods

This cross-sectional observational study was conducted to evaluate the burden of autoimmune thyroid disorders (ATDs) at two prominent healthcare facilities in Bangladesh: The Holy Family Red Crescent Medical College Medicine Outpatient Department (OPD) and BIRDEM General Hospital. Initially, the sample size was calculated to be 246 participants. However, due to time constraints, the study was conducted with a final sample size of 73 participants. Participants were included in the study based on the following criteria: (1) Patients aged 18 and above who attended the hospital during the study period; (2) Patients with suspected thyroid disorder based on Thyroid-Stimulating Hormone (TSH) values; and (3) Patients currently on thyroid medication. These criteria were chosen to ensure a focus on individuals who were most likely to present with ATDs, thereby enhancing the study's relevance to the target population. Data collection involved reviewing medical records for relevant clinical information, including TSH levels, patient demographics, and current thyroid medication. The study also included a review of patient histories to

identify any previous diagnosis of ATDs. This approach allowed for the collection of comprehensive data on the prevalence and characteristics of ATDs among the patients attending these healthcare facilities. The data analysis focused on the prevalence of ATDs, demographic distribution, and the correlation between TSH levels and the presence of ATDs. Statistical analyses were performed using appropriate software, with results presented in terms of frequencies, percentages, and other relevant statistical measures. The study's observational and cross-sectional nature provided a snapshot of the burden of ATDs in these healthcare settings, contributing valuable insights into the prevalence and management of these disorders in Bangladesh.

Results

Table-I:Baseline characteristics distribution of the participants (N=73)

Age Distribution	n	%
≤30	17	23.29%
31-40	19	26.03%
41-50	22	30.14%
51-60	10	13.70%
61-70	4	5.48%
71-80	0	0.00%
>80	1	1.37%
Mean ± SD age	41.77 ± 12.98	
Age range	21-82	
Gender		
Male	12	16.44%
Female	61	83.56%
BMI		
Healthy Weight	20	27.40%
Overweight	35	47.95%
Obese	16	21.92%
Morbidly Obese	2	2.74%
Mean ± SD BMI	27.74 ± 4.98	
BMI Range	18.55-44.55	

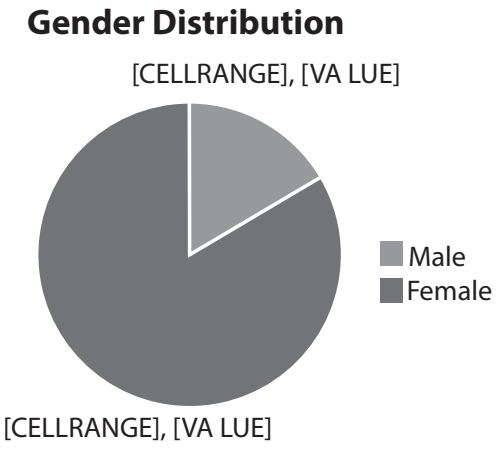

Figure-I:Gender Distribution of the participants

Gender distribution showed a significant female predominance in the study cohort. Out of the 73 participants, 61 were female (83.56%), while only 12 were male (16.44%). This gender disparity is consistent with the higher prevalence of thyroid disorders in females observed in other studies.

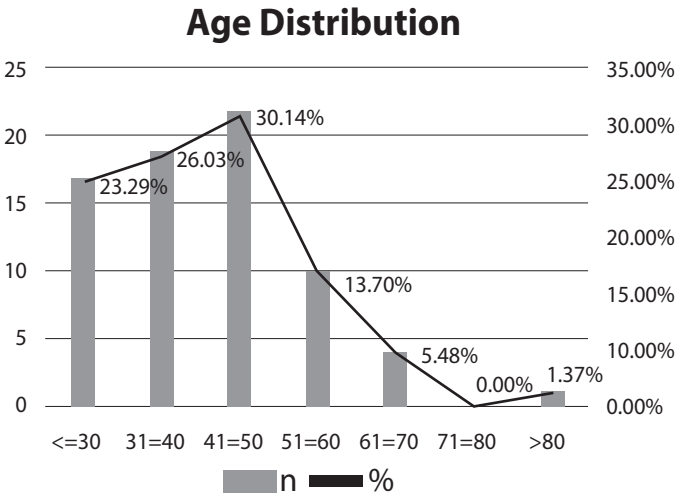

Figure-II: Age distribution of the participants (N=73)

The age distribution of the participants varied, with the majority falling within the 31-50 age range. Specifically, 17 participants (23.29%) were aged 30 years or below, 19 participants (26.03%) were between 31 and 40 years, and the largest age group was those between 41 and 50 years, comprising 22 participants (30.14%). The study included fewer participants in the older age groups, with 10 participants (13.70%) aged between 51 and 60 years, 4 participants (5.48%) between 61 and 70 years, and only 1 participant (1.37%) over the age of 80. The mean age of the participants was 41.77 years, with a standard deviation of 12.98 years, and the age range spanned from 21 to 82 years.

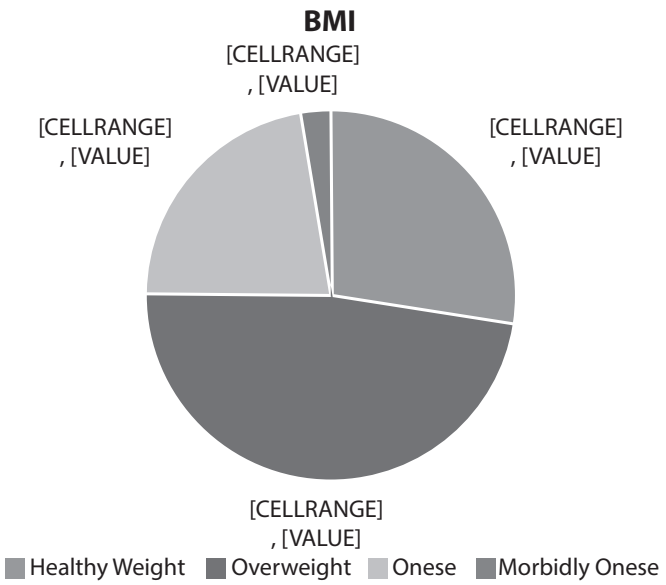

Figure-III: BMI Distribution of the participants (N=73)

Regarding Body Mass Index (BMI), the participants' BMI ranged from 18.55 to 44.55, with a mean BMI of 27.74 and a standard deviation of 4.98. The distribution of BMI categories indicated that the largest group was overweight, with 35 participants (47.95%), followed by 20 participants (27.40%) with a healthy weight. There were also 16 obese participants (21.92%) and 2 participants (2.74%) who were classified as morbidly obese.

Table-II: Distribution of TSH determined thyroid disorder among the participants (N=73)

Thyroid Type	n	%
Subclinical hypothyroidism (0.001 - 0.449)	8	10.96%
Normal (0.450 - 4.499)	11	15.07%
Subclinical hyperthyroidism (4.500 - 9.999)	28	38.36%
Hyperthyroidism (10.000 - 75.000)	26	35.62%
Mean ± SD TSH value	12.25±16.7	(micro IU/I)
Range	0.001-75.00	

The distribution of thyroid disorders varied, with a notable prevalence of subclinical hyperthyroidism and hyperthyroidism. Subclinical hypothyroidism, characterized by TSH levels ranging from 0.001 to 0.449 micro IU/I, was observed in 8 participants, accounting for 10.96% of the study population. Normal TSH levels, defined as 0.450 to 4.499 micro IU/I, were found in 11 participants, representing 15.07% of the cohort. The most prevalent condition was subclinical hyperthyroidism, with TSH levels between 4.500 and 9.999 micro IU/I, observed in 28 participants, constituting 38.36% of the study group. This was closely followed by hyperthyroidism, defined by TSH levels ranging from 10.000 to 75.000 micro IU/I, which was present in 26 participants, making up 35.62% of the participants. The mean TSH value across the study population was 12.25 micro IU/I, with a standard deviation of 16.7 micro IU/I. The range of TSH levels observed in the study was quite broad, extending from as low as 0.001 micro IU/I to as high as 75.00 micro IU/I.

Table-III:Distribution of participants by autoimmune test result (N=73)

Presence of Antibody	n	%
Positive Antibody	22	30.14%
Negative Antibody	6	8.22%
Not Done	44	60.27%
TSH-R + (Graves' Disease)	1	1.37%

A total of 22 participants, accounting for 30.14% of the study population, tested positive for thyroid antibodies, indicating the presence of autoimmune thyroid disorders. Conversely, only 6 participants, representing 8.22% of the cohort, tested negative for thyroid antibodies. A significant portion of the study, comprising 44 participants or 60.27% of the total, did not undergo antibody testing. The decision to not conduct antibody tests for these individuals was based on the absence of clinical features suggestive of autoimmune disease. This approach reflects a targeted testing strategy, prioritizing antibody testing for patients with clinical indications of autoimmune thyroid disorders. Additionally, one participant, accounting for 1.37% of the study group, tested positive for Thyroid-Stimulating Hormone Receptor Antibodies (TSH-R), a marker indicative of Graves' Disease.

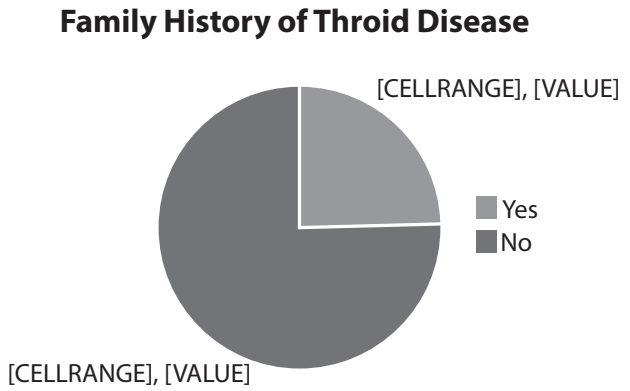

Figure-IV:Distribution of participants by family history of thyroid disorder (N=73)

Table-IV:Distribution of participants by presence of comorbidities among participants (N=73)

Comorbidities	n	%
Diabetes	24	32.88%
Hypertension	16	21.92%
Dyslipidemia	7	9.59%
Non-alcoholic Fatty Liver Disease	1	1.37%
Impaired Glucose Tolerance	3	4.11%
Chronic Kidney Disease	1	1.37%

Diabetes emerged as the most common comorbidity, present in 24 participants, which constitutes 32.88% of the study population. This high prevalence highlights the potential interplay between thyroid function and glucose metabolism, a connection that has been noted in previous research. Hypertension was the second most prevalent comorbidity, observed in 16 participants, accounting for 21.92% of the cohort. This finding aligns with existing literature that suggests a correlation between thyroid dysfunction and blood pressure regulation. Dyslipidemia was identified in 7 participants, making up 9.59% of the study group. This condition, characterized by abnormal lipid levels, is often associated with thyroid disorders, particularly hypothyroidism, which can alter lipid metabolism. Other comorbidities were less prevalent but still noteworthy. Non-alcoholic Fatty Liver Disease (NAFLD) and Chronic Kidney Disease (CKD) were each found in 1 participant, representing 1.37% of the participants. Additionally, Impaired Glucose Tolerance was observed in 3 participants, accounting for 4.11% of the study population.

Table-V:Distribution of menstrual records among the participants (N=73)

Menstrual Records	n	%
Regular	25	34.25%
Irregular	19	26.03%
Menopause	21	28.77%
Menorrhea	2	2.74%
Polymenorrhea	1	1.37%
Post-menopause	1	1.37%
Dysmenorrhea	1	1.37%
Pregnant	2	2.74%

Of the participants, 25 (34.25%) reported having regular menstrual cycles, indicating a normal menstrual pattern despite the presence of thyroid disorders. Irregular menstrual cycles were reported by 19 participants, accounting for 26.03% of the study population. This finding is significant as it highlights the impact of thyroid dysfunction on menstrual regularity, a correlation well-documented in medical literature. Menopause was reported by 21 participants, representing 28.77% of the cohort. This demographic is noteworthy as menopause itself can influence thyroid function, and vice versa, thyroid disorders can affect the onset and symptoms of menopause. Other menstrual conditions were less common but provided insight into the diverse effects of thyroid disorders on menstrual health. Menorrhea and polymenorrhea were reported by 2 (2.74%) and 1 (1.37%) participants, respectively. Post-menopause and dysmenorrhea were each reported by 1 participant (1.37%). Additionally, 2 participants (2.74%) were pregnant at the time of the study.

Table-VI:Association between comorbidities and thyroid status (N=73)

Variables	Subclinical hypothyroidism (n=8)		Normal (n=11)		Subclinical hyperthyroidism (n=28)		Hyperthyroidism (n=26)		p-value
	n	%	n	%	n	%	n	%	
Diabetes	3	37.50%	5	45.45%	12	42.86%	4	15.38%	0.125
Hypertension	1	12.50%	4	36.36%	8	28.57%	3	11.54%	0.249
Dyslipidemia	2	25.00%	0	0.00%	1	3.57%	4	15.38%	0.137
Nonalcoholic fatty liver disease	0	0.00%	0	0.00%	1	3.57%	0	0.00%	0.653
Impaired Glucose Tolerant	0	0.00%	0	0.00%	2	7.14%	1	3.85%	0.689
Chronic Kidney Disease	0	0.00%	1	9.09%	0	0.00%	0	0.00%	0.126

The study investigated the relationship between various comorbidities and different thyroid statuses in a cohort of 73 participants. The thyroid statuses were categorized as subclinical hypothyroidism (n=8), normal thyroid function (n=11), subclinical hyperthyroidism (n=28), and hyperthyroidism (n=26). In the context of diabetes, its prevalence among participants with subclinical hypothyroidism was 37.50%, while it was slightly higher in those with normal thyroid function at 45.45%. The prevalence of diabetes in participants with subclinical hyperthyroidism was 42.86%, and it was notably lower in those with hyperthyroidism at 15.38%. However, the p-value of 0.125 suggests that this association was not statistically significant. Hypertension showed a varied distribution across thyroid statuses. It was present in 12.50% of participants with subclinical hypothyroidism, 36.36% with normal thyroid function, 28.57% with subclinical hyperthyroidism, and 11.54% with hyperthyroidism. The p-value of 0.249 indicates no significant statistical association between hypertension and thyroid status. Dyslipidemia was observed in 25.00% of participants with subclinical hypothyroidism, none with normal thyroid function, 3.57% with subclinical hyperthyroidism, and 15.38% with hyperthyroidism. The p-value of 0.137 suggests no significant correlation between dyslipidemia and thyroid status. Nonalcoholic fatty liver disease, impaired glucose tolerance, and chronic kidney disease showed low prevalence across all thyroid statuses, with no significant associations observed (p-values of 0.653, 0.689, and 0.126, respectively).

Discussion

The findings of this study on the prevalence and characteristics of thyroid disorders in a Bangladesh tertiary care setting provide valuable insights into the epidemiology of these conditions. The most notable finding is the high prevalence of subclinical hyperthyroidism (38.36%) and hyperthyroidism (35.62%), which is consistent with global trends indicating an increasing prevalence of thyroid disorders.[15] The predominance of these conditions in the study population underscores the need for heightened awareness and screening for thyroid dysfunctions. Gender distribution showed a significant female predominance (83.56%), aligning with the well-established understanding that thyroid disorders are more common in females.[9] This gender disparity may be attributed to hormonal, genetic, and immunological factors that predispose women to thyroid abnormalities. The age distribution, with most participants in the 31-50 age range, suggests that middle-aged individuals are at a higher risk, necessitating targeted screening and intervention strategies in this demographic. The BMI distribution revealed that the largest group of participants was overweight (47.95%), followed by those with a healthy weight (27.40%). This finding is particularly relevant given the complex relationship between thyroid function and body weight. While obesity can influence thyroid hormone levels, thyroid dysfunction can also lead to weight changes.[16] The high prevalence of overweight participants in this study highlights the bidirectional relationship between BMI and thyroid function. Menstrual health was notably affected, with only 34.25% of participants reporting regular menstrual cycles. The impact of thyroid disorders on menstrual health is well-documented, with thyroid hormones interacting with reproductive hormones and influencing menstrual regularity.[17] The proportion of participants in menopause (28.77%) further emphasizes the need to consider thyroid function in the management of menopausal symptoms. A family history of thyroid disorders was reported by 24.66% of participants, indicating the significant role of geneticfactors in the development of these conditions.[18] This finding suggests that family history should be a key consideration in the assessment and management of thyroid disorders. Regarding comorbidities, diabetes was the most common, present in 32.88% of participants, followed by hypertension (21.92%) and dyslipidemia (9.59%). The coexistence of these conditions with thyroid disorders is well-established, with thyroid dysfunction exacerbating metabolic and cardiovascular conditions.[19] The lack of statistically significant associations between thyroid status and comorbidities in this study, however, suggests that the relationship may be influenced by other factors, including lifestyle and genetic predisposition. The autoimmune test results showed that 30.14% of participants tested positive for thyroid antibodies, while a significant portion (60.27%) did not undergo testing due to the absence of clinical features suggestive of autoimmune disease. This approach reflects a targeted testing strategy, which is crucial in resource-limited settings. Finally, the mean TSH value of

12.25 micro IU/l and the broad range of TSH levels (0.001 to 75.00 micro IU/l) observed in this study highlight the diverse thyroid function status among the participants. This variability underscores the complexity of thyroid disorders and the need for individualized diagnostic and therapeutic approaches. In conclusion, this study provides important insights into the prevalence and characteristics of thyroid disorders in a Bangladesh tertiary care setting. The findings emphasize the need for increased awareness, targeted screening, and a comprehensive approach to managing thyroid disorders, considering their impact on overall health and comorbid conditions.

Limitations

The study was conducted with a small sample size. So, the results may not represent the whole community.

Conclusion

This study highlights the significant prevalence of autoimmune thyroid disorders (ATDs), notably subclinical hyperthyroidism and hyperthyroidism, in a tertiary care setting in Bangladesh. The findings demonstrate a pronounced female predominance, which aligns with global trends. These results underscore the necessity for increased awareness and targeted screening, especially in middle-aged individuals. The study also emphasizes the complex interplay between ATDs and comorbid conditions like diabetes, hypertension, and dyslipidemia, although no significant statistical associations were found. The high prevalence of ATDs in this setting necessitates a comprehensive approach to their management, considering the individualized nature of thyroid disorders and their impact on overall health. This research contributes valuable insights into the epidemiology of ATDs in Bangladesh, informing public health strategies and healthcare system improvements in managing non-communicable diseases.

Recommandation

Considering the observed high prevalence and demographic patterns of autoimmune thyroid disorders (ATDs) in Bangladesh, we recommend enhanced public health initiatives for early detection and education. Targeted screening programs, particularly for middle-aged women, should be prioritized. Furthermore, healthcare providers should receive updated training on the management of ATDs, emphasizing the integration of care for comorbid conditions such as diabetes and hypertension. Research efforts should focus on understanding the etiological factors contributing to ATDs in the Bangladeshi population to inform tailored treatment and prevention strategies.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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Original Article

Colposcopic examination of VIA positive cases for evaluation of unhealthy cervix and their histopathological correlation

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Abstract

Background: Unhealthy cervix can be presented with diverse pathologies like infective, inflammatory, reactive and neoplastic etc. Cervical cancer, having a multifactorial causation, is the second most common cancer in female population.

Objective: Tocolposcopic evaluation of VIA-positive cases and detection of precancerous lesion of cervix for early management.

Methods: This prospective, observational study was conducted from October 2021 to March 2023 on 69 women attending at the "Colposcopy Clinic" of Obstetrics and Gynaecology, Department of Dhaka National Medical College, Dhaka. Only VIA positive cases were taken into consideration. It involved history taking, examination of cervix after acetic acid application (VIA), colposcopic assessment and biopsy for histopathological evaluation.

Results: Most of the patients (49.28%) were in the age group of 30-39 years. Among all the subjects, the majority (86.96%) was housewives. Colposcopy evaluated 43 cases as CIN (CIN I -33.33 %, CIN II- 15.94%, CIN-III 13.04%) and 2.90% as invasive lesions. Biopsy evaluated 33 cases as CIN (CIN I-18.84% CIN II-17.39%, CIN III- 14.49%) and 1.44% as invasive lesions. The sensitivity and specificity of colposcopy were 87.87 % and 55.55% respectively. This suggests the role of colposcopy in the evaluation of CIN and cervical cancer.

Conclusion: Cervical cancer presents as a major cause of morbidity and mortality, especially in developing countries like Bangladesh. In developing countries, the various screening programs are being implemented for its early detection and treatment. It is evident that colposcopy plays a very important role in early diagnosis and treatment of preinvasive and early invasive carcinoma of cervix. So wide use of colposcopy in screening program of Bangladesh can reduce many young women's morbidity and mortality.

Keywords: Unhealthy cervix, Colposcopy, Histopathology, Pap smear.

Introduction

Cervical cancer is the fourth most common cancer in the women worldwide and is entirely attributable to infection with the Human Papilloma virus (HPV).[1] Cervix is the most common cause of malignancy-related deaths among women in developing countries.[2] Mortality due to cervical cancer is also an indicator of health inequalities, as 86% of all deaths due to cervical cancer are in developing, low- and middle-income countries.[3] There are estimated 450,000 new cases worldwide with about 300,000 deaths each year.[4] Of the new cases detected 86% occur in developing countries and 14% in developed countries.[5] Every year, 17686 women in Bangladesh are diagnosed with cervical cancer and 10,364 women die from the disease.[6]

A colposcope is a low-power, stereoscopic, binocular

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field microscope with a powerful light source used for magnified visual examination of the uterine cervix to help in the diagnosis of preinvasive and early invasive carcinoma of cervix. Modern colposcope usually permits adjustable magnification commonly 6x to 40X4.Unhealthy cervix may result from various causative factors. Cervix is constantly exposed to physiological changes, cellular organization with age, infective etiologies along with exposure to environmental factors. All these make cervical tissue prone to infection, inflammation and neoplastic changes.

Cervical cancer may present as unhealthy cervix at an early stage. With improvement in awareness, screening programs and preventive measures, incidence of cervical cancer continues to decrease in both developed and developing countries. However, in developing nations like Bangladesh, it continues to be diagnosed at more advanced stages.

Materials and Methods

This was a prospective observational study. Among married women who had clinically unhealthy-looking cervix attending the VIA and colposcopy clinic of the Department of Obstetrics and Gynecology of Dhaka National Medical College Hospital from October 2021 to March 2023 were included in this study. A total number of 245 women were included in this study having age range between 20-69 years. All women were counseled. Then informed written consent were taken for VIA, Colposcopy and colposcopy directed biopsy. Among them 69 women had positive VIA test. Colposcopy and Colposcopy directed punch biopsy were taken from the abnormal colposcopic appearance of the VIA positive cases and specimen sent for histopathological examination. Colposcopy was performed in the dorsal lithotomy position with a drape covering the patient's legs. The cervix was visualized using a Cusco`s speculum. The colposcopic examination involves the application of three standard solutions to the cervix: Normal saline, 3-5% acetic acid solution and lugol`s iodine. Normal saline applied to remove obscuring mucus and debris, to moisture the cervix. Green filter examination of the cervix enhances the angioarchitecture. Acetic acid applies to cervix using soaked swabs.The abnormal colposcopic findings are acetowhite epithelium, abnormal vascular patterns and negative lugol's iodine test.

Results

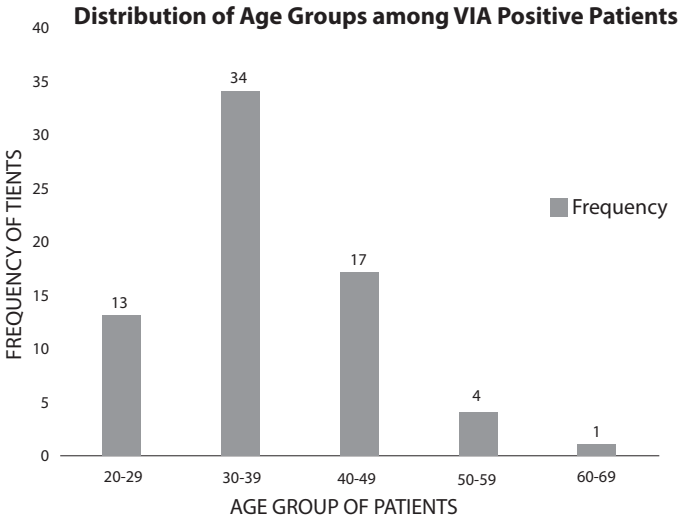

Figure-I: Bar diagram showing distribution of age groups among via positive patients

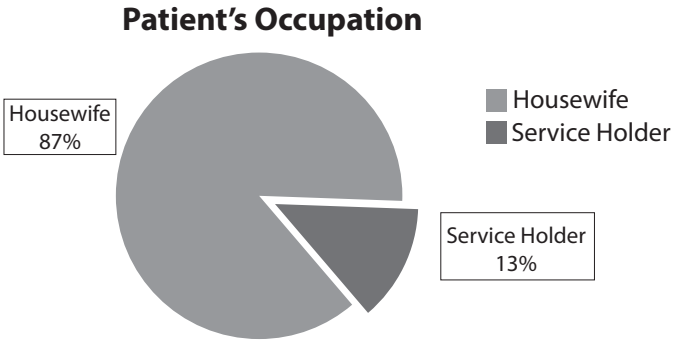

Figure-II: Pie chart showing frequency of patient's occupation

Table-I: Distribution of Husband`s occupation of the patients of unhealthy cervix

Husband`s occupation		
Businessman	27	39.13
Service Holder	13	18.84
Driver	5	7.24
Unemployed	3	4.34
Day laborer	7	10.14
Agriculture	3	4.34
Abroad	7	10.14
Carpenter	4	5.79

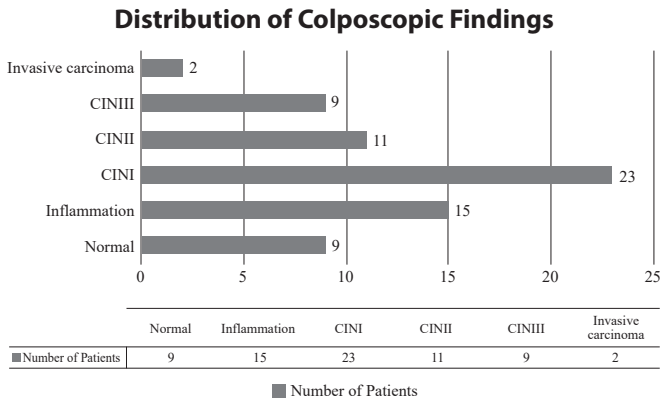

Figure-III: Bar diagram showing distribution of Colposcopic findings.

Table-II: Colposcopy findings and their Colposcopy directed biopsy (CDB) findings

Colposcopy findings of all VIA positive cases		Colposcopy directed biopsy (CDB) findings					
		Normal	Inflammation	CIN 1	CIN II	CIN III	Invasive carcinoma
colposcopi negative (24)	Normal (9)	8	1	-	-	-	-
	Inflammation(15)	2	9	2	1	1	-
colposcopic positive (45)	CIN 1 (23)	2	10	9	1	1	-
	CIN II (11)	-	2	1	7	1	-
	CIN III(9)	-	2	1	3	3	-
	Invasive carcinoma(2)	-	-	-	-	1	1
	Total	12	24	13	12	7	1
				Total Biopsy positive= 33			

Table-III: Sensitivity and specificity of colposcopy in detecting CIN (N=69)

Colposcopic findings	Disease positive	Disease negative	Total
Positive	29	16	45
Negative	4	20	24
Total	33	36	69

Table-III shows 24 colposcopy negative cases 4 patients were found to have CIN or cervical biopsy (false negative) and rest of them i.e.20 cases had no evidence of CIN or malignancy (true negative). In this study sensitivity and specificity of colposcopic examination was found 87.87% and 55.55% respectively

Discussion

Invasive cervical cancers are usually preceded by a long phase of pre- invasive disease characterized microscopically as a spectrum of events progressing from cellular atypia to various grades of dysplasia or cervical intraepithelial neoplasia (CIN) before progression to invasive carcinoma, The purpose of this study is to determine the role of colposcopy in VIA positive cases for the diagnosis of cervical intraepithelial neoplasia, so that those screening tools can be used effectively in the diagnosis of CIN and thereby can prevent the disease progress to invasive carcinoma. Colposcopy is a clinical method of evaluating unhealthy cervix.[6] In this study, the peak age group was 30-39 years (49.28%) with a mean age of 34 years. Almost half of the cases were within 30 to 49 years. As the age advanced, the percent of age group reduced according to this study. It is similar with the findings of other study.[7] Ramesh revealed increased incidence was 30 to 34 years age groups.[8] it is indicative that CIN is more prone to occur in sexually active women. World Health Organization also suggested the priority age group as 35 to 45 years for the screening of CIN.[9] The occupational status expressed that housewives (87%) were mostly suffered. Their husband's occupation was predominantly business, service, driver, and day laborer. Socioeconomic status had always been playing an epidemiological role in genesis of dysplasia.[10] In this study, 77.32% of the respondent's yearly family income was 10,000 to 20,000. Regarding the age of marriage, 74.23% got married at 15 to 20 years of age, which corresponds with the study of Rotkin ID11; 69.07% of the women had their first child at 15 to 20 years; 42.27% of the women had 3 to 4 children, indicating multiparity as a related risk for CIN of the cervix. This observation correlates with the study of Schiffman et al and Rotkin ID.[11,12] Smith believes that poor obstetrical and postpartum care and neglect of the symptoms of a lacerated and ulcerated cervix accounts for the greater frequency of cervical cancer among the poorer classes.[13,14] In this study, out of 69 cases, all had VIA-positive acetowhite areas. But colposcopy revealed that 65.21% had CIN and invasive lesions, while 34.78% had either normal or inflammatory lesions. Colposcopy-directed punch biopsy revealed that 33 (47.82%)cases had positive lesions like CIN or invasive carcinoma and 52.17% had neither CIN nor invasive lesions. Evidence of CIN and invasive lesions in colposcopy-directed cervical biopsy among the VIA-positive patients strongly suggested the need of VIA as an essential screening test. A high number of cases on histopathological examination were those of infection and among them majority had chronic cervicitis (35.05%). Within 69 VIA-positive cases, 55 cases (79.71%) had positive findings by colposcopy and 33 cases (47.82%) had positive findings by biopsy.

True positive cases were 32 and true negative cases were 20. False positives were 23 and false negatives were 4. In this study, sensitivity and specificity of colposcopy examination were found to be 88.88% and 46.51% respectively. Many studies have reported sensitivity of colposcopy as 87 to 99, 96, and 94.4%, which is comparable to this study.[15-17] Specificity of colposcopy in this study was consistent with many studies, which reported specificities of 26 to 87, 57, 50, and 46.42%.[15,17-19] High sensitivity but low specificity of colposcopy may be due to high incidence of unsuspected acetowhite epithelium, which might be due to inflammation, immature metaplasia, and latent HPV infection.[20] In this study, positive predictive value is 58.18% and negative predictive value is 83.33%. The limitation of colposcopy is its dependence on observer variability and relatively weaker performance in differentiating normal cervix from low-grade lesions.[20] Thecolposcopic diagnosis of CIN requires an understanding and recognition of four main features: Color tone, intensity of acetowhitening, margins and surface contour of acetowhite area, vascular pattern, and iodine staining. Variations in quality and quantity of these atypical appearances help in differentiating CIN from other lesions and between grades of CIN.[21,22]

Conclusion

This study concludes VIA and colposcopy as diagnostic tools for the diagnosis of cervical pre-malignancy. VIA is an important method in low resource settings and it is simple and easy to perform. VIA may be used as a tool for screening in underdeveloped countries and may be associated with a referral procedure for further methods like colposcopy and biopsy. Colposcopy is an indispensable procedure in the evaluation of unhealthy cervix, it requires considerable training and experience. In Bangladesh, routine use of VIA and colposcopy in all clinically suspicious cases will play significant role in the detection of early cervical cancer and can prevent their progression to invasive carcinoma.

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Original Article

Study of Biochemical and Radiological Findings among COVID-19 Patients in a Tertiary Care Hospital

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Abstract

Background: The COVID-19 pandemic has resulted in severe illness for many patients globally.Leveraging biochemical and radiological data, the research seeks to optimize patient management, ultimately leading to fewer deaths and disease-related complications.

Methods: This observational study has been carried out among 50 patients suffering either from COVID-19 aged between 16-90 years.The place of study was East west Medical College and Hospital, Uttara, Dhaka. The duration of this study was 6 months and was conducted from July 01, 2020 to December 31, 2020. The data are collected from biochemical and radiological investigations with the help of medical equipment for obtaining blood samples and CT scan. Quality of data is strictly maintained and ethical issues are properly maintained in all the steps of this study.The data was then analyzed by SPSS software (version 26.0) and then presented in tables and charts.

Results: The cohort included 29 (58.0%) men and 21 (42.0%) women, and the mean age was 56.9 years (SD ±7.3). The biochemical profile revealed that 39 (78.0%) patients had lymphocytosis and 44 (88.0%) had increased D-Dimer levels. In the CT chest findings, 35 (70.0%) had ground-glass opacity and 32 (64.0%) were present with consolidation.

Conclusion: The study provides information by examining biomarkers and chest CT scans aiding in thedisease diagnosis, severity assessment, and outcome prediction.

Key words: COVID-19, Coronavirus, Pandemic, CRP, D-Dimer, CT scan.

Introduction

In late 2019, a novel coronavirus emerged in Wuhan, China, and rapidly spread across the globe,causing symptoms that included fever, difficulty in breathing, cough, and invasive lesions on both lungs of the patients, sparking the COVID-19 pandemic.[1] The culprit behind this respiratory illness is SARS-CoV-2, a virus that infiltrates human respiratory cells. This ability is facilitated by the interaction between the viral S protein and a human cell receptor.[2]

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The World Health Organization (WHO) recognized the severity of the outbreak, declaring it a Public Health Emergency of International Concern (PHEIC) in January 2020. Shortly after, in February, the disease was officially named Coronavirus Disease 2019 (COVID-19).[3,4] Bangladesh confirmed its first case in March 2020, experiencing a rapid initial rise in infections before a gradual slowdown.[5]

Diagnosing COVID-19 presents a challenge due to the diverse clinical picture. The disease can range from asymptomatic infection to severe pneumonia. RT-PCR, the current mainstay diagnostic test, offers high specificity but suffers from lower sensitivity, leading to potential false negatives. Additionally, the test results can take 24-72 hours.[6]

To address these limitations, healthcare professionals often utilize a multifaceted approach that incorporates biochemical investigations. These investigations analyze the blood and other bodily fluids to assess various parameters. The specific findings can vary depending on the severity of the illness, aiding in diagnosis, determining disease severity, and predicting potential outcomes.[7]

SARS-CoV-2 can infect various tissues, including the lining of blood vessels (endothelium), liver, and kidneys, potentially leading to multi-organ involvement. Biochemical markers that reflect damage to these organs become crucial diagnostic tools.[8]

Imaging techniques like chest CT scans also play a vital role in diagnosing and managing lung diseases. In the context of COVID-19, CT scans are particularly valuable. They can help assess disease severity, differentiate between COVID-19 and other illnesses, especially when PCR tests are inconclusive, and identify early signs of lung infection.[9]

Rapid diagnosis is essential in COVID-19 pneumonia patients, especially considering the potential for rapid progression to acute respiratory distress syndrome (ARDS). Early detection allows for timely intervention and improved patient outcomes.[6]

By combining biochemical investigations with chest CT scans, healthcare professionals gain a more comprehensive understanding of the disease in each patient. This multifaceted approach allows for better diagnosis, assessment of severity, and ultimately, improved patient management with the goal of reducing mortality.

Materials and Methods

This research explored the characteristics of patients admitted in the Covid Unit of East West Medical College&Hospital in Dhaka, Bangladesh. The study was an observational study which examined data from 50COVID patients between July 2020 and December 2020. The researchers analyzed the existing patient recordsdiligently during the study period.

Each patient was diagnosedbeforehand by a registered specialist physician. This involved a detailed medical history, including past illnesses, treatments, and potential risk factors.Patient autonomy and understanding was ensured and consent was obtainedin a written form.

The study meticulously collected and documented patients' sociodemographic characteristics, encompassing age, sex, occupation, as well as their investigation reports andmanagement plan. This comprehensive data was recorded in the department'smedical registry, forming the foundation for subsequent analysis.To ensure transparency and replicability, only patients with complete data entries were included in the final analysis.

The detailed compiled data in the registry was thoroughly analyzed using Microsoft Excel. This user-friendly software facilitated the exploration of trends and patterns by presenting the information in comprehensive tables and insightful charts.

Maintaining rigorous quality standards was paramount throughout the research process. Data collection, processing, entry, and analysis all adhered to conscientious protocols to ensure the veracity and reliability of the findings. Additionally, the researchers prioritized ethical considerations at every stage. This included obtaining informed consent, maintaining patient confidentiality, and adhering to established research guidelines.

Results

The 50 patients admitted in the hospital who were confirmed positive of having COVID-19 were included in this study. In this study, 29(58.0%) were males and 21 (42.0%) were females. (Figure -I).

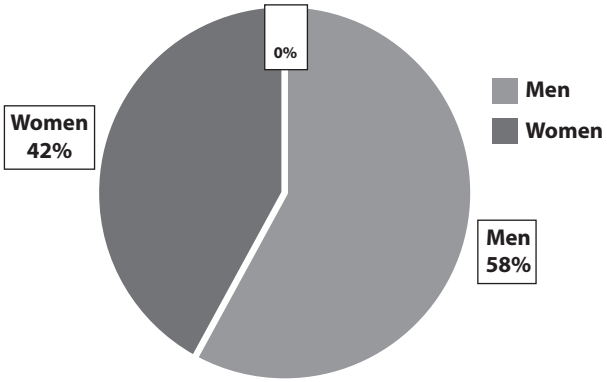

Figure I: Distribution of gender in COVID-19 patients

Among the patients, 8 (16.0%) were healthcare professionals mostly doctors who were in contact with patients having COVID-19. The mean age was 56.9 years (SD ±7.3; range 16–90 years) where the majority of the patients i.e. 23 (46.0%) belonged to the 51-70 years age group. 16 (32.0%) patients reported of having a BMI ≥ 25kg/m2. (Table -I).

Table-I: Medical record related characteristics of the patients

Attributes		Frequency (%) (n = 50)
Age	18-30	5 (10.0)
	31-50	12 (24.0)
	51-70	23 (46.0)
	>70	10 (20.0)
BMI	Underweight	6 (12.0)
	Normal	28 (56.0)
	Overweight	14 (28.0)
	Obese	2 (4.0)
Occupation	Health care professionals	8 (16.0)
	Service holder	29 (58.0)
	Homemaker	9 (18.0)
	Others	4 (8.0)

The laboratory investigations revealed that 39 (22.0%) patients had leukocytosis, 15 (30.0%) displayed decreased level of hemoglobin, 46 (92.0%) had raised C-reactive protein (CRP) levelsand 44 (88.0%) had raised D-dimer levels (Table -II).

Table-II: Biochemical profile of the patients

Attributes		Frequency (%) (n = 50)
Lymphocyte count	4,000-11,000/ mm^3 of blood	11 (22.0)
	> 11,000/ mm3 of blood	39 (78.0)
	Mean ± S.D. = 13048 ± 4651 (mm^3 of blood)	
Hb%	Normal Hb level	35 (70.0)
	Decreased Hb level	15 (30.0)
	Mean ± S.D. = 14.9 ± 2.3 (mg/dl)	
C-reactive protein	<5 mg/ ml	4 (8.0)
	> 5mg/ ml	46 (92.0)
	Mean ± S.D. = 29.2 ± 12.7 (mg/ml)	
D-dimer	< 0.5 µg/ml	6 (12.0)
	> 0.5 µg/ml	44 (88.0)
	Mean ± S.D. = 1.17 ± 0.78 (µg/ml)	

CT imaging revealed that 47 (94.0%) had abnormal findings and the remaining 3 (6.0%) were normal. Among the abnormal CT findings, 34 (68.0%) had ground-glass opacity,32 (64.0%) had consolidation and 42 (84.0%) had bilateral lung involvement (Figure -II).

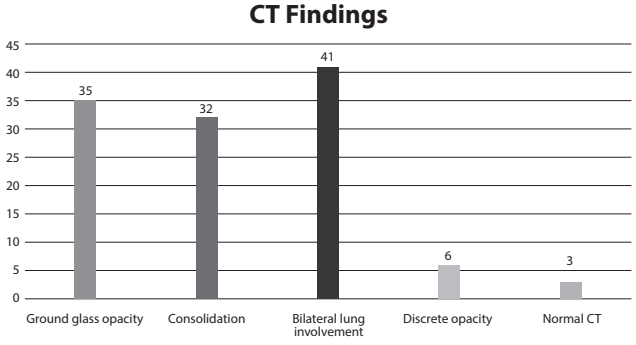

Figure-II: CT scan findings of chest in COVID-19 patients

Discussion

The culprit behind the COVID-19 pandemic is a novel coronavirus, SARS-CoV-2. This virus belongs to the Coronaviridae family, a group of RNA viruses known to infect humans. Notably, SARS-CoV-2 is the seventh member of this family identified to cause human illness.[10] While COVID-19 may have a lower mortality rate compared to its relatives, SARS and MERS, its rapid spread has made it a significant public health threat. By April 2nd, 2020, the number of confirmed cases worldwide had surpassed one million, affecting over 200 countries and territories.[11]

Males appear to be more susceptible to contracting the virus and experiencing severe illness compared to females. This aligns with findings from other respiratory illnesses, where men often exhibit worse outcomes.[12] Another trend identified is that the 51–70-year age group seems to be disproportionately affected compared to younger demographics. This may be due to the fact that this age group tends to have more underlying health conditions such as heart disease, diabetes, chronic lung disease, and high blood pressure.These conditions can worsen the severity of COVID-19 infection.[13]

Another factor influencing susceptibility and severity of COVID-19 is Body Mass Index (BMI). Individuals with a BMI exceeding 25, categorized as overweight or obese, appear to be at a higher risk for developing serious complications from COVID-19. This increased risk aligns with observations from other viral illnesses, where obesity is often linked to poorer outcomes. The reasons for this are complex but may involve chronic inflammation associated with obesity and potential alterations in immune function.[14]

Patients infected with COVID-19 often exhibit characteristic abnormalities in their blood work. The study found an elevated white blood cell count specifically of lymphocytes, which are essential for fighting infection in majority of the patients. However, in COVID-19, patients may present with a variety of abnormalities in their blood work. One finding is lymphocyte count dysregulation, which can manifest as either lymphopenia (low lymphocyte count) orlymphocytosis (elevated lymphocyte count).[15]

Additionally, C-reactive protein (CRP), a marker of inflammation, was found to be frequently elevated in COVID-19 patients, reflecting the body's response to the viral invasion. Similarly, D-dimer levels, a marker

for blood clotting, are also often raised in COVID-19 cases, potentially due to the virus's disruptive effect on the vascular system. These findings are supported by various studies. For example, a study conducted in Africa demonstrated that COVID-19 patients have significantly higher CRP levels compared to those without the infection.[16] Likewise, a review article established a correlation between elevated D-dimer levels and disease severity in COVID-19 patients.[17] These blood markers, while not specific to COVID-19, can serve as valuable clues for diagnosis, risk stratification, and guiding treatment decisions.

CT scan is one of the modern diagnostic tools which can play a major role both in diagnosis of patients with high suspicion of COVID-19 and in its management.[18] The most commonly observed opacification observed in patients with COVID-19 was ground glass opacification and consolidation. Consolidation was always accompanied by ground glass opacification. A Chinese study revealed a characteristic lung imaging pattern in COVID-19 patients. They found that more than three quarters of patients exhibited "pure ground glass opacity" in their lungs.[19] This opacity appeared predominantly in both lungs, affecting the back (posterior) and outer regions (peripheral) suggesting that that these ground glass opacities develop early in the course of the disease, primarily involving the lower portions (basal segments) of the lungs.

Although biochemical and radiological tests are essential for COVID-19 diagnosis and treatment, using data from just one center has drawbacks. These limitations include difficulty applying the findings to other populations, potential bias in patient selection, a restricted view of how the disease presents, and challenges with consistency across facilities. To address these issues and gain a more complete understanding of COVID-19's effects, multicenter studies with larger patient groups, standardized procedures, and consideration of other influencing factors are necessary.

Conclusion

The study has provided valuable insights into the biochemical and radiological profiles of COVID-19 patients. These investigations play a critical role in diagnosing the disease, assessing severity, and predicting potential outcomes. The findings on biochemical markers like CRP and D-dimer, alongside radiological features like ground-glass opacities on chest CT scans, contribute to a more comprehensive understanding of COVID-19's impact on the body.

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Original Article

Post-operative complications of ilizarov technique in tibial non-union- A prospective study

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Abstract

Background: Non-union of the tibia is a significant problem for patient and surgeon, and in many situations the patient has undergone more than one surgical procedure, and lost considerable time from his job and his life. Ilizarov technique is an effective method for treatment of tibial non-union. It has low rate of complication.

Objective: To assess the post-operative complications of Ilizarov technique in tibial non-union. Methodology: This prospective study was carried out at the Department of Orthopedic Surgery at Chittagong Medical College Hospital, Chittagong from June 25, 2018 to June 24, 2019. All the data were compiled and sorted properly and the quantitative data was analyzed statistically by using Statistical Package for Social Science.

Result: out of 12 cases, 8 (66.7%) were in <30 years age group. Mean (±SD) age was 27.58±5.62 years. Eleven cases (91.7%) in the study were male and only 1 case (8.3%) was female. Operation was performed in most of the cases (41.7%) in less than 2 hours and in 25% of them it was more than 3 hours. 91% had corticotomy during operation. No major neuro-vascular structures injury was observed during surgery. In majority of the cases (n=8) external fixator held for a time period of 7-8 months. In 2 cases fixator was held for 6 months and in other 2 cases it was held for 10 months. Most common complication was pin site infection observed in 66.7% patients followed by wire breakage (16.7%) and persistent infection (8.3%). 25% patients developed no complication.

Conclusion: Awareness of predictable complications is beneficial to prevent or early detection of the expected complication which can improve the risk-benefit balance.

Keywords: Post-operative complications, Ilizarov technique, Tibial non-union

Introduction

Tibial shaft fractures are common but unanticipated trauma in adults resulting in painful and prolonged recovery, often associated with complications. The U.S. National Center for Health Statistics reported annual incidence of 492,000 fractures of tibia, fibula, and ankle.[1] Tibia and fibula fractures annually result in 77,000 hospitalizations accounting for 569,000 hospital days and 825,000 physician office visits.[2] Tibia fractures are treated medically, and healthcare use depends on treatment options, which, in turn, vary by injury type and severity and the presence of complications.[3] Fracture nonunion (sometimes referred to as "delayed union") is a common complication of a tibia fracture; it indicates that fracture healing is not happening in a timely fashion.[4] Non-unions put additional burden on the patient because they prolong the disability and are associated with substantial pain.[5] There is no standard definition of nonunion, and some authors have defined tibia nonunion as a fracture that has not united without additional surgical or nonsurgical intervention within 6–9 months4, whereas others waited for six month to perform surgeries to correct non-unions.[6] Application

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of the techniques of Ilizarov provides ability to correct deformities, eliminate prolonged pre and postoperative intravenous antibiotic therapy, regenerate new bone tissue without the use of bone grafts, progressively lengthen the extremity, and allow weight bearing during the treatment period.[7] Ilizarov method addresses many problems simultaneously and offers a panacea for infected non-unions. The stability of the fixation and provision for bone transport allows bridging of bone defects, limb lengthening, early weight bearing ambulation and joint mobilization.[8]

Materials & Methods

This Prospective Interventional Study study was carried out among 12 patients attending at the Department of Orthopaedic Surgery at Chittagong Medical College Hospital, Chittagong for the treatment of tibial non-union within the defined period from June 25, 2018 to June 24, 2019. Ethical clearance was obtained from the Institutional Review Board (IRB) of CMCH. Purposive sampling was done according to availability of the patients. The collected data were entered into the computer and analyzed by using SPSS (version 20.1) to assess the Post-operative complications of ilizarov technique in tibial non-union.

Results

In the present study, out of 12 cases, 8 (66.7%) were in <30 years age group. Mean (±SD) age was 27.58±5.62 years. Eleven cases (91.7%) in the study were male and only 1 case (8.3%) was female (Table-I).

Table-I: Age and sex distribution of the respondents. (n=12)

Age (years)	Number	percentage
<30 years	08	66.7%
≥ 30 years	04	33.3%
Sex		
Male	11	91.7%
Female	01	8.3%

* Mean (±SD) age was 27.58±5.62 years. Age range was 18-38 years

Operation was performed in most of the cases (41.7%) in less than 2 hours and in 25% of them it was more than 3 hours. 91% had corticotomy during operation. No major neuro-vascular structures injury was observed during surgery (Table-II).

Table-II: Operative variables of the responding patients. (n=12)

Attributes	Number	percentage
Duration of operation		
< 2hours	05	41.7%
2-3 hours	04	33.3%
>3hours	03	25.0%
Injury to the major neuro-vascular structure	0	0%
Corticotomy	11	91.7%
Refashioning of fracture site	09	75.0%

Average duration of application of Ilizarov ring fixator in months was 7.67 (±1.30). In majority of the cases (n=8) external fixator held for a time period of 7-8 months. In 2 cases fixator was held for 6 months and in other 2 cases it was held for 10 months (Table-III).

Table-III: Duration of Ilizarov ring fixator application on responding patients (n=12)

Duration of Ilizarov ring fixator application	Number	percentage
6 month	02	16.66 %
7 month	04	33.337 %
8 month	04	33.33%
10 month	02	16.66%

Most common complication was pin site infection observed in 66.7% patients followed by wire breakage (16.7%) and persistent infection (8.3%). 25% patients developed no complication. (Table-IV).

Table-IV: Post-operative complication among the respondents (n=12)

Post operative complication	Number	percentage
No complication	03	25 %
Pin site infection	08	66.7 %
Wire breakage	02	16.7%
Persistant infection	01	8.3%

• One patient may develop two or three complications

Discussion

In the present study, mean (±SD) age of the 12 patients was 27.58±5.62 years with a range of 18-38 years. Average age of the patients in the study of Madhusudhan et al. (2008) was 37.2 years with a range of 20 to 52 years.[9] Out of 12 patients, 11 were male and 1 was female, may be due to more outdoor activities of the males and hence making them more prone to trauma.

This demographic characteristic were in agreement with Reddy et al. 2018; Sakale et al. 2018; Haque et al. 2013; Bansal et al. 2014 studies carried out in and around our Bangladesh.[10-12,8] Average duration of application of Ilizarov ring fixator in months was 7.67, whereas Bansal et al.[8] reported average of 5.51 months. In majority of the cases, external fixator held for a time period of 7-8 months which is comparable to Meleppuram et al. 2017; Sen et al. 2006 studies.[13, 14] The most common complication was pin-track infection, and the incidence was 66.7%. Other complications in the present study were wire breakage, wire, nut and bolt breakage and persistent infection. In the present study, during discharge from the hospital, patients and attendants were being advised about proper pin site care. Nevertheless, very few patients strictly adhered to the instructions. Out of 12 patients 8 patients develop pin site infection. In an earlier study the authors reported that, despite being advised about proper pin site care, all of the patients developed pin site infection.[9] From a prospective study of Bangladesh to assess the results of Ilizarov technique for nonunion of the tibia among 30 cases, author concluded that, this technique was the demanding treatment of infected non-union of tibia and nonunion of tibia with leg length discrepancy. Pin site infection and pain were the commonest complications in Haque et al. study.[12]

Conclusion

Ilizarov technique is an effective method for treatment of tibial non-union. Treatment time with Ilizarov is lengthy with a considerable risk of complications. Awareness of predictable complications is beneficial to prevent or early detection of the expected complication which can improve the risk-benefit balance.

Acknowledgement

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Conflict of Interest: None.

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Original Article

Open Tendo-Achilles injury: An Observational Study in a Tertiary Care Hospital

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Abstract

Background: The Achilles tendon is one of the most commonly ruptured tendons in the human body. Though closed Achilles tendon injury is common in developed countries as it occurs in sports injury, on the contrary, open Tendo-Achilles injury is the most common type of injury in developing countries like Bangladesh.

Objective: To assess the demographic and injury characteristics of Tendo-Achilles (TA) injury.

Methods: This Prospective observational study was carried out among 50 patients attending at the Department of Orthopaedics, Cumilla Medical College Hospital, Cumilla from January 2022 to December 2022. Ethical clearance was obtained from the Institutional Review Board (IRB) of Cumilla Medical College Hospital. Purposive sampling was done according to availability of the patients. Statistical analyses of the results were obtained by using window based computer software devised with Statistical Packages for Social Sciences (SPSS-20.1).

Results: The mean (±SD) age of the patients were 29.48±13.53 years. More than two-thirds of the patients 34(68.0%) were male, whereas 16 (32.0%) were female. In terms of comorbidity, DM was detected in 2 (4.0%), HTN in 2 (4.0%) and HTN+DM+COPD in 1 (2.0%). The Sharp edge of broken toilet pan was the most prevalent cause of injury 19(38.0%), followed by sharp cut 13(26.0%), tin sheet 10(20.0%), RTA 5(10.0%), digging hoe 2(4.0%), and machinery 1(2.0%). Almost two-thirds 32(64.0%) of patients had a cut level from calcaneal insertion of 3-4 cm, with 31 (62.0%) having involvement on the right side.

Conclusion: Tendo-Achilles injury in the Bangladesh most commonly occur in young male patients (20-39 years old), with participation in recreational sports being the most likely mechanism. Recognizing high-risk patients can help physicians counsel them and recommend strategies for injury prevention.

Keywords: Tendo-Achilles injury, Epidemiology

Introduction

Tendo Achilles is the thickest and strongest tendon of the body. It's named from Greek irresistible and invincible warrior Achilles. It's also known as a Tendocalcaneus.[1] The Achilles tendon is one of the most frequent ruptured tendons in the human body,[2] and it's the 3rd most frequent major tendon injury behind those of the rotator cuff and knee extensor mechanism.[3] Though it's largest and strongest tendon, it's prone to injuries of both athletes and non-athletes due to its superficial position in the body.[4,5] However closed Achilles tendon injury is most common in developed countries but in developing & least developed countries open Tendo Achilles tendon injury is most common. Injury to Achilles tendon may occurs due to sports injury, accidental cuts by sharp household tools, penetrating injury, road traffic accident, slipping of the foot in flat toilet pans.[6]

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Materials & Methods

This Prospective, observational Study study was carried out among 50 patients attending at the Department of Orthopaedics, Cumilla Medical College Hospital, Cumilla within the defined period from January 2022 to December 2022. Ethical clearance was obtained from the Institutional Review Board (IRB) of Cumilla Medical College Hospital. Purposive sampling was done according to availability of the patients. The collected data were entered into the computer and analyzed by using SPSS (version 20.1) to assess the demographic and injury characteristics of Tendo-Achilles (TA) injury.

Results

Table-I shows that majority of the (n=16, 32.0%) patients belonged to age group 21-30 years. The mean age was 29.48 with standard deviation of 13.53 years.

Table-I: Distribution of the study patients (n=50)

Age (years)	Number	percentage
≤20	13	26%
21-30	16	32%
31-40	10	20%
41-50	07	14%
>50	04	08%
Mean±SD	29.48±13.53	

Figure-I shows that more than two third (68.0%) patients were male and 16(32.0%) were female.

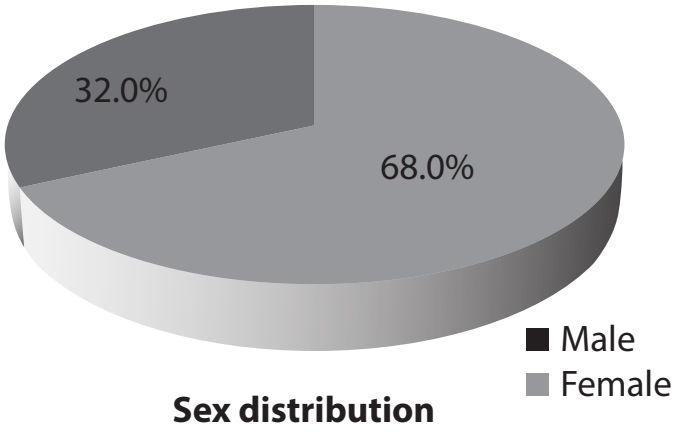

Figure-I: Distribution of the study patients by sex (n=50)

Figure-II shows that, regarding causes of injury, the sharp edge of a broken toilet pan was the most common cause of injury 19(38.0%) followed by sharp cuts 13(26.0%), tin sheets 10(20.0%), RTA 5(10.0%), digging hoes 2(4.0%) and machinery was 1(2.0%).

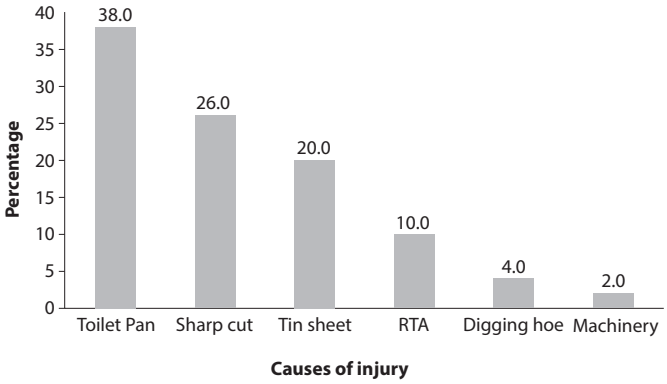

Figure-II: Distribution of the study patients by causes of injury (n=50)

Table-II shows that, almost two third (64.0%) patients had level of cut 3-4 cm from calcaneal insertion of Tendo-Achilles; the mean level of cut was 3.05 with standard deviation of 0.76 cm.

Table-II: Distribution of the study patients by level of cut (n=50)

Level of cut (cm)	Number	percentage
<3	16	32%
3-4	32	64%
>4	02	4%
Mean±SD		3.05±0.76

Table-III shows that, right side involvement was found in 31(62.0%) and left side was 19(38.0%).

Table-III: Distribution of the study patients by side of involvement (n=50)

Side of involvement	Number	percentage
Right side	31	62%
Left side	19	38%

Discussion

The majority of the (n=16, 32.0%) patients in this study were between the ages of 21 and 30. The mean age was 29.48 years, with a standard deviation of 13.53 years. The peak incidence of Achilles tendon ruptures occurs in the middle age group rather than in the older population. Ahmed et al.[7] reported the mean age was 30.02 years with a standard deviation of 7.71 years. In terms of gender, this study observed that about two-thirds (68%) of patients were male and one-third (32%) were female, which is consistent with other

studies that found a higher prevalence of tendo Achilles injuries in males. Rayhan et al.[8] observed that out of 30 patients, 25 were male and 05 were female. In our study, broken toilet pan was most common cause of injury 19(38.0%) followed by sharp cut 13(26.0%), tin sheet 10(20.0%), RTA 5(10.0%), digging hoe 2(4.0%) and machinery was 1(2.0%). Baindoor et al.[9] reported most common mode of injury was agricultural field injuries, followed by road traffic accidents. Awe et al.[10] reported the leading cause of the Achilles tendon injuries in the study is road traffic accidents especially motorcycle spoke injuries which accounted for 25(48.1%). In terms of the level of the cut, this study found that almost two-thirds (64%) of patients had a cut that was between 3-4 cm above the calcaneal insertion of Tendo Achilles, with a mean level of cut at 3.05 cm. Other studies have also reported similar findings regarding the level of the cut. Ahmed et al.[7] reported median level of cut was 3.0 cm where interquartile range was 2.5 to 3.5 cm. Rayhan et al.[8] series median level of cut was 2.8 cm where interquartile range was 2.42- 3.28 cm. Awe et al.[10] reported the injuries in the patients were located 3 -8 cm proximal to calcaneal attachment; this had also been documented in literature. This is the area that is more mobile and subcutaneous, so exposing it to injury or trauma. This has been reported in literature especially in open Achilles tendon lacerations following broken toilet lavatory in India and the Middle-East.[11,12] The current study found that injuries were more commonly seen on the right side (62%) compared to the left (38%). There was no bilateral involvement in any case. There were no partial tears in the series. Rayhan et al.[8] reported the right side was more affected by 60% than the left side by 40%. Awe et al.[10] reported the cases were unilateral; the injuries involved the right side in 32 (61.5%) patients and the left side in 20 (38.5%) patients. Baindoor et al.[9] reported that there were fourteen (60.8%) right feet and nine (39.2%) left feet affected.

Conclusion

Tendo-Achilles injury in the Bangladesh most commonly occur in young male patients (20-39 years old), with participation in recreational sports being the most likely mechanism. Recognizing high-risk patients can help physicians counsel them and recommend strategies for injury prevention.

Acknowledgements

The authors are grateful to the entire staff of Department of Orthopaedic Surgery at Cumilla Medical College Hospital, Cumilla during the study period.

Conflict of Interest

Authors declare no conflict of Interest.

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Original Article

The Epidemiology of Acute Low Back Pain Patients

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Abstract

Objective: To assess the epidemiology of acute low back pain patients in Dhaka.

Methodology: This observational study was carried out at the Department of Physical Medicine and Rehabilitation, Dhaka Medical College Hospital (DMCH), Dhaka from November 2021 - May 2022. A total of 90 patients of acute low back pain attending the Physical Medicine and Rehabilitation Department, Dhaka Medical college Hospital during study period were the study population. Purposive sampling was done according to availability of the patients. All the data were compiled and sorted properly and the quantitative data was analyzed statistically by using Statistical Package for Social Science.

Result: The mean (±SD) age of the patients was 33.72 ± 10.55 years. Out of total 90 patients, male was predominant than female, which was 57(63.3%) cases and 33(36.7%) cases respectively.

Maximum number of cases (n=17, 18.9%) were housewives followed by garment workers (n=15, 16.7%). Out of 90 patients, majority had shown that, prolonged sitting was the aggravating factor which was 42(46.7%) cases followed by prolonged standing, leaning forwards and prolonged walking which was 23(25.6%), 13(14.4%) and 12(13.3%) cases respectively. Among the total 90 patients, depression was found in 31(34.4%) cases and absent in 59(65.6%) cases.

Conclusion: Socio-demographic profile was characterized by male patients, as from the 16-45 years of life and housewives followed by garments workers. Early identification of patients at risk for developing persistent disabling pain may be helpful in order to reduce long-term problems.

Keywords: Epidemiology, Low back pain.

Introduction

Low back pain is defined as an uncomfortable sensation in the lumbar and buttock region originating from neurons near or around the spinal canal that are injured or irritated by one or more pathologic processes.[1] Low back pain is a symptom complex if persists for more than three months is called chronic low back pain[2] and affects the area between the lower rib cage and gluteal folds. Low back pain is the most common reason that patients' seek physical therapy.[3] It is estimated that 80%-90% of all people experiences at least one episode of back pain in their lifetime.[4] Additionally it causes work losses, which in recent years have increased more rapidly than any other common form of incapacity.[5] In United State approximately 90% of persons in the working population have back pain every year. In United Kingdom back pain is the second common cause of physical disability after cardiovascular disease.[6]

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Materials & Method

An observational study was conducted from November 2021 - May 2022 among 90 patients attending at Physical Medicine and Rehabilitation Outpatient Department of the Dhaka Medical College and Hospital after obtaining requisite consent from the patients. Data were collected through interviewing of the patients. The collected data were entered into the

computer and analyzed by using SPSS (version 20.1) to assess the profile of individuals with low back pain patients. The study was approved by the institutional ethical committee. The interviews were held directly in the corridor just outside the Outpatient Department.

Results

The age range of the patients in this study was 16-60 years. The mean (±SD) age of the

patients was 33.72 ± 10.55 years. Among the total number of 90 patients, 78(86.7%) cases

were of age group 16-45 years and 12(13.3%) cases were >45 years age group. Out of total 90 patients, male was predominant than female, which was 57(63.3%) cases and 33(36.7%) cases respectively. Among the total 90 patients, 29(32.2%) cases were illiterate, majority had completed the primary educational level which was 42(46.7%) cases followed by secondary, higher secondary and diploma level which were 9(10%), 7(7.8%) and 3(3.3%) cases respectively. Out of total 90 patients, maximum number of cases were housewives which is 17(18.9%) cases followed by 15(16.7%) cases were garment workers. (Table-I)

Table-I: Socio-demographic charateristics of the study subjects (n=90)

Parameter	Number	percentage
Age (years)		
16-45	78	86.7%
>45	12	13.3%
Sex		
Male	57	63.7%
Female	33	36.7%
Level of education		
llliterate	29	32.2%
Primary	42	46.7%
Secondary	09	10%
Higher Secondary	07	7.8%
Graduate and above	03	3.3%
Occupation		
Housewife	17	18.9%
Garments worker	15	16.7%
Service holder	08	8.9%
Driver	08	8.9%
Others	42	46.6%

Among the total 90 patients, previous episode of LBP was found in 46 (51.1%) cases and

44(48.9%) case had newer onset. The mean (±SD) duration was 6.89 ± 3.61 days. Out of 90 patients, duration was 4-12 days in majority 59(65.6%) cases followed by up to 3 days in 19 (21.1%) cases and 13-14 days in 12 (13.3%) cases. Among the total 90 patients, 67(74.4%) cases had sudden onset which is majority in number and 23(25.8%) cases had gradual onset.

Out of 90 patients, majority had shown that, prolonged sitting was the aggravating factor

which was 42(46.7%) cases followed by prolonged standing, leaning forwards and prolonged

walking which was 23(25.6%), 13(14.4%) and 12(13.3%) cases respectively. Among the total 90 patients, depression was found in 31(34.4%) cases and absent in 59(65.6%) cases. (Table-II)

Table-II: Baseline charateristics of the study subjects (n=90)

Parameter	Number	percentage
Previous episode		
Yes	46	51.1%
No	44	48.9%
Pain Duration (2-14days)		
Upto 3 days	19	21.1%
4-12 days	59	65.6%
13-14 days	12	13.3%
Mode of onset		
Sudden	67	74.4%
Gradual	23	25.6%
Aggravating factor		
Prolonged walking	12	13.3%
Leaning forward	13	14.4%
Prolonged standing	23	25.6%
Prolonged sitting	42	46.7%
Depression		
Present	31	34.4%
Absent	59	65.6%

Discussion

Most of the patients in this study were in middle age group. The sample population showed, the mean (± SD) age of the patients was 33.72 ± 10.55 years, which has more or less similarity with another study done in Bangladesh, where the mean (± SD) age of the patients

was 38.5 ± 9.01.7 Among the total 90 patients, 57 (63.3%) were male and 33 (36.7%) were female. Costeaet al.[8] studied 103 patents, among them 60% were male. In this study; 32.2% were illiterate; 46.7%, 10%, 7.8% and 3.3% had completed the primary, secondary, higher secondary and diploma respectively. So, most of the patients had low educational level. Dionne et al.[9] found that, a low level of education is associated with various diseases and conditions including musculoskeletal disorders and more specifically low back pain. In the occupations of the study patients, housewives (18.9%) were on the top of the list and then garment workers (16.7%). Ahmed B et al.[7] observed 17% housewives, 16% students, 35% service holders, 19% day labourer's, 9% businessman & 4% Driver's were affected. This study showed housewives were the highest number; probably the housewives in our country perform repetitive lifting and bending in furnishing their house-hold activities like washing, mopping floors, cooking and cutting vegetables in an uncomfortable squatting position. The present study showed mean (±SD) duration of current episode was 6.89 ± 3.61 days; 74.4% had sudden onset; aggravating factors were prolonged sitting (46.7%), then prolonged standing (25.6%), leaning forwards (14.4%) and prolonged walking (13.3%). M. Grotle et al.[10] found in a study, done in Norway, mean(±SD) duration of back pain episode was 8.1 ± 6.6 days, 63% participants had sudden onset and 62% had previous episode. Nicholas Henschkeet al.[11] found that 82.2% had sudden onset, 39.3% had previous episode. The present study more or less correlates with the above international studies.

Conclusion

Socio-demographic profile was characterized by male patients, as from the 16-45 years of life and housewives followed by garments workers. Low back pain is one of the most common cause of activity limitation in people younger than 45 years. Prolonged sitting was the aggravating factor for low back pain. A larger study is needed to explore these hypotheses further.

Acknowledgements

The authors are grateful to the entire staff of department of Physical Medicine and Rehabilitation at Dhaka Medical College Hospital, Dhaka during the study period.

Conflict of Interest

Authors declare no conflict of Interest.

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Original Article

Study of Bacteriological profile and their Antibiotic susceptibility profile of Bacterial respiratory tract infection among patient visiting outpatient department of respiratory medicine in a Tertiary Care Hospital in Bangladesh.

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Abstract

Background: Respiratory tract infections are the most commoninfectious diseases in human. It is a significant health concern for mortality and morbidity in many developing countries. Antibiotic susceptibility varies from country to country and even among the health centers. Proper identification of causative pathogens and their antibiotic susceptibility testing is needed to select appropriate antibiotic therapy for management of patient suffering from Respiratory tract infections.

Objectives: This study was aimed to determine the correct spectrum of bacterial pathogen causing respiratory tract infections with whir antimicrobial susceptibility profile of patient visiting outpatient department of respiratory medicine in Dhaka National Medical Institute Hospital, Bangladesh.

Methods: This cross sectional observational sturdy was conducted in Dhaka National medical Institute hospital form October 2020 to March 2021. A total of 135 sputum sample were collected aseptically from patients who were clinically suspected to have respiratory infection. Sputum sample received from the patient were culture, identified and antibiotic sensitivity pattern performed by standard methods.

Result: Out of 135 processed specimens 64(47.4%) yielded significant growth of Organism. Among 64 culture positive, 12 (18.75%) were gram positive Cocci, 52 (81.25%) were gram negative organism. The prevalence of the bacterial species among the gram positive were as fallows staphylococcus aureus 8 (66.67%) and streptococcus pneumonia 4(33.33%) among the gram negative isolates Klebsiellaspecies 25(48.07%) was the predominant followed by E.Coli 14(2692%), pseudomonas species 11(21.57%). Antimicrobial susceptibility pattern shown in total organism found that they are highly sensitive to Imipenem(100%), Amikacin (89%) Levofloxacin (88%), Ciprofloxacin (84%). Moxifloxacin (81%) and highly resistant to Amoxycillin (91%), Cefixime (66%) and Co-Amoxyclav (61%)

Conclusion: Gram negative bacteria were predominant, most of the bacteria showed high resistant to commonly used antibiotics and this antimicrobial resistances is a matter a concern for the treatment of respiratory tract infections.

Keywords: Antibiotic susceptibility, Respiratory tract infection (RTI), Culture sensitivity, Bangladesh.

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Introduction

Respiratory tract infections are termed as infectious diseases of the respiratory tract and are the leading illness globally.[1] These infections are classified as upper and lowerrespiratory tract infection and are the leading

cause of mortality and morbidity especially in developing countries. Respiratory infections are the leading cause of heavy burden to public health.[2] RTI is a spectrum of infections each with a different epidemiology, clinical presentation, pathogenesis and prognosis. The etiology, clinical features of respiratory disease very with age, gender, seasons, the type of population at risk and various other factors.[3] Respiratory infections impose a serious financial burden to the economy due to loss of productivity and cost of antimicrobial agent prescribed by physician even when bacteria are not the main cause of respiratory infection.[4] The etiological agents of respiratory tract infections cannotbe determine clinically and differ from area to area as well as their antibiotic susceptibility.[5] In developing countries the situation is more complicated and management is oftendifficult due to the problem associated with the identification of etiological agents and the administration of appropriate treatment in cases requiring antibiotic therapy.[6]

The Common bacterial causes of respiratory tract infections include Klebsiellapneumonia, Staphylococcus aureus, and streptococcus pneumonia, pseudomonas aeruginosa, Actionobacter spp. and Haemopnilusinfluenza, The responsible pathogens are identified in about half of the patents and physician usually rely on clinical signs and symptoms of the patient to diagnosis respiratory tract infection.[6,7]

Methods

This descriptive Cross Sectional study was carried out between the month of October 2020 to March 2021. A total of 135 patient of aged between 15 to 75years irrespective of sex clinically suspected to have respiratory tract infection and those who had not taken antibiotic for a week prior to symptoms were randomly sampled from outpatient department of Respiratory Medicine of Dhaka National Medical Institute Hospital , Bangladesh.

Patient age below, 15 years and those who had antibiotics a week prior to symptoms and those whose sputum smear were positive for acid fast bacilli were excluded from the study. Sputum samples were collected aseptically for processing. Every patient was instructed on how to collect the sputum sample. Samples were taken to the microbiology laboratory immediately for analysis.

Processed sputum samples were cultured on sterile sheep blood agar, MacConKeys's agar and Chocolate agar plates. The identification ofsignificant isolates were carried out using the standard microbiological techniques, which involved morphological study of colonies. Gram staining reactions and a battery of biochemical test as required.

Antimicrobial susceptibility pattern of isolated organisms were done by the modified Kirby-Bauer disc diffusions method on Mueller-Hinton agar plates as per the CLSI guidelines using commercially available antibiotic discs, such as Amoxicillin, Co- Amoxyclav, Cefuroxime, Cefixime, Ceftriaxone, Co-trimoxazole, Ciprofloxacin, Levofloxacin, Moxifloxacin, Azithromycin, Clarithromycin, Amikacin, Doxycycline, Clindamycin, Imipenem, Lenizolide.

Result

One hundred and thirty five sputum samples were collected from OPD who presented with symptom of respiratory tract infections. The age of the study population ranged from 15to 75 years. Among 135 sputum samples positive bacterial growth was recorded in 64 (47.40%) of the samples. Most of the bacterial pathogens were obtained from male patients 40 (62.5%) while female patients contribute only 24 (37.5%);this showing a male sex predilection (FigureII), the highest isolation rate was observed in above 64 years of age group (Figure I).

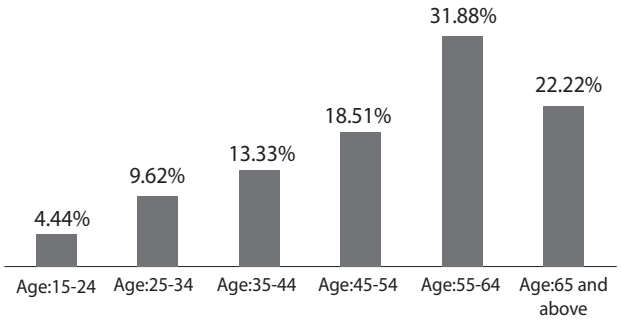

Figure-I : Age distribution of cases (n=135)

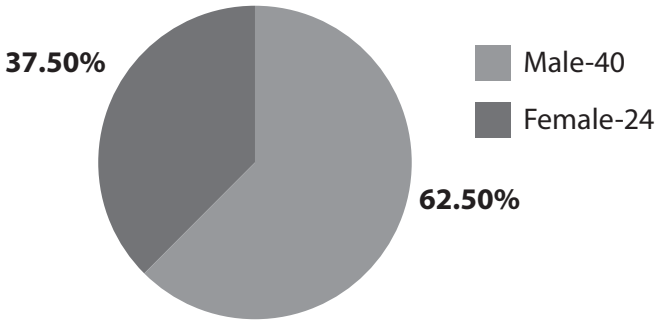

Figure-II: Gender Distribution Of Culture Positive Cases (n=64)

Among the 12 Gram positive cases staph. Aureus 8 (66.67%) was the predominant followed by strep. Pneumoniae 4 (33.33%) (Figure IV).

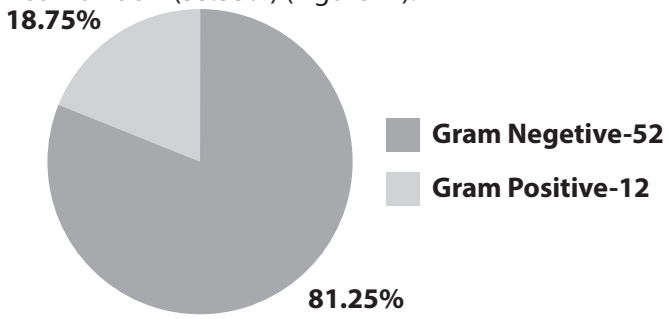

Figure-III: Distribution of culture positive cases (n=64)

Among the 64 culture positive 12 (18.75%) were Gram positive Cocci and 52 (81.25%) were Gram negative organism (Figure III).

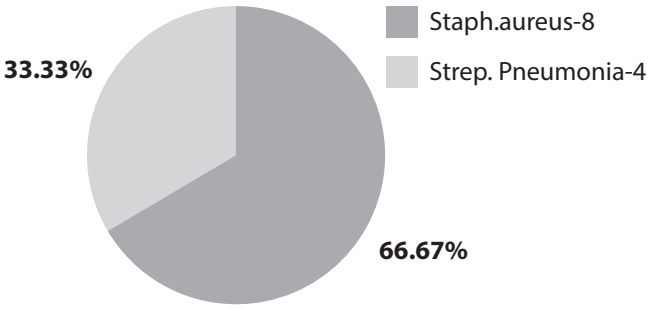

Figure-IV: Distribution of gram positive cases (n=12)

Among the Gram Negative organism ,Klebsiella species 25 (48.07%) was the predominant followed by E.Coli 14 (26.92%) and pseudomonas species 11(21.5%) (Figure IV).

Antimicrobial susceptibility pattern showing intotal organism found to be highly sensitive to Imipenem (100%), Amikacin (89%),

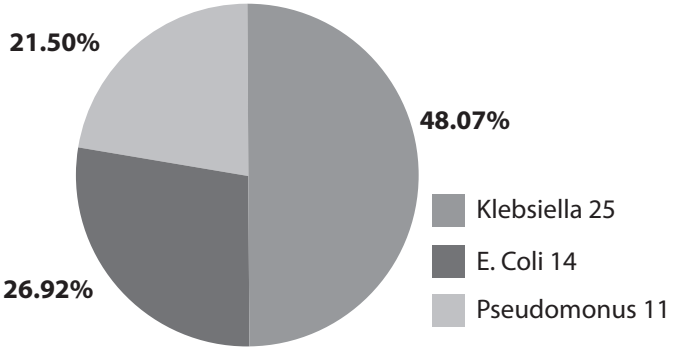

Figure-V: Distribution of predominant Gram Negetive Bacteria

Among the 12 Gram positive organism staphylococcus aureus showed 100% susceptibility to Lenizolide and most gram negative organism exhibited higher sensivity to carbapenems.

Levofloxacin (88%), Ciprofloxacin (84%), Moxifloxacin (81%) and highly resistance toAmoxycillin (91%), Cefixim e (66%) and Co-Amoxyclav (61%) (Table-I)

Table-I: Antimicrobial susceptibility pattern

SL. NO.	Name of Antibiotic	Sensitivity Total %	Moderate Total %	Resistant Total %
1.	Imipenem	64	100	0000
2.	Amikacin	57	89	2358
3.	Levofloxacin	56	88	4646
4.	Ciprofloxacin	54	84	43813
5.	Moxifloxacin	52	81	6935
6.	Cefuroxime	41	64	581828
7.	Cefixime	91	41	3204266
8.	Ceftriaxone	33	961	582037
9.	Co-Amoxyclav	15	23	10163961
10.	Cotrimoxazole	26	41	8133047
11.	Azithromycin	38	59	15231117
12.	Clarithromycin	32	50	21331117
13.	Doxycycline	45	70	691523
14.	Clindamycin	20	31	23362133
15.	Amoxycillin	00	69	5891
16.	Lenizolide	10	16	235281

Discussion

Respiratory tract infections are among the most common infectious disease causing significant morbidity and mortality. An expanded variety of emerging pathogens provides challenges for the respiratory physicians. In recent years, there has been substantial rise in antibiotic resistance among respiratory pathogens. The main objective of this study was to ascertain the current prevalence of bacteria responsible on respiratory tract infection and their antibiotic sensitivity pattern among patient visiting respiratory medicine outpatient department in DNMIH, Bangladesh.

In this present study 64 (47.4%) were found positive for bacterial growth among 135 patients. The negative result of the sputum culture among the respiratory tract infections patient could be due to the fact that this patient might have been infected by other a etiologicalagents such as virus, Legionellapneumoniae,

Among the 12 Gram positive cases staph. Aureus 8 Chlamydia pneumonia or Mycoplasma pneumonia which cannot be routinely cultured in the laboratory. Another possibility could be due to previous treatment with antibiotic that was hidden in the history. It was reported that one-fifth of the patients in the rural area of Bangladesh uses antibiotics before coming to a hospital.[8] Limitations of the study was that serological tests for Legionella pneumoniae, Mycoplasma pneumoniae and common respiratory viruses were not performed and thus, these organisms which are common causative agents in atypical pneumonia might just remain as possible diagnosis in the culture negative cases. Besides DNA of this organisms could be detected by PCR.

In this present study, among 135 patients 64 (47.40%) were found to be positive for bacterial growth, which was similar with other study, 40% in an Irany study,[9] 47.7% in Ludiana study.[10] But several studies showed higher isolation rate. 53.1% in China,[11], 59.4% Turkey.[12] Among the 64 positive cases 52 were gram negative 81.25% and gram positive were 12 (18.75%).Among the gram negative cases, Klebsiellapneumoniae was predominant 25 (48.07%) followed by E.Coli 14 (26.9%).

Among total 64 culture positive cases most predominant was also Klebsiella (48.07%) followed by E.Coli 14 (26.92%). The result was similar with other studies as done by Olugbueet V, al el[13] and Akingbade, Oetal.[14]

Incident of bacterial respiratory infections were more prevalent in age group 55 to 74 years (52.59%) which was similar with the finding study done by Shahet al,[15] and Mandell et al.[16] The increased vulnerability in the geriatric population may be due to their age related physiological and immunological changes and other co-morbidities like DM, COPD.

The organisms showed higher sensitivity to Imipenem (100%), Amikacin (89%), Levofloxacin (88%), Ciprofloxacin (84%), and Moxifloxacin (81%). Regarding resistance pattern high resistance to Amoxycillin (91%), Cefixime (66%), and Co-Amoxyclav (61%) was recorded.

Conclusion

Gram negative organisms were the predominant isolates of respiratory tract infections with Klebsiellapneumoniae as the most common isolates. Gram negative bacteria as well as gram positive bacteria were highly resistance to commonly used antibiotics, should be considered as a cause of concern. So routine approach of antimicrobial susceptibility, continuous surveillance of microbial aetiolog of RTI with their resistance pattern and good infection control practices will help to reduce the burden of drug resistance and thereby helps medical practioners to better management of patients.

Recommendations

Recommendations of initial therapy are based on the severity of illness; the probabilities of pathogens in specific geographical areas, resistance patterns of the most commonly implicated ethological agents and co morbidities. The dramatic rise in the antimicrobial resistance among the respiratory pathogens is a matter of potential concern Worldwide . Excessive and inappropriate use of antibiotic is considered as a major cause of antibiotic resistance in developing country.The increase use of over-the-counter antibiotic not only produces resistance at the individual level but can also threaten the whole community. Therefore, the main objective of this study is to find out the common bacterial agent of RTI and their antibiotic susceptibility pattern among patients in Respiratory medicine OPD of Dhaka National Medical Institute Hospital.

Limitations

This study did not include the inpatient as study population because majority of them were on antibiotics. Serological tests for Legionella pneumoniae, Mycoplasma pneumoniae and common respiratory viruses were not performed. DNA of these organisms not detected by PCR.

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Conflict interest

None.

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